TIMBERWOLF ENVIRONMENTAL

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Accepted for the record - 03/26/2024

NV

July 13, 2023

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

Re: Status Report – 2nd Quarter 2023
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 2nd quarter of 2023 (2Q23) 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, with an average site elevation of 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)).

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 and the tank was removed from service and disposed of off-site. In the initial investigation, the previous location of the tank battery was identified 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 primary constituents of concern (COC) to be 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) and 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 eleven SVE wells, four vent wells, and an 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 Figures 4 and 5.

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 – 4th Quarter 2019,* dated 01/31/20
- *Status Report – 1st Quarter 2020,* dated 04/30/20
- *Status Report – 2nd Quarter 2020,* dated 09/03/20
- *Status Report – 3rd Quarter 2020,* dated 11/25/20
- *Status Report – 4th Quarter 2020,* dated 01/28/21
- *Status Report – 1st Quarter 2021,* dated 05/05/21
- *Status Report – 2nd Quarter 2021,* dated 07/28/21
- *Status Report – 3rd Quarter 2021,* dated 10/29/22
- *Status Report – 4th Quarter 2021,* dated 01/28/22

- *Status Report – 1st Quarter 2022,* dated 04/13/22
- *Status Report – 2nd Quarter 2022,* dated 07/14/22
- *Status Report – 3rd Quarter 2022,* dated 10/14/22
- *Status Report – 4th Quarter 2022,* dated 01/12/23
- *Status Report – 1st Quarter 2023,* dated 04/10/23
- *Soil Monitoring Results and In-Situ Remediation Proposal*, dated 06/27/23

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. Between 04/01/23 and 05/08/23, SVE wells were configured as shown in Figure 4. Based on the field screening of subsurface soil during soil monitoring conducted on 05/08/23, the SVE wells were reconfigured as shown in Figure 5. The purpose of the reconfiguration was to increase airflow at the southwest corner of the Site. Programmed runtimes are presented in Tables 1 and 2 below.

Table 1. Programmed Runtimes and Leg Configurations (04/01/23 – 05/08/23)

Leg	SVE Wells and Location	Scheduled Runtime
Leg 1	Deep Wells SVE7, SVE8, and SVE9 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 Central and Western side of treatment zone	4 hours

SVE – soil vapor extraction

Table 2. Programmed Runtimes and Leg Configurations (05/09/23 – 06/30/23)

Leg	SVE Wells and Location	Scheduled Runtime
Leg 1	Deep Wells SVE7, SVE8, and SVE9 Eastern side of treatment zone	3.5 hours
Leg 2	Shallow Wells SVE1, SVE2, SVE3, and SVE4	1 hour
Leg 3	Deep Wells SVE5, SVE6, SVE10, and SVE11 Central and Western side of treatment zone	3.5 hours

SVE – soil vapor extraction

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. No water or condensate was recovered during 2Q23. SVE system runtime for 2Q23 is documented in Table 2 below.

Table 3. System Runtime – 2Q23

Date	Hour Meter
03/27/23	8,228.3
04/14/23	8,658.7
04/27/23	8,968.5
05/09/23	9,229.3
06/09/23	9,969.5
06/21/23	10,257.7
Total Runtime	**2,029.4**

*Total runtime based on hour meter readings and Cygnet remote monitoring data

System runtime between the last 1Q23 reading (03/27/23) and the latest 2Q23 reading (06/21/23) is 2,029.4 hours. The available hours during this period were 2,064. The system was down for 26 hours during soil assessment activity, which was conducted on 05/08/23, leaving 2,038 available hours for system operation. This yields a runtime percentage (%) of 99.6 for 2Q23. Photographs of relevant meter readings are documented in the attached Photographic Log.

Hilcorp personnel conducted four (4) operation and maintenance (O&M) events and Timberwolf personnel conducted one (1) O&M event during 2Q23. A field log of O&M events and maintenance performed is provided in the Attached Table A-1.

Collection and Analysis of Soil-Gas Sample

On 06/21/23, Hilcorp personnel collected a quarterly soil-gas sample utilizing a vacuum pump and Tedlar® bag. The vacuum pump was connected to the SVE systems sampling port while all three legs were open. The valve on the sampling port was then opened as the pump was activated to purge ambient air from the connecting tubing and pump.

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

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

Table 4. Quarterly Soil-Gas Analysis – 06/21/23

Constituents	SVE-1
Volatile Organic Compounds, mg/m³	
Benzene	2.3
Ethylbenzene	1.9
Toluene	34
1,2,4-Trimethylbenzene	0.87
1,3,5-Trimethylbenzene	1.7
Total Xylenes	25
Gasoline Range, mg/m³	
TPH (GC/MS) Low Fraction (i.e., GRO)	1,900
Gases, Mol %	
Oxygen	21.37
Carbon Dioxide	0.46

mg/m³ – milligrams per cubic meter
Mol % – mole percent
TPH – total petroleum hydrocarbons
GRO – gasoline range organics

Mass Removal

Timberwolf used the laboratory results from a soil-gas sample (as reported in Table 4) flow rates, and runtimes to calculate constituent mass removal. Mass removal of GRO, BTEX, and associated recovered volumes for 2Q23 are presented in Table 5 below; cumulative totals are provided in the Attached Table A–2.

Table 5. Mass Removal and Associated Volume – 2Q23

Constituent	Mass Removal (kg)[1]	Total Mass Removed[2] (lbs)	Recovered Volume[3] (bbl)
GRO	76.4	168.2	0.62
Benzene	0.10	0.20	0.00
Toluene	1.37	3.01	0.01
Ethylbenzene	0.08	0.17	0.00
Xylenes	1.01	2.21	0.01

[1]Calculation = minutes ran * CFM * Concentration (mg/m³) * 1 M³/35.3147 ft³ *1g/1000 mg * 1 kg/1000 g
[2]Calculation = Mass Removal in kg * 2.2 lbs/kg
[3]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 calculations based on hour meter readings on 03/27/23 and 06/21/23 and automation times in Tables 1 and 2.

Soil Assessment

On 05/08/23, Timberwolf collected twelve (12) soil samples from four (4) soil monitoring borings (i.e., SM1, SM2, SM3, and SM4) to evaluate the effectiveness and remedial progress of the SVE treatment.

One boring (SM1) was situated near the center of the SVE treatment area; three (3) borings (SM2, SM3, and SM4) were situated near the perimeter of the SVE treatment area. Soil borings are shown in Figure 6.

