ENSOLUM

May 29, 2024

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: **Updated Remediation Work Plan**
San Juan 30-6 Unit 31A
Rio Arriba County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: nAPP2301160771

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Updated Remediation Work Plan* associated with a release discovered at the San Juan 30-6 Unit 31A natural gas production well pad (Site). The Site is located on private land in Unit F, Section 33, Township 30 North, Range 6 West in Rio Arriba County, New Mexico (Figure 1).

SITE BACKGROUND

On December 27, 2022, Hilcorp personnel discovered a release of 92 barrels (bbls) of condensate originating from corrosion holes on the "J Leg" piping of the oil dump line. The release volume was determined based on the operator's monthly tank gauging data. Fluids stayed within the secondary containment berm, but none were recovered. Upon discovery, the tank was immediately emptied. Hilcorp reported the release via email to the New Mexico Oil Conservation Division (NMOCD) on December 28, 2022, and subsequently submitted a Form C-141, *Release Notification* to the NMOCD on January 11, 2023. The release was assigned NMOCD Incident Number nAPP2301160771.

SITE CLOSURE CRITERIA

Based on the information presented in the *Site Investigation Report and Remediation Work Plan,* dated June 21, 2023, and in accordance with Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC) *Table I, Closure Criteria for Soils Impacted by a Release*, the following closure criteria should be applied to the Site:

- Chloride: 600 milligrams per kilogram (mg/kg)
- Total Petroleum Hydrocarbons (TPH) as a combination of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO): 100 mg/kg
- A combination of benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 mg/kg
- Benzene: 10 mg/kg

Additionally, the NMOCD requires groundwater-quality standards be met as presented by the New Mexico Water Quality Control Commission (NMWQCC) and listed in 20.6.2.3103 NMAC. The following standards are presented for the chemicals of concern (COCs) in groundwater at the Site in micrograms per liter (µg/L).

- Benzene: 5.0 µg/L
- Toluene: 1,000 µg/L
- Ethylbenzene: 700 µg/L
- Total Xylenes: 620 µg/L

In addition, NMWQCC standards state light non-aqueous phase liquids (LNAPLs) or phase-separated hydrocarbons (PSH), as referenced in this report, shall not be present floating on the groundwater table.

2023 SITE INVESTIGATION SUMMARY

To investigate potential impacts resulting from the release, Hilcorp retained Ensolum to perform delineation activities at the Site. Initial investigation efforts were conducted on January 23, 2023, using an excavator to advance three potholes (SS01, SS02, and SS03), as depicted on Figure 2. Based on the initial field screening and sampling results from these pothole locations, additional vertical and horizontal delineation with a drill rig was required. Drilling activities took place between May 9 and May 12, 2023, to advance a total of seven boreholes (BH01 through BH07) to depths up to 52 feet below ground surface (bgs). The boreholes did not encounter refusal or bedrock; however, groundwater was encountered in several borehole locations at depths ranging from approximately 38 feet to 42 feet bgs. Borehole locations are presented on Figure 2. Soil analytical data collected during the initial pothole and drilling activities are summarized in Table 1.

Due to the presence of groundwater at the Site, monitoring wells were subsequently installed in all seven boreholes (labeled MW01 through MW07) and were screened across the water table for groundwater assessment and monitoring. Additionally, boreholes BH01 and BH02 were completed with nested wells screened in the vadose zone at shallow depths to serve as soil vapor extraction (SVE) wells for potential treatment of shallow soil impacts. Well construction details are presented in Table 2.

On June 2, 2023, the monitoring wells were gauged and sampled to assess groundwater conditions. During the June 2023 sampling event, wells MW01, MW02, MW03, and MW04 contained measurable or trace volumes of PSH. Table 3 presents a summary of groundwater elevations and thickness of PSH measured at the Site. When PSH was present, a correction factor of 0.8 was applied to the elevation to account for the depression of the water column caused by the presence of overlying PSH. Monitoring well MW05 was dry during the June 2023 sampling event and therefore was not sampled. Wells with sufficient volumes of water to sample and without the presence of PSH (wells MW06 and MW07, as indicated on Table 3) were collected. A summary of groundwater analytical results from the June 2023 sampling event is presented in Table 4.

Based on the activities and analytical results summarized in the attached tables, impacted soil and groundwater resulting from the release discovered on December 27, 2022, had not been fully delineated. Additional details regarding the 2023 soil and groundwater investigation results are described in the *Site Investigation Report and Remediation Work Plan,* dated June 21, 2023.

JANUARY 2024 DUAL PHASE EXTRACTION PILOT TEST SUMMARY

Based on the initial Site investigation results and prior to conducting additional delineation efforts, Ensolum conducted a pilot study on October 20, 2023, to assess the potential use of dual-phase extraction (DPE) to recover PSH and remediate soil and groundwater at the Site. DPE is an in-situ technology used to remove various combinations of contaminated groundwater, PSH, and hydrocarbon

vapor from the subsurface. The goal of DPE, in addition to recovering PSH, is to drawdown the groundwater table in order to expose submerged soil impacts and allow for the removal of volatile organic compounds (VOCs) and some semi-volatile organic compounds (SVOCs) from vadose zone soil through the application of vacuum to the subsurface (also known as SVE). When air is removed from the soil, contaminants are volatilized and withdrawn from the subsurface. Depending on contaminant concentrations in the emissions, the DPE system may emit exhaust directly to the atmosphere.

Results of the October 2023 pilot test indicated DPE was not a viable remediation technique at the Site using the current configuration of wells. Details describing the pilot test and results were submitted to the NMOCD in the *Dual Phase Extraction Pilot Test Summary,* dated January 17, 2024.

2024 DRILLING AND ADDITIONAL SITE INVESTIGATION ACTIVITIES

Based on the 2023 Site investigation activities and October 2023 DPE pilot test results, Hilcorp and Ensolum proceeded with additional drilling and delineation activities in January 2024. Ensolum submitted notice of sampling to the NMOCD at least 48 hours in advance of the work (Appendix A). Drilling activities took place between January 17 and 19, 2024, utilizing a Central Mining Equipment (CME) 75 hollow-stem auger drill rig operated by Enviro-Drill, Inc. with split-spoon sampling to advance a total of five boreholes (BH08 through BH12) to depths up to 55 feet bgs. The boreholes did not encounter refusal or bedrock. Borehole locations from the drilling event are presented on Figure 2. Photographs taken during delineation activities are included in Appendix B.

During the investigation, an Ensolum geologist logged soil lithology and inspected the soil for petroleum hydrocarbon staining and odors. Soil descriptions were noted on borehole logs and generally followed the Unified Soil Classification System (USCS), as specified in American Society for Testing and Materials (ASTM) method D2488. Soil samples were also field screened for the presence of organic vapors using a calibrated photoionization detector (PID), with results also noted on the borehole logs (Appendix C). In general, soil samples were collected from depth intervals indicating the greatest impacts based on field screening results and from the terminal depth of the borehole. Additional soil samples were collected from borehole BH12 to gain a better resolution of soil concentrations near the source area of the release. Soil samples were collected directly into laboratory-provided jars and immediately placed on ice. Samples were submitted to Eurofins Environment Testing (Eurofins) for analysis of BTEX following EPA Method 8021 and TPH-GRO, TPH-DRO, TPH-MRO following EPA Method 8015 M/D.

SOIL SAMPLE RESULTS

Soil composition at the Site generally consisted of silty/clayey sand containing lenses of silt and clay, underlain by silty clay and clay with varying quantities of fine-grained sand. Elevated PID values and field indications of petroleum hydrocarbons (including odors and/or staining) were only observed in borehole BH12 during the January 2024 drilling work. Concentrations of total BTEX and total TPH exceeding the NMOCD Table I Closure Criteria were detected at borehole BH12 between depths of 5 feet and 40 feet bgs. BTEX and TPH concentrations were compliant with applicable Closure Criteria in all samples collected from borings BH08 through BH11. Analytical laboratory results for delineation soil samples, including previously analyzed samples, are summarized in Table 1 and on Figure 2. Complete soil sample laboratory analytical reports are attached as Appendix D.

WELL INSTALLATION AND GROUNDWATER RESULTS

Groundwater was encountered during drilling in all boreholes at depths of approximately 42 feet to 48 feet bgs. Monitoring wells were installed in all five boreholes and were screened across the water table for groundwater assessment and monitoring. Wells were constructed using 2-inch Schedule 40 polyvinyl chloride (PVC) well screen and riser. Wells were completed with 15 feet of 0.010-inch slotted

well screen across the water table. Well construction details are presented in Table 2. Well locations were surveyed with a handheld Global Positioning System (GPS) unit and Top of Casing (TOC) elevations were surveyed using a laser level to the nearest hundredth of a foot.

Initial groundwater conditions were assessed at the Site on June 2, 2023. Quarterly groundwater sampling began in December 2023 and samples were collected in December 2023, January 2024, and May 2024. Prior to sampling, depth to PSH and depth to groundwater were measured in all wells using an oil/water interface probe in order to calculate groundwater elevations and assess the inferred groundwater flow direction. During all sampling events, wells MW01, MW02, MW03, MW04, and MW12 contained measurable or trace volumes of PSH. When PSH was present, a correction factor of 0.8 was applied to the elevation to account for the depression of the water column caused by the presence of overlying PSH. Additionally, monitoring well MW05 has been dry during all sampling events and not sampled. As previously noted, the total depth of well MW05 is approximately 5 feet higher in elevation than indicated on the borehole log. It appears the borehole caved in as the augers were removed and the well screen was unable to be installed at the terminus of the borehole. Table 3 presents a summary of groundwater elevations and thickness of PSH measured at the Site. Potentiometric surface maps with calculated groundwater elevations and inferred groundwater flow direction are shown on Figures 3, 4, and 5.

New wells without the presence of PSH (as indicated on Table 3) were developed prior to sampling by surging and purging water within the well with a 2-inch disposable bailer. After development/purging, groundwater samples were collected using a disposable bailer. Samples from wells MW01, MW02, MW03, MW04, and MW12 were not sampled due to the presence of PSH in the well (Table 3). In addition, samples from MW05 were not collected because the well was dry during all sampling events. Groundwater samples for laboratory analysis were collected from wells MW06 through MW11, with groundwater sampling forms included as Appendix E. Groundwater samples were placed directly into laboratory-provided preserved vials and immediately placed on ice. Samples were submitted to Eurofins for analysis of BTEX following EPA Methods 8021 or 8260.

Analytical results from groundwater samples indicated benzene concentrations exceeded the NMWQCC standard in well MW06 during the December 2023, January 2024, and May 2024 sampling events. All other concentrations of BTEX constituents from analyzed samples from wells MW07, MW08, MW09, MW10, and MW11 were compliant with the applicable NMWQCC standards during all sampling events. A summary of groundwater analytical results is presented in Table 4 and on Figure 6. Complete laboratory analytical reports are attached in Appendix F.

UPDATED REMEDIATION WORK PLAN

Based on the soil sampling and groundwater analytical results and DPE pilot test results described above, Hilcorp proposes to excavate impacted soil at the Site in the approximate area shown on Figure 2. Vadose zone soil located above the groundwater table (up to depths of approximately 40 feet bgs in the impacted soil area) will be excavated and transported off-Site for treatment at a Hilcorp registered small landfarm (to be approved by the Bureau of Land Management (BLM) and NMOCD Permitting Group). Based on delineation results, approximately 5,000 cubic yards of impacted soil is present at the Site that will require excavation and treatment/disposal. Once field screening indicates impacted soil has been removed, 5-point composite confirmation soil samples will be collected from the excavation sidewalls. Because of the impacted groundwater present at the Site and the assumption that the excavation will be advanced until the groundwater table is exposed, excavation floor samples will not be collected.

Due to the large size of the excavation and with NMOCD approval, Hilcorp is requesting a variance to collect composite confirmation soil samples at a frequency of one sample for every 500 square feet from the sidewalls. At this rate and assuming the excavation area is approximately 60 feet by 60 feet by

40 feet deep, 20 samples will be collected for laboratory analysis. Samples will be collected for analysis of BTEX and TPH constituents only during confirmation sampling, as recommended in the approved *Site Investigation Report and Remediation Work Plan,* dated June 21, 2023.

To address impacts to groundwater and soil located within the smear zone at the Site, an amendment will be applied to the open excavation and mixed into the water table and the top several feet of saturated soil below the water table. The amendment will consist of an activated carbon/bacteria/nutrient (e.g. BOS 200® or PetroFix®) and/or chemical oxidant (e.g. hydrogen peroxide or RegenOx®). These amendments will continue to remediate residual PSH and dissolved phase petroleum hydrocarbons that are present in and at the groundwater interface once source soil has been removed from the Site. Hilcorp and Ensolum will work with third-party vendors in order to identify the appropriate amendment and calculate amendment volumes based on Site-specific parameters. Once mixed into the subsurface, the excavation will be backfilled and recontoured to match pre-existing conditions at the Site.

Once the excavation is backfilled, new groundwater monitoring wells may be installed, if necessary, in the excavation area in order to continue monitoring groundwater conditions in the source area. Hilcorp will also continue to gauge for PSH and sample groundwater from Site wells for BTEX on a quarterly basis following completion of the excavation. Groundwater conditions, including the presence of PSH and BTEX concentrations, will be evaluated once one year of quarterly data have been collected after completion of the excavation, and the need for additional remedial actions will be reassessed at that time.

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

Sincerely,

Ensolum, LLC

Stuart Hyde, PG*
Senior Managing Geologist
shyde@ensolum.com
(*licensed in TX & WA)

Daniel R. Moir, PG*
Senior Managing Geologist
dmoir@ensolum.com
(*licensed in TX & WY)

Attachments:

Figure 1: Site Receptor Map
Figure 2: Delineation Soil Analytical Results
Figure 3: Groundwater Potentiometric Surface Map (December 2023)
Figure 4: Groundwater Potentiometric Surface Map (January 2024)
Figure 5: Groundwater Potentiometric Surface Map (May 2024)
Figure 6: Groundwater Analytical Results

Table 1: Delineation Soil Sample Analytical Results
Table 2: Well Construction Information
Table 3: Groundwater Elevation Summary
Table 4: Groundwater Analytical Results