The borings were installed using a rotary rig and hollow-stem augers. Three (3) soil samples were collected from each boring. Each boring was field screened for VOCs using a photoionization detector (PID). The following soil intervals from each boring were selected for laboratory analysis:

- Highest PID readings from the unconsolidated zone (i.e., 0-9.5 ft)
- Highest PID readings from the consolidated zone (i.e., 9.5-30 ft)
- Boring terminus (i.e., 29-30 ft)

The analytical results indicate that two samples (i.e., SM1 6.5-8.5' and SM3 8.5-9.5') exceeded New Mexico Oil Conservation Division (NMOCD) site-specific closure criteria in samples collected from the unconsolidated zone. Specifically, Total BTEX concentrations in SM1 6.5-8.5' was 71.4 mg/kg and GRO+DRO concentrations in SM1 6.5-8.5' and SM3 8.5-9.5 were 1,120 mg/kg and 1,810 mg/kg, respectively. All samples collected from the consolidated zone were below regulatory criteria. Analytical results are provided in the embedded table in Figure 6.

The SVE system effectively treated the consolidated zone and continued operation would likely remediate the unconsolidated zone. However, in-situ remediation is the preferred treatment remedy to provide more immediate results. Details regarding Site sampling, analytical results, and in-situ remediation proposal for remaining soil impacts are documented in Timberwolf's *Soil Monitoring Results and In-Situ Remediation Proposal*, dated 06/27/23. [Note: On 07/11/23, NMOCD staff approved Hilcorp's proposal for in-situ remediation of impacted soils within the unconsolidated zone.]

Summary

System runtime during 2Q23 was 99.6% of total available hours during the period. Runtime hours are based on hour meter readings collected on 03/27/23 and 06/21/23 and automation times in Tables 1 and 2.

During 2Q23, no water and/or condensate were recovered. Mass removal calculations indicated the following product recovery during the quarter:

- 0.62 bbl of GRO
- 0.20 lbs of benzene
- 3.01 lbs of toluene
- 0.17 lbs of ethylbenzene
- 2.21 lbs of xylene

Additionally, samples collected from four soil borings within the SVE treatment zone revealed that:

- consolidated zone (9.5-30 ft) has been fully remediated to NMOCD criteria
- two of the four borings in the unconsolidated zone met NMOCD criteria
- samples collected from the unconsolidated zone in the 6.5-9.5 ft depth interval at SM1 and SM3 were elevated for Total BTEX and/or GRO+DRO

Further Actions – 3rd Quarter 2023

During 3Q23, the following activities are planned for the Site:

- Continue SVE operation until in-situ soil remediation of the unconsolidated zone is initiated; conduct bi-weekly Site O&M to ensure proper system function and drain any water/ condensate accumulation from the moisture separator as needed
- Conduct in-situ soil remediation of unconsolidated zone as approved by NMOCD staff
    - Discontinue SVE operations
    - Plug and abandon all SVE wells and vents
    - Treat impacted soil as described in Timberwolf's *Soil Monitoring Results and In-Situ Remediation Proposal*, dated 06/27/23, including advance notice to NMOCD
- Prepare a 3Q23 status report

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: Kate Kaufman, Hilcorp Energy Company