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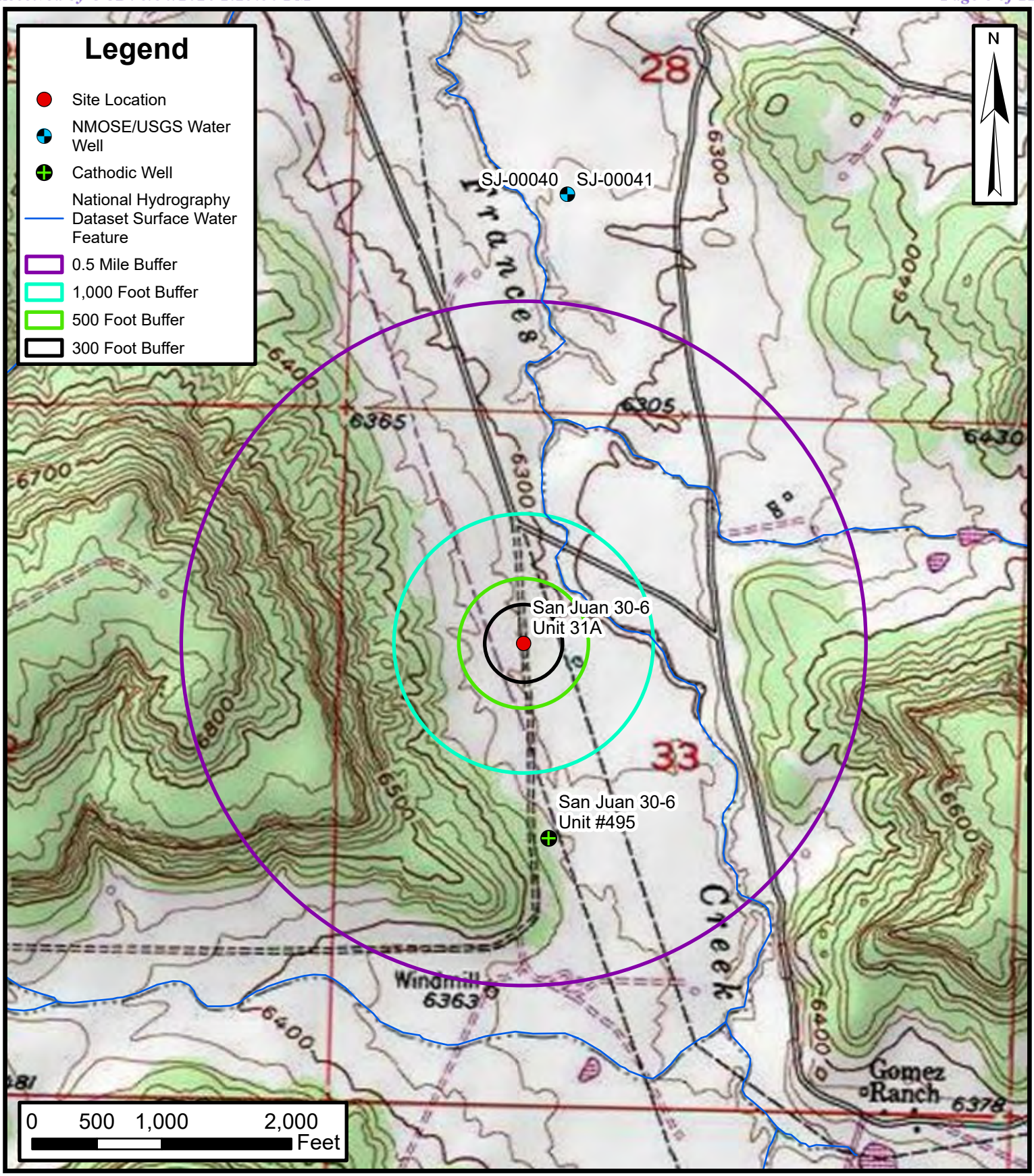
FIGURES



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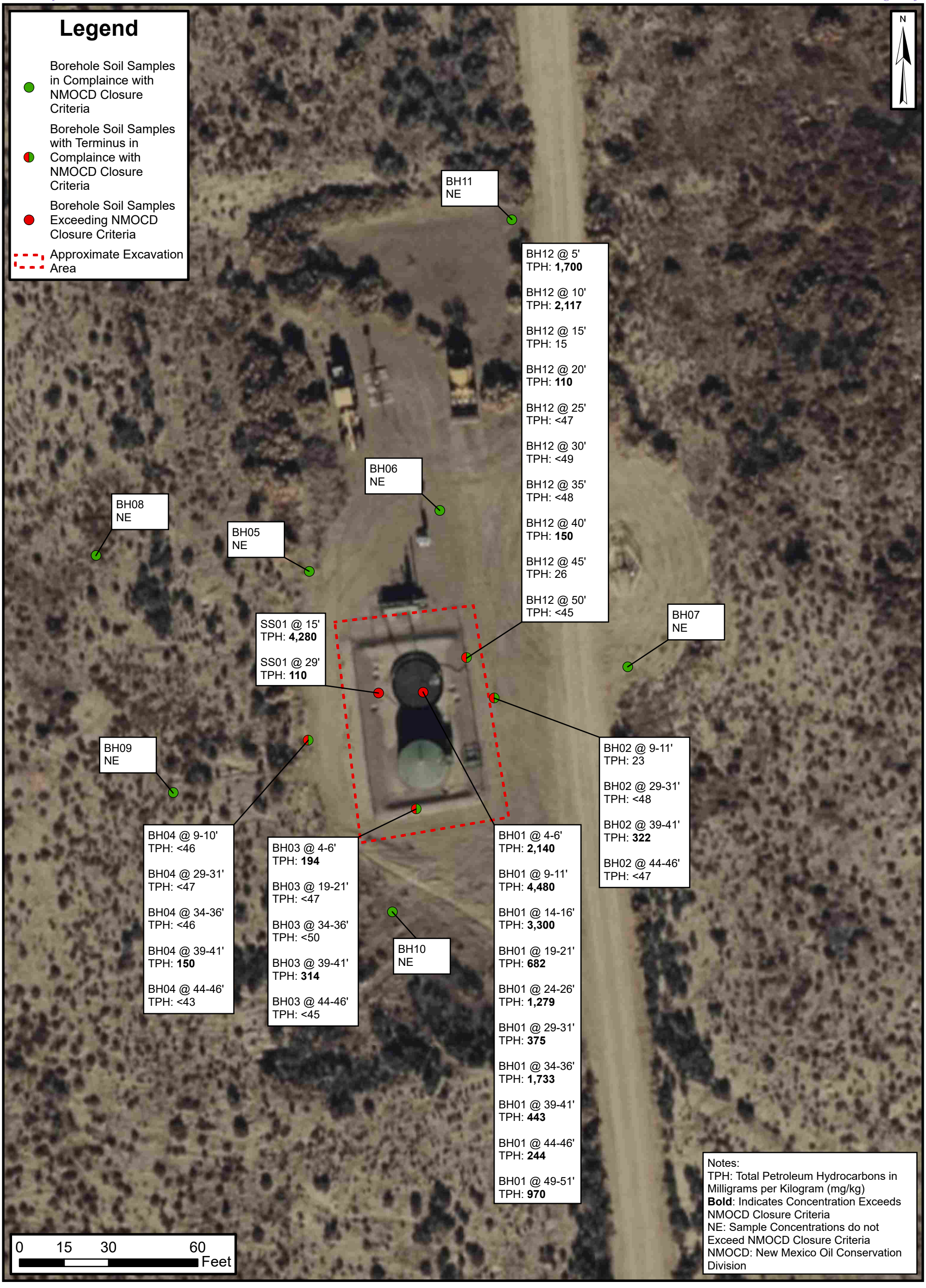
Environmental, Engineering and Hydrogeologic Consultants

Site Receptor Map

San Juan 30-6 Unit 31A
Hilcorp Energy Company
Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE
1

Sources: Environmental Systems Research Institute (ESRI), United States Geologic Survey (USGS), United States Fish and Wildlife Service (USFWS), New Mexico Office of the State Engineer (NMOSE), National Geographic Society, i-cubed



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Delineation Soil Analytical Results

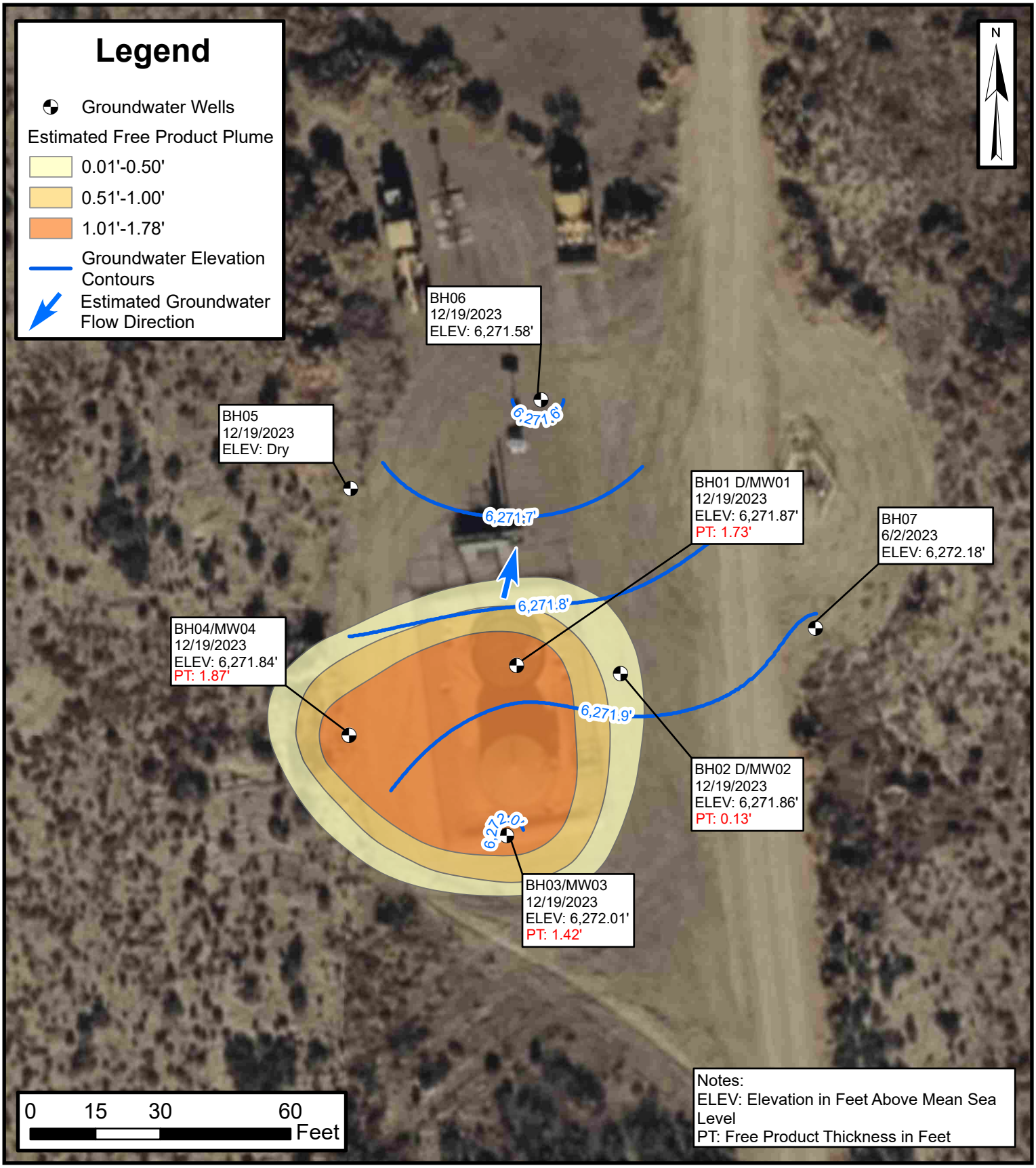
San Juan 30-6 Unit 31A
Hilcorp Energy Company

Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE

2

Sources: Environmental Systems Research Institute (ESRI), Maxar, Microsoft



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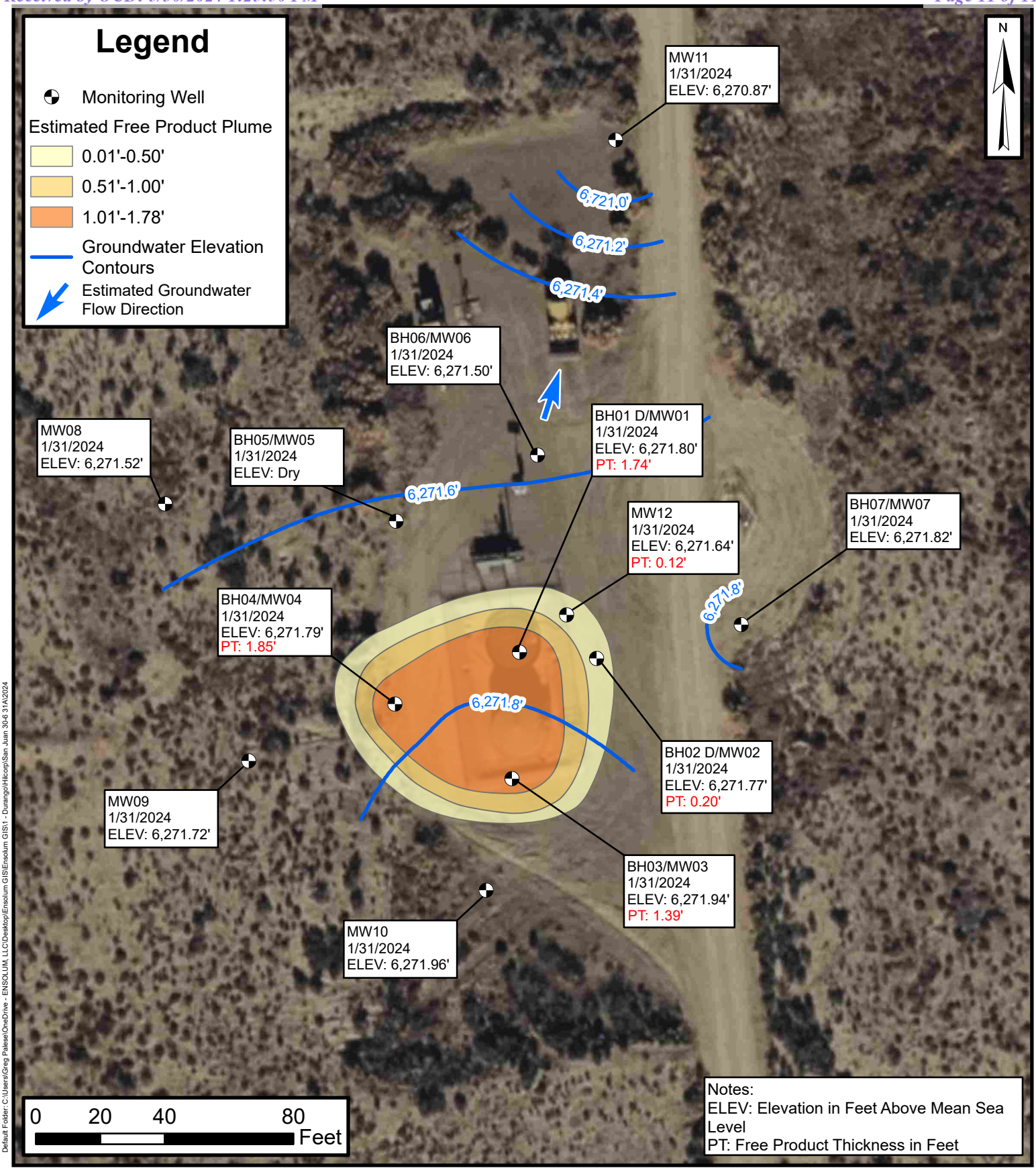
Groundwater Potentiometric Surface Map (December 2023)
San Juan 30-6 Unit 31A
Hilcorp Energy Company
Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE
3