Figures

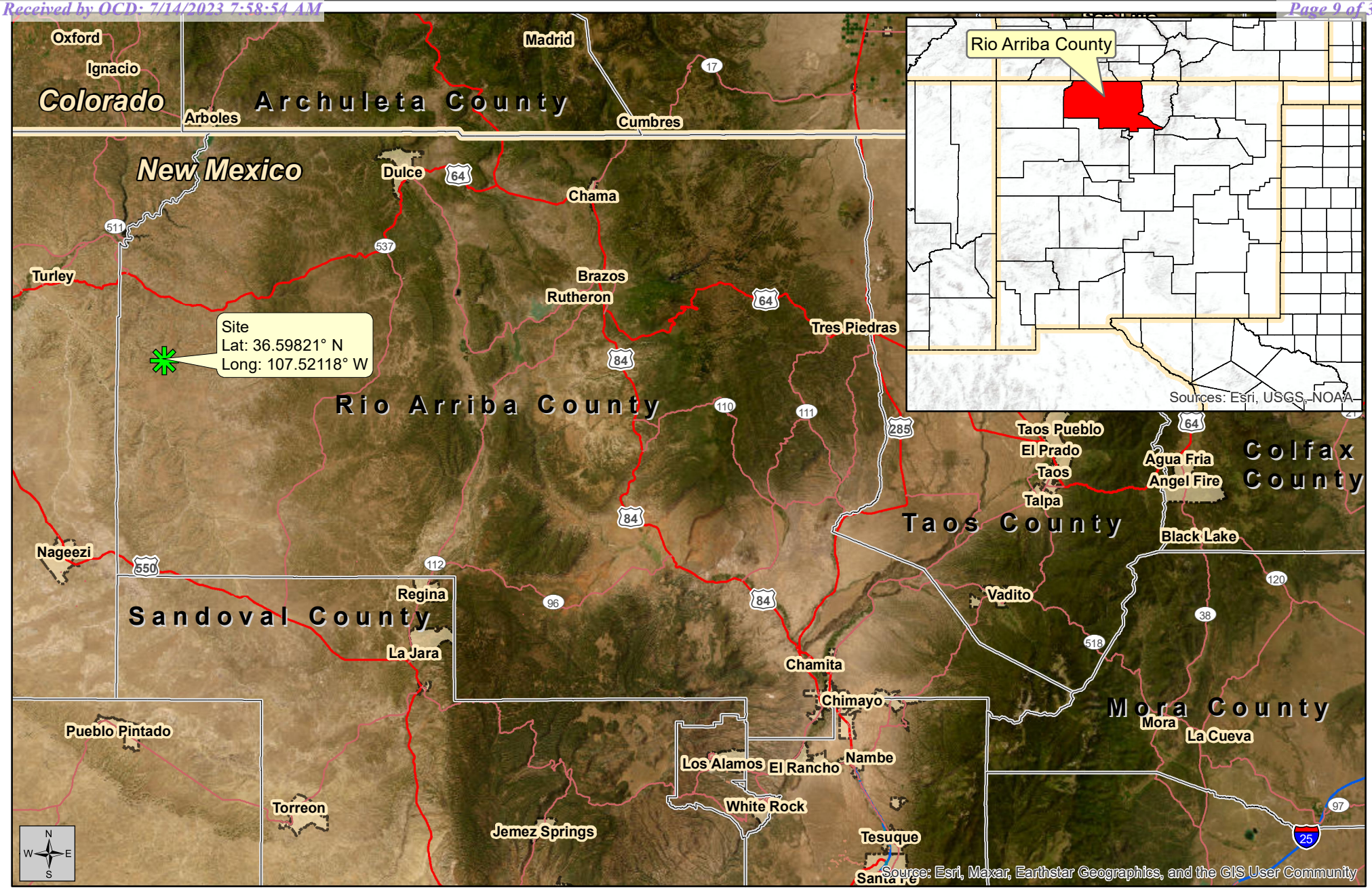


Figure 1 **Site Location Map**	**Status Report - 2nd Quarter 2023**	**July 11, 2023**
TIMBERWOLF ENVIRONMENTAL	1:1,250,000 0 20 40 60 80 100 120 Miles **San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)** **Hilcorp Energy Company** **Rio Arriba County, New Mexico**	Site
Created By: Brett Berno TE Project No.: HEC-190007	Datum: NAD83 Imagery Source: ESRI Vector Source: ESRI and TE	

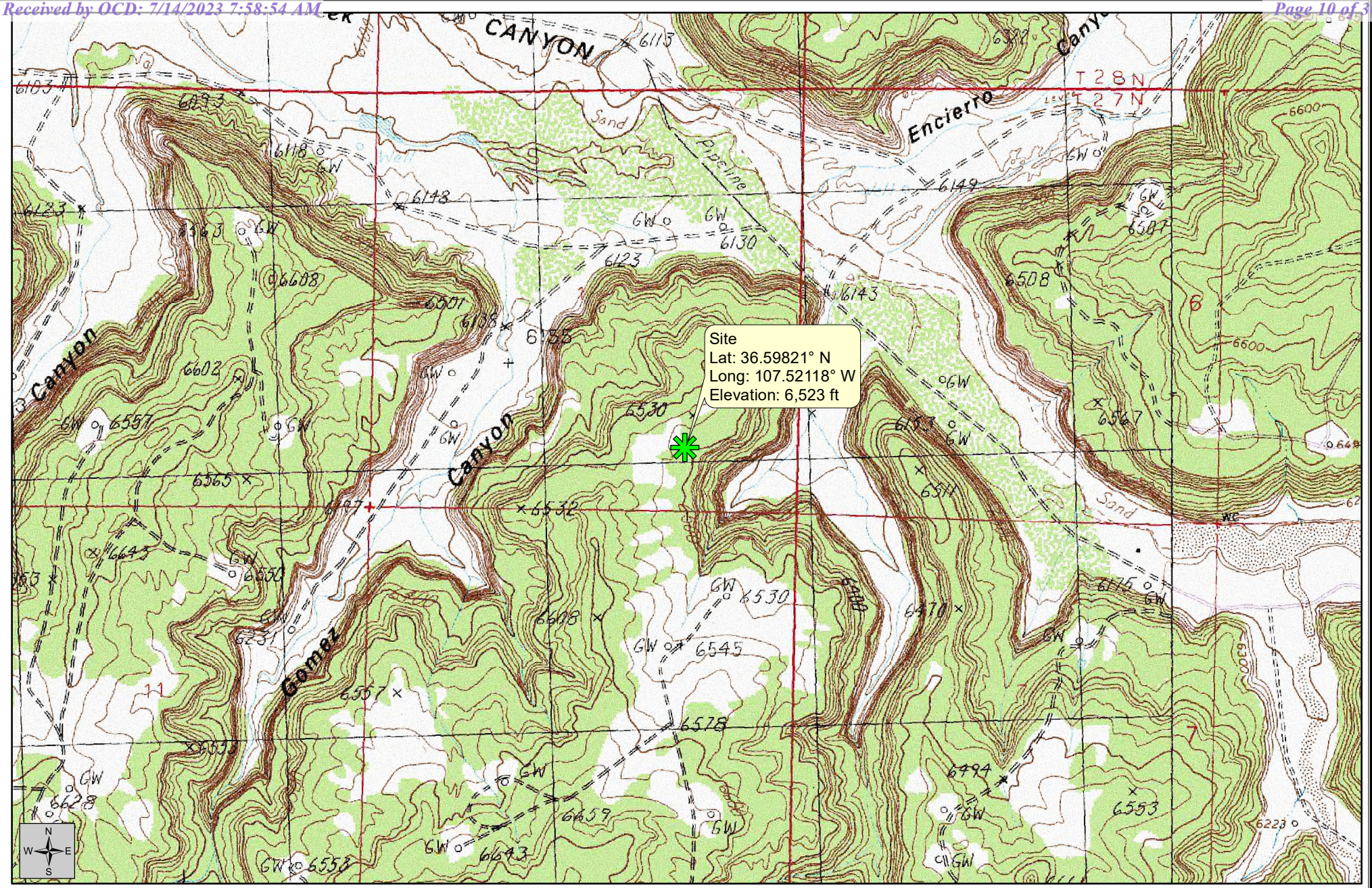


Figure 2 **Topographic Map**	**Status Report - 2nd Quarter 2023**	**July 11, 2023**