Sources: Environmental Systems Research Institute (ESRI), Bing, Maxar, Microsoft, CNES



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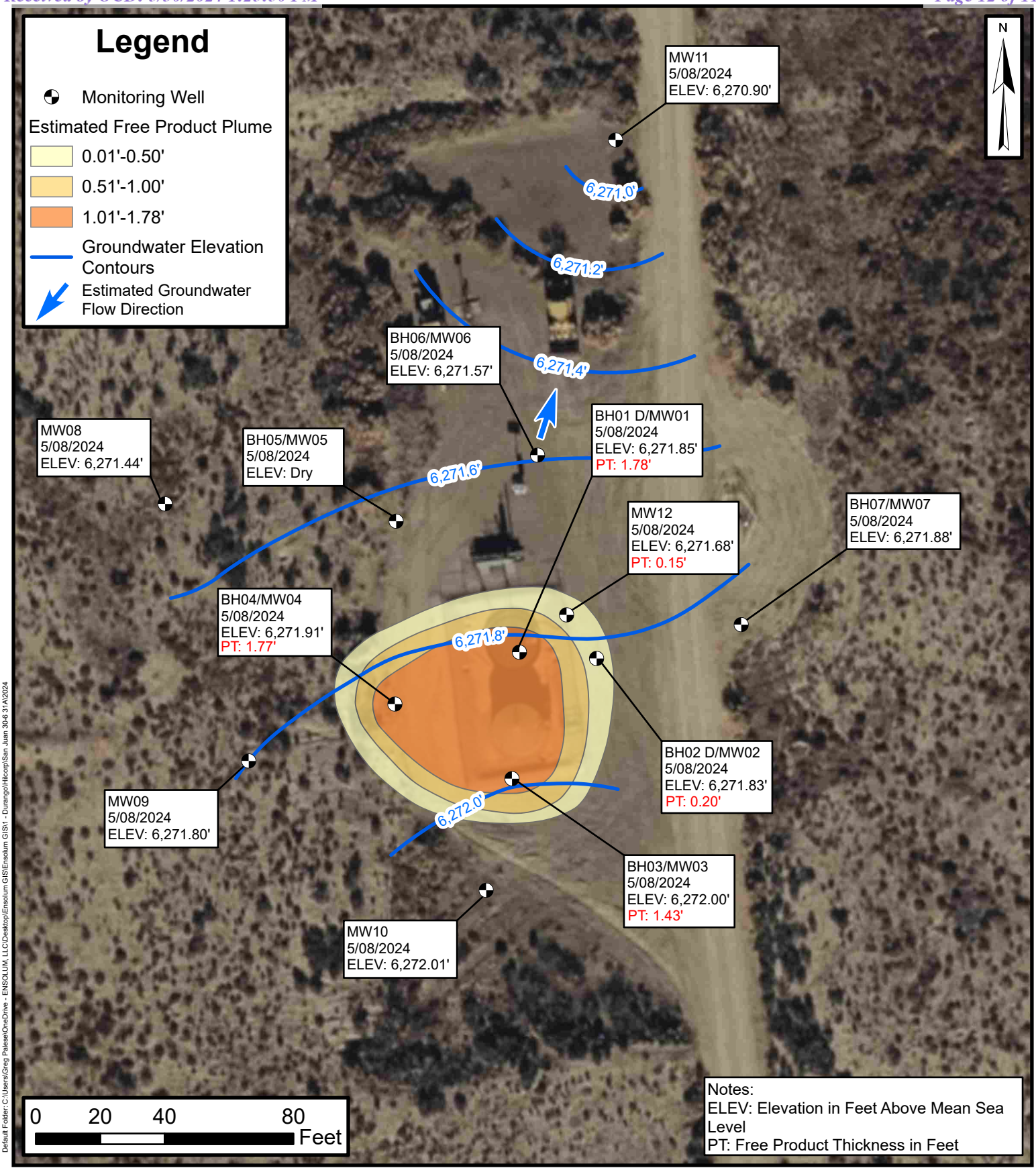
Groundwater Potentiometric Surface Map (January 2024)

San Juan 30-6 #31A
Hilcorp Energy Company
Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE
4