1:24,000

0 0.5 1 1.5 2 Miles

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

TIMBERWOLF ENVIRONMENTAL

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

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

Site

Figure 3 **Aerial Map**	**Status Report - 2nd Quarter 2023**	**July 11, 2023**

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

TIMBERWOLF ENVIRONMENTAL

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

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Site

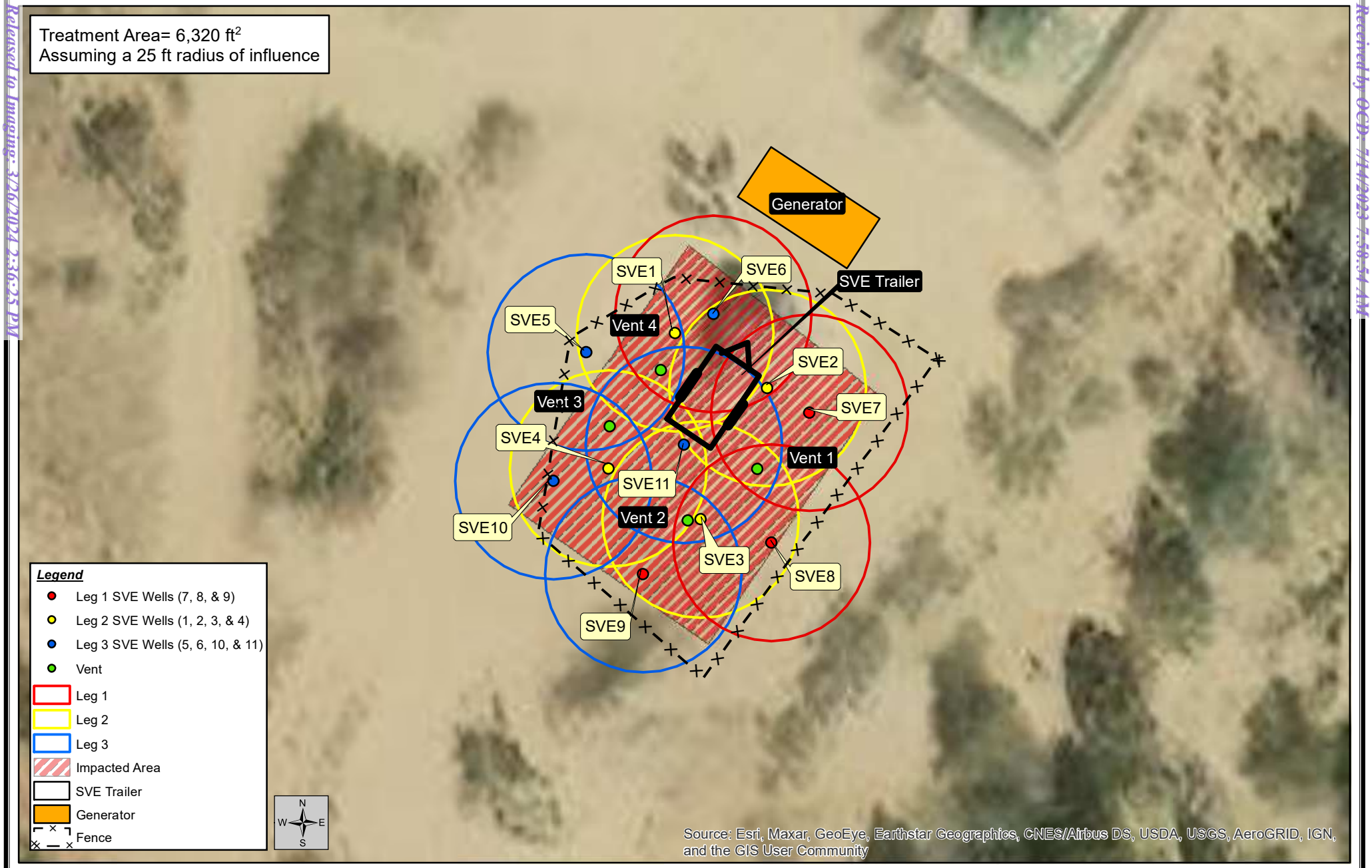


Figure 4
SVE System Overview
(04/01/23 - 05/08/23)

Status Report - 2nd Quarter 2023

July 11, 2023

1:250

0 25 50 75 100 125 Feet

TIMBERWOLF ENVIRONMENTAL

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

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

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

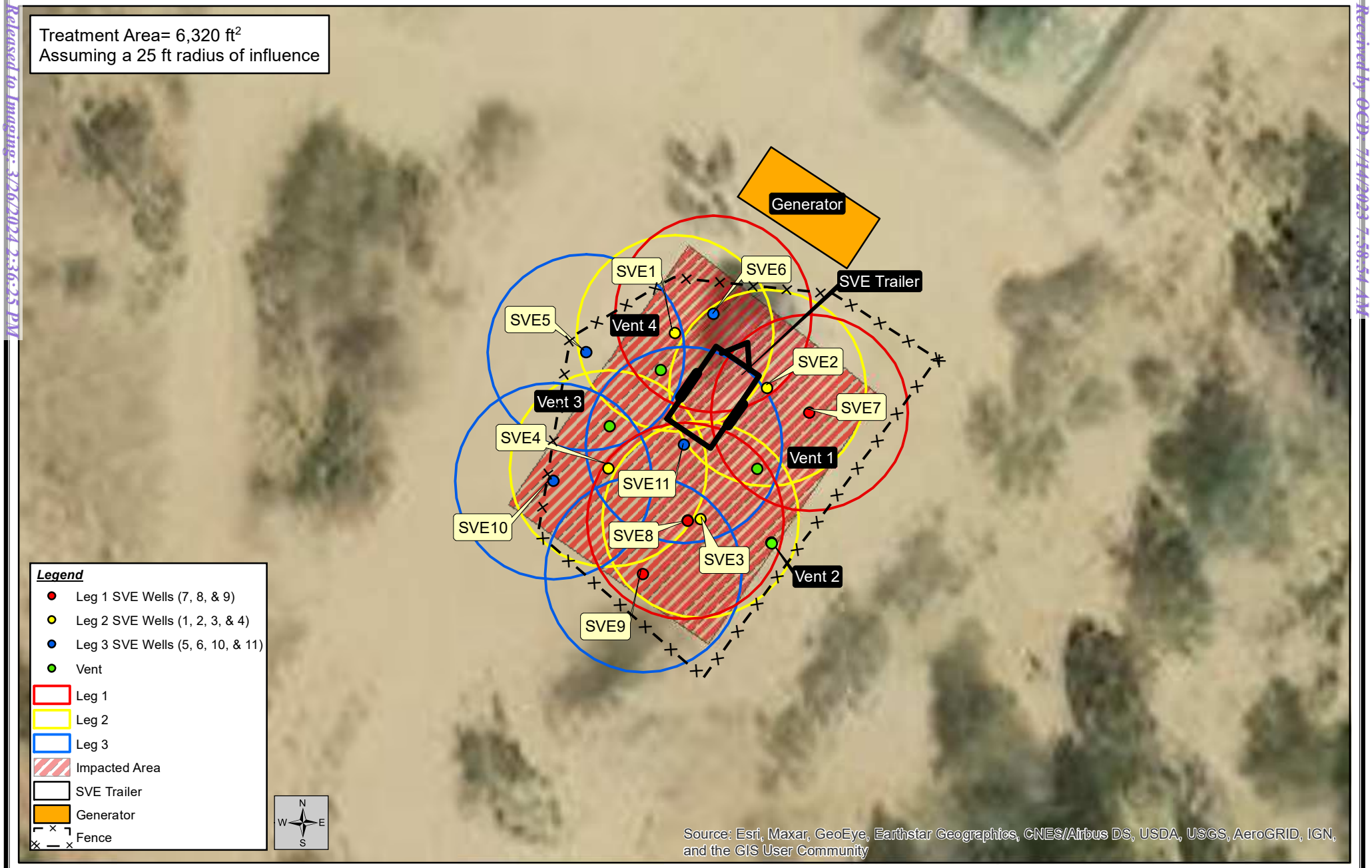


Figure 5
SVE System Overview
(05/09/23 - 06/30/23)

Status Report - 2nd Quarter 2023

July 11, 2023

1:250

0 25 50 75 100 125 Feet

TIMBERWOLF ENVIRONMENTAL

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

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

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Sample ID	Sample Date	Volatile Organic Compounds (mg/kg)				Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	GRO + DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
		B	T	E	X							
SM1 6.5-8.5'	05/08/23	< 0.12	16	4.4	51	71.4	740	380	< 50	1,120	1,120	< 60
SM1 15-16'	05/08/23	< 0.12	< 0.24	< 0.24	< 0.48	< 0.48	100	230	< 48	330	330	< 60
SM1 29-30'	05/08/23	< 0.12	< 0.24	0.48	4.4	4.88	84	44	< 47	128	128	< 60
SM2 7-8'	05/08/23	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	< 4.8	< 9.6	< 48	0	0	< 60
SM2 25-26'	05/08/23	< 0.050	< 0.10	0.55	5.5	6.05	67	< 9.1	< 46	67	67	< 60
SM2 29-30'	05/08/23	< 0.049	< 0.097	< 0.097	< 0.19	< 0.097	< 9.7	29	< 50	29	29	< 60
SM3 8.5-9.5'	05/08/23	< 0.049	< 0.097	2.2	8.8	11	1,200	610	< 50	1,810	1,810	< 59
SM3 25-26'	05/08/23	< 0.024	0.18	0.13	1.2	1.51	22	14	< 49	36	36	< 60
SM3 29-30'	05/08/23	< 0.049	1.8	1.7	14	17.5	250	17	< 50	267	267	< 60
SM4 2-3'	05/08/23	< 0.025	< 0.050	< 0.050	< 0.10	< 0.050	< 5.0	< 10	< 50	0	0	< 60
SM4 20-21'	05/08/23	< 0.025	0.091	0.11	0.79	0.991	23	19	< 50	42	42	< 60
SM4 29-30'	05/08/23	< 0.023	< 0.047	< 0.047	< 0.093	< 0.093	< 4.7	< 9.5	< 48	0	0	< 60
Regulatory Criteria		10	--	--	--	50	--	--	--	1,000	2,500	600

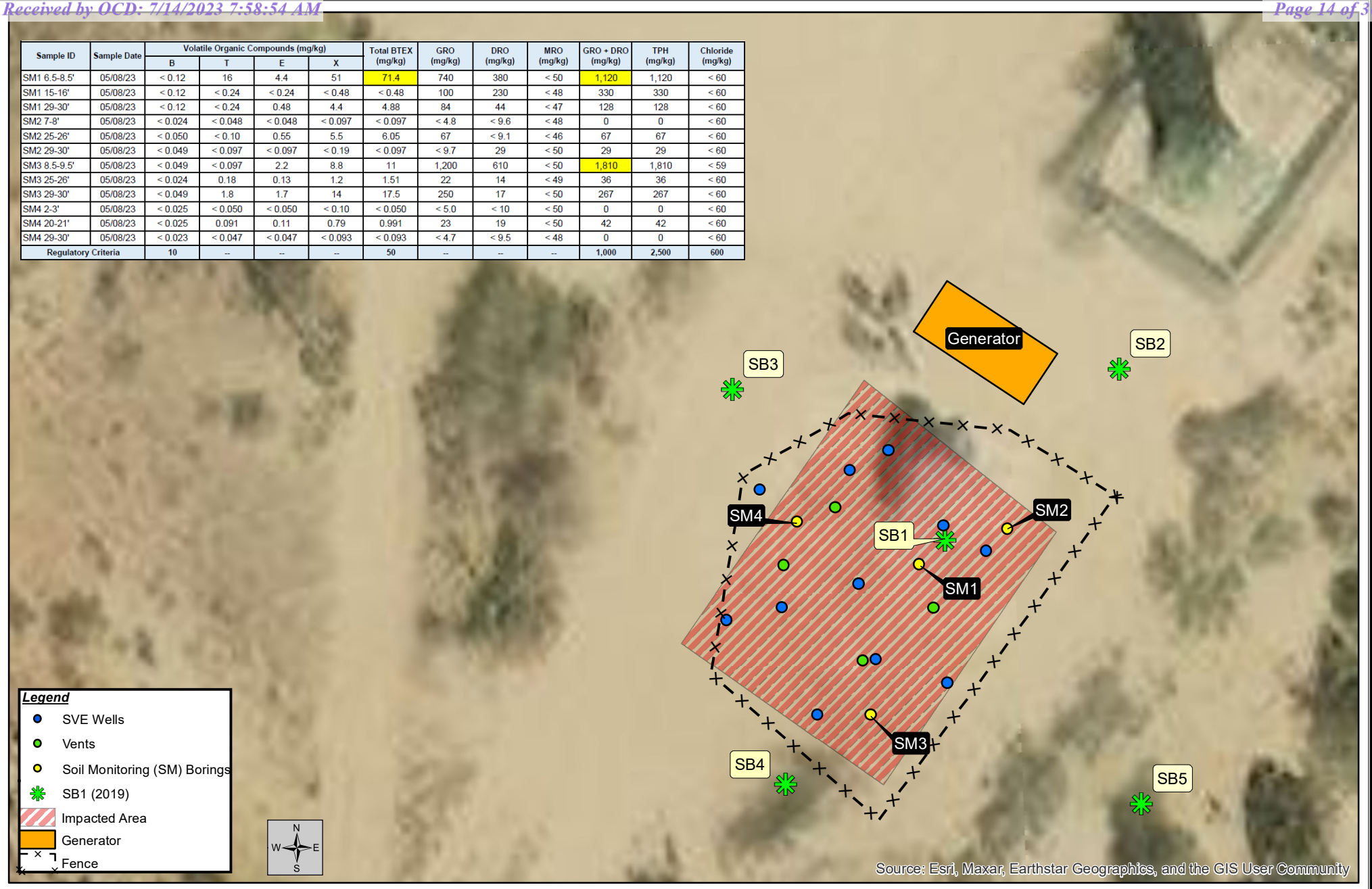


Figure 6
Soil Boring Location Map

Status Report - 2nd Quarter 2023

Sample Date
May 8, 2023

1:250

0 25 50 75 100 125 Feet

TIMBERWOLF ENVIRONMENTAL

Created By:
Kevin Cole
July 13, 2023
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: ESRI
Vector Source: TE