Sources: Environmental Systems Research Institute (ESRI), Microsoft, Maxar, CNES



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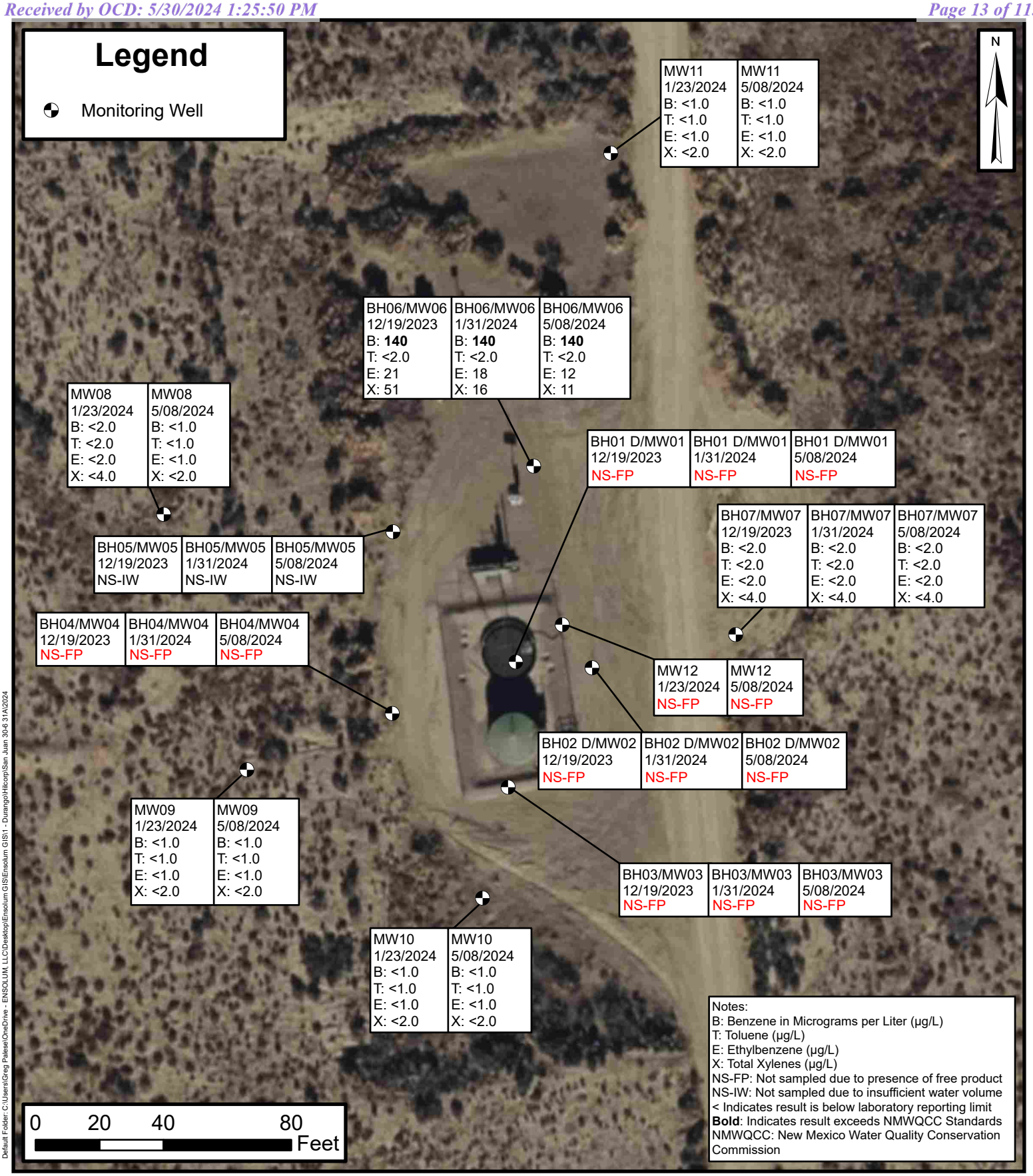
Groundwater Potentiometric Surface Map (May 2024)

San Juan 30-6 #31A
Hilcorp Energy Company
Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE
5

Sources: Environmental Systems Research Institute (ESRI), Microsoft, Maxar, CNES



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Groundwater Analytical Results

San Juan 30-6 #31A
Hilcorp Energy Company

Unit F, Sec 33, T30N, R06W
36.77139, -107.47258
Rio Arriba County, New Mexico

FIGURE
6

Sources: Environmental Systems Research Institute (ESRI), Microsoft, Maxar, CNES

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TABLES

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TABLE 1
DELINEATION SOIL SAMPLE ANALYTICAL RESULTS
San Juan 30-6 31A
Hilcorp Energy Company
Rio Arriba County, New Mexico

Sample ID	Date	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release			**10**	NE	NE	NE	**50**	NE	NE	NE	**100**	**600**
SS01 @15'	1/23/2023	15'	6.8	110	25	320	**462**	3,400	880	<480	**4,280**	---
SS01 @29'	2/6/2023	29'	<0.12	0.60	<0.24	4.0	4.6	110	<9.6	<48	**110**	<60
BH01 4-6	5/9/2023	4'-6'	0.72	24	6.8	110	**142**	1,700	440	<49	**2,140**	<60
BH01 9-11	5/9/2023	9'-11'	3.0	76	21	340	**440**	3,900	580	<98	**4,480**	<60
BH01 14-16	5/9/2023	14'-16'	4.4	68	15	220	**307**	3,100	200	<47	**3,300**	<60
BH01 19-21	5/9/2023	19'-21'	1.26	15.6	3.25	50.5	**70.6**	605	77.2	<50.0	**682**	<20.0
BH01 24-26	5/9/2023	24'-26'	1.47	25.0	5.11	81.4	**113**	1,020	259	<50.0	**1,279**	<20.0
BH01 29-31	5/9/2023	29'-31'	0.391	5.02	1.09	17.4	23.9	266	109	<50.0	**375**	23.7
BH01 34-36	5/9/2023	34'-36'	3.16	47.2	8.47	128	**187**	1,600	133	<50.0	**1,733**	<20.0
BH01 39-41	5/9/2023	39'-41'	1.14	12.0	2.04	31.9	47.1	370	72.5	<50.0	**443**	<20.0
BH01 44-46	5/9/2023	44'-46'	0.962	9.13	1.30	19.8	31.2	244	<25.0	<50.0	**244**	<20.0
BH01 49-51	5/11/2023	49'-51'	2.1	31	5.0	77	**115**	960	10	<48	**970**	<60
BH02 9-11	5/9/2023	9'-11'	<0.024	<0.048	0.057	0.11	0.167	23	<9.5	<48	23	<59
BH02 29-31	5/9/2023	29'-31'	<0.024	<0.048	<0.048	0.13	0.13	<4.8	<9.6	<48	<48	<59
BH02 39-41	5/9/2023	39'-41'	1.3	11	1.7	25	39	290	32	<49	**322**	<60
BH02 44-46	5/9/2023	44'-46'	<0.024	0.12	<0.049	0.35	0.47	<4.9	<9.5	<47	<47	<61
BH03 4-6	5/10/2023	4'-6'	<0.024	<0.048	0.23	0.87	1.1	64	130	<49	**194**	<60
BH03 19-21	5/10/2023	19'-21'	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	<9.3	<47	<47	<60
BH03 34-36	5/10/2023	34'-36'	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.9	<50	<50	<60
BH03 39-41	5/10/2023	39'-41'	0.58	8.3	1.4	22	32	290	24	<46	**314**	<60
BH03 44-46	5/10/2023	44'-46'	<0.023	<0.046	<0.046	<0.092	<0.092	<4.6	<9.1	<45	<45	<60
BH04 9-10	5/10/2023	9'-10'	<0.025	<0.050	<0.050	<0.099	<0.099	<5.0	<9.1	<46	<46	<61
BH04 29-31	5/10/2023	29'-31'	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.4	<47	<47	<60
BH04 34-36	5/10/2023	34'-36'	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	<9.3	<46	<46	<60
BH04 39-41	5/10/2023	39'-41'	0.17	3.4	0.71	11	15	150	<8.9	<45	**150**	<60
BH04 44-46	5/10/2023	44'-46'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<8.6	<43	<43	<60
BH05 24-26	5/10/2023	24'-26'	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<10	<50	<50	68
BH05 29-31	5/10/2023	29'-31'	<0.024	0.28	0.074	0.99	1.3	14	<9.3	<46	14	<60
BH05 34-36	5/10/2023	34'-36'	<0.024	0.20	0.074	0.79	1.1	15	<9.6	<48	15	<61
BH05 39-41	5/10/2023	39'-41'	0.12	1.6	0.35	4.0	6.1	69	<9.2	<46	69	<60
BH05 44-46	5/10/2023	44'-46'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.4	<47	<47	<60
BH06 14-16	5/11/2023	14'-16'	<0.023	<0.046	<0.046	<0.092	<0.092	<4.6	<9.3	<46	<46	<60
BH06 34-36	5/11/2023	34'-36'	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.9	<49	<49	<60
BH06 39-41	5/11/2023	39'-41'	<0.023	<0.046	<0.046	<0.093	<0.093	<4.6	<9.9	<50	<50	<60
BH06 44-46	5/11/2023	44'-46'	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.6	<48	<48	<60