Attached Tables

Table A-1. Operation and Maintenance Events
Status Report - 2nd Quarter 2023
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)
Rio Arriba County, New Mexico

Date	Hour Meter (hrs)	Water/Condenstate Recovered (gal)	Maintenance Performed
04/14/23	8,658.7	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
04/27/23	8,968.5	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
05/09/23	9,229.3	0	• Jim Foster with Timberwolf performed SVE system reconfiguration and O&M checks. Leg 1: vacuum balanced to 4.4 in-Hg at 8.0 CFM; Leg 2 vacuum balanced to 3.6 in-Hg at 15 CFM; Leg 3 vacuum balanced to 3.0 in-Hg at 12 CFM. • SVE system was down for 26 hours due to drilling activity.
06/09/23	9,969.5	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
06/21/23	10,257.7	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.

gal – gallons

hrs – hours

Table A-2. Cumulative Mass Removal
Status Report - 2nd Quarter 2023
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)
Rio Arriba County, New Mexico

Quarter	Constituent (lbs)					Recovered 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
1Q23	1.35	14.6	0.68	8.29	501.8	1.86
2Q23	0.20	3.01	0.17	2.21	168.2	0.62
Total	83.5	313.6	29.3	120.3	7,835.7	29.1

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

lbs – pounds

bbl – barrels

Table A-3. Soil-Gas Analysis - 06/21/23
Status Report - 2nd Quarter 2023
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)
Rio Arriba County, New Mexico

Constituents	SVE-1
Volatiles (µg/m^3)	
Acetone	< 5,000
Benzene	2,300
Bromodichloromethane	< 500
Bromoform	< 500
Bromomethane	< 1,000
Carbon disulfide	< 5,000
Carbon tetrachloride	< 500
Chlorobenzene	< 500
Chloroethane	< 1,000
Chloroform	< 500
Chloromethane	< 500
2-Chlorotoluene	< 500
Cyclohexane	--
Dibromochloromethane	< 500
1,2-Dibromoethane	< 500
1,2-Dichlorobenzene	< 500
1,3-Dichlorobenzene	< 500
1,4-Dichlorobenzene	< 500
1,2-Dichloroethane	< 500
1,1-Dichloroethane	< 500
1,1-Dichloroethene	< 500
cis-1,2-Dichloroethene	< 500
trans-1,2-Dichloroethene	< 500
1,2-Dichloropropane	< 500
cis-1,3-Dichloropropene	< 500
trans-1,3-Dichloropropene	< 500
Ethylbenzene	1,900
Trichlorofluoromethane	< 500
Dichlorodifluoromethane	< 500
Heptane	--
Hexachloro-1,3-butadiene	< 500
n-Hexane	--
Isopropylbenzene	< 500
Methylene Chloride	< 1,500
Methyl Cyclohexane	--
2-Butanone (MEK)	< 5,000
4-Methyl-2-pentanone (MIBK)	< 5,000
MTBE	< 500
Naphthalene	< 1,000
Styrene	< 500

Table A-3. Soil-Gas Analysis - 06/21/23
Status Report - 2nd Quarter 2023
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)
Rio Arriba County, New Mexico

Constituents	SVE-1
1,1,2,2-Tetrachloroethane	< 500
Toluene	34,000
1,2,4-Trichlorobenzene	< 500
1,1,1-Trichloroethane	< 500
1,1,2-Trichloroethane	< 500
1,2,4-Trimethylbenzene	870
1,3,5-Trimethylbenzene	1,700
2,2,4-Trimethylpentane	--
Vinyl chloride	< 500
Total Xylene	25,000
Gasoline Range (µg/m^3)	
Gasoline Range Organics (GRO)	1,900,000
Gases (Mol %)	
Oxygen	21.37
Carbon Dioxide	0.46
Methane	< 0.01

µg/m^3 – micrograms per cubic meter

Mol % – mole percent

Photographic Log

TIMBERWOLF ENVIRONMENTAL

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

PHOTOGRAPHIC LOG

Project No.:	HEC-190007	**Client:**	Hilcorp Energy Company
Project Name:	San Juan 28-7 Unit 183M	**Site Location:**	Rio Arriba County, New Mexico
Task Description:	Status Report – 2nd Quarter 2023	**Date:**	April – June, 2023

Photo No.: 1

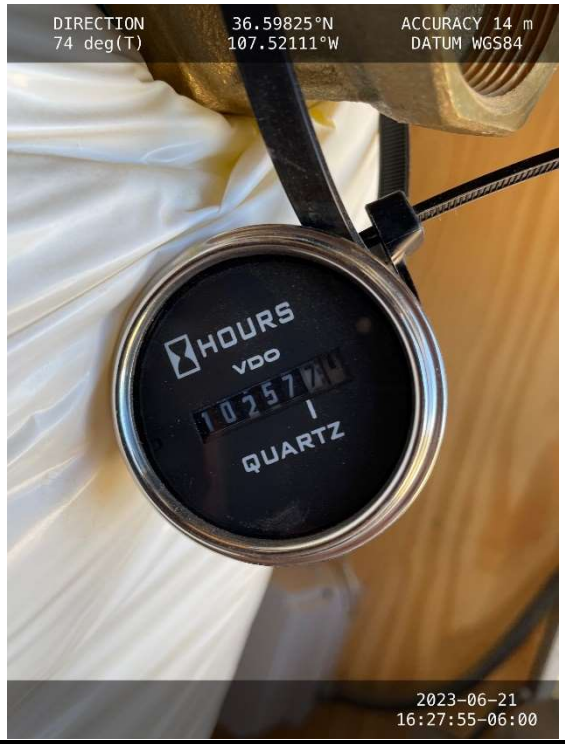
Direction: N/A

Comments: View of hour meter on 04/14/23.

Photo No.: 2

Direction: N/A

Comments: View of hour meter on 06/21/23.



TIMBERWOLF ENVIRONMENTAL

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979.324.2139
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PHOTOGRAPHIC LOG

Project No.:	HEC-190007	**Client:**	Hilcorp Energy Company
Project Name:	San Juan 28-7 Unit 183M	**Site Location:**	Rio Arriba County, New Mexico
Task Description:	Status Report – 2nd Quarter 2023	**Date:**	April – June, 2023

Photo No.: 3

Direction: Northeast

Comments: View of SVE system after reconfiguration following drilling activities for soil monitoring.

05/09/23 13:00

Photo No.: 4

Direction: Northwest

Comments: View of drilling activities during soil monitoring. Soil boring location for SM2.

05/08/23 15:30

Laboratory Data and Chain-of-Custody Documents

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 11, 2023

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

RE: SJ 29 7 Unit 183 M OrderNo.: 2306C76

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/24/2023 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 29, 2023.

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. 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. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2306C76**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SVE-1
Project: SJ 29 7 Unit 183 M
Collection Date: 6/21/2023 4:40:00 PM
Lab ID: 2306C76-001 **Matrix:** AIR
Received Date: 6/24/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	1900	50		µg/L	10	6/26/2023 2:38:52 PM
Surr: BFB	250	15-412		%Rec	10	6/26/2023 2:38:52 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
Benzene	2.3	0.50		µg/L	5	7/5/2023 11:15:30 AM
Toluene	34	0.50		µg/L	5	7/5/2023 11:15:30 AM
Ethylbenzene	1.9	0.50		µg/L	5	7/5/2023 11:15:30 AM
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2,4-Trimethylbenzene	0.87	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,3,5-Trimethylbenzene	1.7	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Naphthalene	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
1-Methylnaphthalene	ND	2.0		µg/L	5	7/5/2023 11:15:30 AM
2-Methylnaphthalene	ND	2.0		µg/L	5	7/5/2023 11:15:30 AM
Acetone	ND	5.0		µg/L	5	7/5/2023 11:15:30 AM
Bromobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Bromodichloromethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Bromoform	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Bromomethane	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
2-Butanone	ND	5.0		µg/L	5	7/5/2023 11:15:30 AM
Carbon disulfide	ND	5.0		µg/L	5	7/5/2023 11:15:30 AM
Carbon tetrachloride	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Chlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Chloroethane	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
Chloroform	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Chloromethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
2-Chlorotoluene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
4-Chlorotoluene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
cis-1,2-DCE	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
Dibromochloromethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Dibromomethane	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
1,2-Dichlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,3-Dichlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,4-Dichlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Dichlorodifluoromethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1-Dichloroethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1-Dichloroethene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306C76**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SVE-1
Project: SJ 29 7 Unit 183 M
Collection Date: 6/21/2023 4:40:00 PM
Lab ID: 2306C76-001 **Matrix:** AIR **Received Date:** 6/24/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
1,2-Dichloropropane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,3-Dichloropropane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
2,2-Dichloropropane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1-Dichloropropene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Hexachlorobutadiene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
2-Hexanone	ND	5.0		µg/L	5	7/5/2023 11:15:30 AM
Isopropylbenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
4-Isopropyltoluene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
4-Methyl-2-pentanone	ND	5.0		µg/L	5	7/5/2023 11:15:30 AM
Methylene chloride	ND	1.5		µg/L	5	7/5/2023 11:15:30 AM
n-Butylbenzene	ND	1.5		µg/L	5	7/5/2023 11:15:30 AM
n-Propylbenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
sec-Butylbenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Styrene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
tert-Butylbenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
trans-1,2-DCE	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1,1-Trichloroethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,1,2-Trichloroethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Trichloroethene (TCE)	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Trichlorofluoromethane	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
1,2,3-Trichloropropane	ND	1.0		µg/L	5	7/5/2023 11:15:30 AM
Vinyl chloride	ND	0.50		µg/L	5	7/5/2023 11:15:30 AM
Xylenes, Total	25	0.75		µg/L	5	7/5/2023 11:15:30 AM
Surr: Dibromofluoromethane	103	70-130		%Rec	5	7/5/2023 11:15:30 AM
Surr: 1,2-Dichloroethane-d4	123	70-130		%Rec	5	7/5/2023 11:15:30 AM
Surr: Toluene-d8	110	70-130		%Rec	5	7/5/2023 11:15:30 AM
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	5	7/5/2023 11:15:30 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

June 28, 2023

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

Work Order: B23062210 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 6/27/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23062210-001	2306C76-001B, SVE-1	06/21/23 16:40	06/27/23	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: B23062210-001
Client Sample ID: 2306C76-001B, SVE-1

Report Date: 06/28/23
Collection Date: 06/21/23 16:40
DateReceived: 06/27/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.37	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Nitrogen	78.13	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Carbon Dioxide	0.46	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Methane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Ethane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Propane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Hexanes plus	0.04	Mol %		0.01		GPA 2261-95	06/28/23 07:37 / ikc
Propane	< 0.001	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
Hexanes plus	0.017	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
GPM Total	0.017	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
GPM Pentanes plus	0.017	gpm		0.001		GPA 2261-95	06/28/23 07:37 / ikc
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	2			1		GPA 2261-95	06/28/23 07:37 / ikc
Net BTU per cu ft @ std cond. (LHV)	2			1		GPA 2261-95	06/28/23 07:37 / ikc
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	06/28/23 07:37 / ikc
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	06/28/23 07:37 / ikc
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	06/28/23 07:37 / ikc
Air, %	97.62			0.01		GPA 2261-95	06/28/23 07:37 / ikc
- The analysis was not corrected for air.							
COMMENTS							
-						-	06/28/23 07:37 / ikc

- 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:** B23062210 **Report Date:** 06/28/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R404488
Lab ID: **LCS062723**	11	Laboratory Control Sample				Run: GCNGA-B_230627A				06/27/23 11:57
Oxygen		0.60	Mol %	0.01	120	70	130			
Nitrogen		5.92	Mol %	0.01	99	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.4	Mol %	0.01	100	70	130			
Ethane		6.00	Mol %	0.01	100	70	130			
Propane		5.34	Mol %	0.01	108	70	130			
Isobutane		1.98	Mol %	0.01	99	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.78	Mol %	0.01	98	70	130			
Lab ID: **B23062211-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_230627A				06/27/23 14:25
Oxygen		17.0	Mol %	0.01				0.2	20	
Nitrogen		79.0	Mol %	0.01				0.0	20	
Carbon Dioxide		3.64	Mol %	0.01				0.3	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		0.39	Mol %	0.01				2.6	20	
Lab ID: **LCS062823**	11	Laboratory Control Sample				Run: GCNGA-B_230627A				06/28/23 09:16
Oxygen		0.60	Mol %	0.01	120	70	130			
Nitrogen		5.94	Mol %	0.01	99	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.4	Mol %	0.01	100	70	130			
Ethane		5.95	Mol %	0.01	99	70	130			
Propane		5.52	Mol %	0.01	112	70	130			
Isobutane		1.97	Mol %	0.01	98	70	130			
n-Butane		1.97	Mol %	0.01	98	70	130			
Isopentane		0.96	Mol %	0.01	96	70	130			
n-Pentane		0.97	Mol %	0.01	97	70	130			
Hexanes plus		0.76	Mol %	0.01	95	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B23062210