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TABLE 1
DELINEATION SOIL SAMPLE ANALYTICAL RESULTS
San Juan 30-6 31A
Hilcorp Energy Company
Rio Arriba County, New Mexico

Sample ID	Date	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release			**10**	NE	NE	NE	**50**	NE	NE	NE	**100**	**600**
BH07 5-7	5/12/2023	5'-7'	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.4	<47	<47	<60
BH07 20-22	5/12/2023	20'-22'	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.5	<47	<47	<60
BH07 30-32	5/12/2023	30'-32'	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	<9.4	<47	<47	<60
BH07 40-42	5/12/2023	40'-42'	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<8.5	<43	<43	<60
BH07 50-52	5/12/2023	50'-52'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.8	<49	<49	<60
BH08 29-31	1/17/2024	29'-31'	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<10	<50	<50	---
BH08 54-56	1/17/2024	54'-56'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.4	<47	<47	---
BH09 49-51	1/17/2024	49'-51'	<0.023	<0.046	<0.046	<0.092	<0.092	<4.6	<9.5	<48	<48	---
BH09 54-56	1/17/2024	54'-56'	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.8	<49	<49	---
BH010 34-36	1/18/2024	34'-36'	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	20	<50	<50	---
BH010 49-51	1/18/2024	49'-51'	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.7	<49	<49	---
BH011 44-46	1/18/2024	44'-46'	<0.023	<0.046	<0.046	<0.093	<0.093	<4.6	<9.1	<46	<46	---
BH011 48-50	1/18/2024	48'-50'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<48	<48	---
BH12 5	1/19/2024	5'	0.47	26	6.0	110	**142**	1,600	100	<45	**1,700**	---
BH12 10	1/19/2024	10'	0.78	45	9.0	150	**205**	2,100	17	<43	**2,117**	---
BH12 15	1/19/2024	15'	0.59	0.41	0.097	1.6	2.7	15	<9.7	<49	15	---
BH12 20	1/19/2024	20'	0.12	2.9	0.37	7.0	10	110	<9.7	<49	**110**	---
BH12 25	1/19/2024	25'	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.3	<47	<47	---
BH12 30	1/19/2024	30'	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.8	<49	<49	---
BH12 35	1/19/2024	35'	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.5	<48	<48	---
BH12 40	1/19/2024	40'	0.25	3.1	0.65	9.7	14	150	<9.2	<46	**150**	---
BH12 45	1/19/2024	45'	0.090	0.81	0.10	1.7	2.7	26	<9.4	<47	26	---
BH12 50	1/19/2024	50'	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.1	<45	<45	---

Notes:

bgs: Below ground surface
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
mg/kg: milligrams per kilogram
NE: Not Established
NMOCD: New Mexico Oil Conservation Division
': Feet
---: Not Analyzed
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
MRO: Motor Oil/Lube Oil Range Organics
TPH: Total Petroleum Hydrocarbon
< : Indicates result less than the stated laboratory reporting limit (RL)
*Concentrations in **bold** and shaded exceed the New Mexico Oil Conservation Division Table I Closure Criteria for Soils Impacted by a Release*

ENSOLUM

TABLE 2
WELL CONSTRUCTION INFORMATION
San Juan 30-6 31A
Hilcorp Energy Company
Rio Arriba County, New Mexico

Boring/Well ID	Impacted Soil Interval (feet bgs)	Well Screen Interval (feet bgs)	Total Well Depth (feet BTOC)
BH01 S	4 - 46	10 - 25	29.31
BH01 D	4 - 46	29 - 49	51.06
BH02 S	9 - 11	7 - 17	17.53
BH02 D	29 - 41	30 - 45	44.90
BH03	39 - 41	35 - 45	49.66
BH04	39 - 41	35 - 45	47.19
BH05	29 - 41	30 - 45	40.50
BH06	---	35 - 45	47.50
BH07	---	34 - 49	52.00
MW08	---	40 - 55	54.39
MW09	---	40 - 55	54.40
MW10	---	35 - 50	48.20
MW11	---	35 - 50	49.70
MW12	4 - 42	35 - 50	48.95

Notes:

bgs: Below ground surface

BTOC: Below top of well casing

ENSOLUM

TABLE 3
GROUNDWATER ELEVATION SUMMARY
San Juan 30-6 31A
Hilcrop Energy Company
Rio Arriba County, New Mexico

Well ID	Top of Casing Elevation (feet amsl)	Total Depth (feet)	Date	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Groundwater Elevation (feet amsl)
BH01D/MW01	6,313.24	51.06	6/2/2023	42.67	40.62	2.05	6,272.21
			12/19/2023	42.75	41.02	1.73	6,271.87
			1/31/2024	42.83	41.09	1.74	6,271.80
			5/8/2024	42.81	41.03	1.78	6,271.85
BH02D/MW02	6,312.40	44.90	6/2/2023	40.25	40.24	0.01	6,272.16
			12/19/2023	40.64	40.51	0.13	6,271.86
			1/31/2024	40.79	40.59	0.20	6,271.77
			5/8/2024	40.73	40.53	0.20	6,271.83
BH03/MW03	6,315.61	46.66	6/2/2023	43.35	TRACE	---	6,272.26
			12/19/2023	44.74	43.32	1.42	6,272.01
			1/31/2024	44.78	43.39	1.39	6,271.94
			5/8/2024	44.75	43.32	1.43	6,272.00
BH04/MW04	6,315.56	47.19	6/2/2023	44.82	42.93	1.89	6,272.25
			12/19/2023	45.22	43.35	1.87	6,271.84
			1/31/2024	45.25	43.40	1.85	6,271.79
			5/8/2024	45.07	43.30	1.77	6,271.91
BH05/MW05	6,313.93	40.50	6/2/2023	DRY	---	---	DRY
			12/19/2023	DRY	---	---	DRY
			1/31/2024	DRY	---	---	DRY
			5/8/2024	DRY	---	---	DRY
BH06/MW06	6,314.59	47.50	6/2/2023	42.70	---	---	6,271.89
			12/19/2023	43.01	---	---	6,271.58
			1/31/2024	43.09	---	---	6,271.50
			5/8/2024	43.02	---	---	6,271.57
BH07/MW07	6,316.43	52.00	6/2/2023	44.25	---	---	6,272.18
			12/19/2023	44.52	---	---	6,271.91
			1/31/2024	44.61	---	---	6,271.82
			5/8/2024	44.55	---	---	6,271.88
MW08	6,322.75	54.39	1/31/2024	51.23	---	---	6,271.52
			5/8/2024	51.31	---	---	6,271.44
MW09	6,321.62	54.40	1/31/2024	49.90	---	---	6,271.72
			5/8/2024	49.82	---	---	6,271.80
MW10	6,312.99	48.20	1/31/2024	41.03	---	---	6,271.96
			5/8/2024	40.98	---	---	6,272.01
MW11	6312.3	49.70	1/31/2024	41.43	---	---	6,270.87
			5/8/2024	41.40	---	---	6,270.90
MW12	6,312.68	48.95	1/31/2024	41.04	40.92	0.12	6,271.74
			5/8/2024	41.00	40.85	0.15	6,271.80

Notes:

amsl: above mean sea level

BTOC: below top of casing

--: indicates no PSH measured

Groundwater elevation is adjusted using a density correction factor of 0.8 when product is present

ENSOLUM

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
San Juan 30-6 31A
Hilcorp Energy Company
Rio Arriba County, New Mexico