Login completed by: Yvonna E. Smith
Date Received: 6/27/2023
Reviewed by: darcy
Received by: lel
Reviewed Date: 6/28/2023
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:	17.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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 CONTRATOR: 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	2306C76-001B	SVE-1	TEDLAR	Air	6/21/2023 4:40:00 PM	1	**~~3 DAY~~ TAT** Natural Gas Analysis, O2, CO2 Next Day emc Gleeles B23062210

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: 6/24/2023	Time: 9:01 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Lydia Lebsack	Date: 6/27/23	Time: 09:25

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

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

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2306C76**
11-Jul-23

Client: HILCORP ENERGY
Project: SJ 29 7 Unit 183 M

Sample ID: **2306c76-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SVE-1** Batch ID: **R97931** RunNo: **97931**
Prep Date: Analysis Date: **7/5/2023** SeqNo: **3562898** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.2	0.50						3.08	20	
Toluene	36	0.50						4.72	20	
Ethylbenzene	2.1	0.50						8.25	20	
Methyl tert-butyl ether (MTBE)	ND	0.50						0	20	
1,2,4-Trimethylbenzene	0.92	0.50						5.32	20	
1,3,5-Trimethylbenzene	1.8	0.50						4.44	20	
1,2-Dichloroethane (EDC)	ND	0.50						0	20	
1,2-Dibromoethane (EDB)	ND	0.50						0	20	
Naphthalene	ND	1.0						0	20	
1-Methylnaphthalene	ND	2.0						0	20	
2-Methylnaphthalene	ND	2.0						0	20	
Acetone	ND	5.0						0	20	
Bromobenzene	ND	0.50						0	20	
Bromodichloromethane	ND	0.50						0	20	
Bromoform	ND	0.50						0	20	
Bromomethane	ND	1.0						0	20	
2-Butanone	ND	5.0						0	20	
Carbon disulfide	ND	5.0						0	20	
Carbon tetrachloride	ND	0.50						0	20	
Chlorobenzene	ND	0.50						0	20	
Chloroethane	ND	1.0						0	20	
Chloroform	ND	0.50						0	20	
Chloromethane	ND	0.50						0	20	
2-Chlorotoluene	ND	0.50						0	20	
4-Chlorotoluene	ND	0.50						0	20	
cis-1,2-DCE	ND	0.50						0	20	
cis-1,3-Dichloropropene	ND	0.50						0	20	
1,2-Dibromo-3-chloropropane	ND	1.0						0	20	
Dibromochloromethane	ND	0.50						0	20	
Dibromomethane	ND	1.0						0	20	
1,2-Dichlorobenzene	ND	0.50						0	20	
1,3-Dichlorobenzene	ND	0.50						0	20	
1,4-Dichlorobenzene	ND	0.50						0	20	
Dichlorodifluoromethane	ND	0.50						0	20	
1,1-Dichloroethane	ND	0.50						0	20	
1,1-Dichloroethene	ND	0.50						0	20	
1,2-Dichloropropane	ND	0.50						0	20	
1,3-Dichloropropane	ND	0.50						0	20	
2,2-Dichloropropane	ND	0.50						0	20	

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 Quanitative 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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2306C76**
11-Jul-23

Client: HILCORP ENERGY
Project: SJ 29 7 Unit 183 M

Sample ID: **2306c76-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SVE-1** Batch ID: **R97931** RunNo: **97931**
Prep Date: Analysis Date: **7/5/2023** SeqNo: **3562898** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50						0	20	
Hexachlorobutadiene	ND	0.50						0	20	
2-Hexanone	ND	5.0						0	20	
Isopropylbenzene	ND	0.50						0	20	
4-Isopropyltoluene	ND	0.50						0	20	
4-Methyl-2-pentanone	ND	5.0						0	20	
Methylene chloride	ND	1.5						0	20	
n-Butylbenzene	ND	1.5						0	20	
n-Propylbenzene	ND	0.50						0	20	
sec-Butylbenzene	ND	0.50						0	20	
Styrene	ND	0.50						0	20	
tert-Butylbenzene	ND	0.50						0	20	
1,1,1,2-Tetrachloroethane	ND	0.50						0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	20	
Tetrachloroethene (PCE)	ND	0.50						0	20	
trans-1,2-DCE	ND	0.50						0	20	
trans-1,3-Dichloropropene	ND	0.50						0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	20	
1,1,1-Trichloroethane	ND	0.50						0	20	
1,1,2-Trichloroethane	ND	0.50						0	20	
Trichloroethene (TCE)	ND	0.50						0	20	
Trichlorofluoromethane	ND	0.50						0	20	
1,2,3-Trichloropropane	ND	1.0						0	20	
Vinyl chloride	ND	0.50						0	20	
Xylenes, Total	26	0.75						5.17	20	
Surr: Dibromofluoromethane	5.3		5.000		106	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	5.9		5.000		118	70	130	0	0	
Surr: Toluene-d8	5.7		5.000		113	70	130	0	0	
Surr: 4-Bromofluorobenzene	5.8		5.000		117	70	130	0	0	

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 2306C76 RcptNo: 1

Received By: Tracy Casarrubias 6/24/2023 7:45:00 AM

Completed By: Tracy Casarrubias 6/24/2023 9:00:14 AM

Reviewed By: JM 6/26/23

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? (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: TMC 6/24/23

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 6/24/23

16. Additional remarks:

17. **Cooler Information**

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

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

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

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☑ Rush 6-27

Project Name:
SJ 29 7 Unit 183M

Project #:

Project Manager:
Kate Kaufman

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(Including CF): N/A (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2306C76	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	8015 TVPH	Fixed gases O_2 & CO_2
6-21	1640	air	SVE-1	2 Tedlar		001											✓	✓

Date: 6-23 Time: Relinquished by:

Received by: Via: courier Date: 6/24/23 Time: 7:45

Date: Time: Relinquished by:

Received by: Via: Date: Time:

Remarks:

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 240229

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 240229
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record.	3/26/2024