Well ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards		5	1,000	700	620
BH01/MW01	6/2/2023	No Sample Collected, PSH Present			
	12/19/2023	No Sample Collected, PSH Present			
	1/31/2024	No Sample Collected, PSH Present			
	5/8/2024	No Sample Collected, PSH Present			
BH02/MW02	6/2/2023	No Sample Collected, PSH Present			
	12/19/2023	No Sample Collected, PSH Present			
	1/31/2024	No Sample Collected, PSH Present			
	5/8/2024	No Sample Collected, PSH Present			
BH03/MW03	6/2/2023	No Sample Collected, PSH Present			
	12/19/2023	No Sample Collected, PSH Present			
	1/31/2024	No Sample Collected, PSH Present			
	5/8/2024	No Sample Collected, PSH Present			
BH04/MW04	6/2/2023	No Sample Collected, PSH Present			
	12/19/2023	No Sample Collected, PSH Present			
	1/31/2024	No Sample Collected, PSH Present			
	5/8/2024	No Sample Collected, PSH Present			
BH05/MW05	6/2/2023	Well Dry			
	12/19/2023	Well Dry			
	1/31/2024	Well Dry			
	5/8/2024	Well Dry			
BH06/MW06	6/2/2023	<2.0	<2.0	<2.0	<4.0
	12/19/2023	**140**	<2.0	21	51
	1/31/2024	**140**	<2.0	18	16
	5/8/2024	**140**	<2.0	12	11
BH07/MW07	6/2/2023	<2.0	<2.0	<2.0	<4.0
	12/19/2023	<2.0	<2.0	<2.0	<4.0
	1/31/2024	<2.0	<2.0	<2.0	<4.0
	5/8/2024	<2.0	<2.0	<2.0	<4.0
MW08	1/23/2024	<2.0	<2.0	<2.0	<4.0
	5/8/2024	<1.0	<1.0	<1.0	<2.0
MW09	1/23/2024	<1.0	<1.0	<1.0	<2.0
	5/8/2024	<1.0	<1.0	<1.0	<2.0
MW10	1/23/2024	<1.0	<1.0	<1.0	<2.0
	5/8/2024	<1.0	<1.0	<1.0	<2.0
MW11	1/23/2024	<1.0	<1.0	<1.0	<2.0
	5/8/2024	<1.0	<1.0	<1.0	<2.0
MW12	1/23/2024	No Sample Collected, PSH Present			
	5/8/2024	No Sample Collected, PSH Present			

Notes:

µg/L: Micrograms per liter

NMWQCC: New Mexico Water Quality Control Commission

PSH: Phase separated hydrocarbons

<: Indicates result less than the stated laboratory reporting limit (RL)

*Concentrations in **bold** and shaded exceed the New Mexico Water Quality Control Commission Standards, 20.6.2 of the New Mexico Administrative Code*

ENSOLUM

APPENDIX A

NMOCD Correspondence

From: OCDOnline@state.nm.us
To: Stuart Hyde
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 300667
Date: Sunday, January 7, 2024 8:07:59 AM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),

The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2301160771.

The sampling event is expected to take place:

When: 01/17/2024 @ 09:00
Where: F-33-30N-06W 1770 FNL 1450 FWL (36.7715263,-107.4723434)

Additional Information: Site contact is Stuart Hyde, 970-903-1607

Sampling is being performed for delineation purposes. The stated sampling area is the total approximate area that we will be investigating and does not constitute the area of soil impacts

Additional Instructions: Site coordinates: 36.771811, -107.472659

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

From: OCDOnline@state.nm.us
To: Stuart Hyde
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 300668
Date: Sunday, January 7, 2024 8:09:30 AM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),

The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2301160771.

The sampling event is expected to take place:

When: 01/18/2024 @ 09:00
Where: F-33-30N-06W 1770 FNL 1450 FWL (36.7715263,-107.4723434)

Additional Information: Site contact is Stuart Hyde, 970-903-1607

Sampling is being performed for delineation purposes. The stated sampling area is the total approximate area that we will be investigating and does not constitute the area of soil impacts.

Additional Instructions: Site coordinates: 36.771811, -107.472659

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

From: OCDOnline@state.nm.us
To: Stuart Hyde
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 300669
Date: Sunday, January 7, 2024 8:10:45 AM

[**EXTERNAL EMAIL**]

To whom it may concern (c/o Stuart Hyde for HILCORP ENERGY COMPANY),

The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nAPP2301160771.

The sampling event is expected to take place:

When: 01/19/2024 @ 09:00
Where: F-33-30N-06W 1770 FNL 1450 FWL (36.7715263,-107.4723434)

Additional Information: Site contact is Stuart Hyde, 970-903-1607

Sampling is being performed for delineation purposes. The stated sampling area is the total approximate area that we will be investigating and does not constitute the area of soil impacts.

Additional Instructions: Site coordinates: 36.771811, -107.472659

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

ENSOLUM

APPENDIX B

Photographic Log

ENSOLUM

Photographic Log
Hilcorp Energy Company
San Juan 30-6 Unit 31A
Rio Arriba County, New Mexico

Photograph: 1 Date: 1/17/2024
Description: Borehole BH08
View: Northeast

Photograph: 2 Date: 1/18/2024
Description: Borehole BH11
View: Northwest

Photograph: 3 Date: 1/19/2024
Description: Borehole BH12
View: East

ENSOLUM

APPENDIX C

Field Borehole Logs

ENSOLUM

Client: HEC
Project Name: SJ 30-6 31A
Project Location: RIO ARRIBA, NM
Project Manager: STUART HYDE

BORING LOG NUMBER: BH08
Project No.:

Date Sampled: 1-17-24
Drilled By: Ryan (EDF)
Driller: EDF
Logged By: E. Carroll

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:

Borehole Diameter: 8"
Casing Diameter: 2"
Well Materials: PVC
Surface Completion:
Boring Method: HSA

DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	BLOW COUNT	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0–4	1	80	1.3	4/6/6	SP	very loose, lt red brown, med-fine sand, few silt, DRY, non-plastic non-cohesive	
6–10	2	80	1.3	4/5/5	SP	SAA	
12–14	3	40	1.8	25/26/25	ML	med-dense, lt brown, silt, trace sand, low plastic, cohesive	
16–20	4	90	1.8	5/6/6	ML	Loose, lt brown, silty sand DRY, low plastic, cohesive	
22–24	5	100	1.8	5/6/6	SP	Loose, lt yellow brown, fine sand little silt, non-plastic, non cohesive DRY	
11:40 28–30	6	40	1.8	4/8/9	SP	SAA	
32–34	7	60	1.2	18/26/26	ML	Stiff, dark brown, clay, trace sand, cohesive, non-plastic moist	
36–40	8	70	0.5		ML	SAA	
42–44	9	100	0.8		ML	SAA	
46–48	10	100	0.4		CL	Soft, dark brown clay, some sand, moist → wet, cohesive med-plasticity GW @ 48.5'	GW
50							

12:00 9 100 0.4 CL SAA

55 55'

TD 55'

ENSOLUM

Client: HEC
Project Name: SJ 30-6 31A
Project Location: RIO ARRIBA, NM
Project Manager: STUART HYDE

BORING LOG NUMBER: BH09
Project No.:

Date Sampled: 1-17-24
Drilled By: Ryan
Driller: EDI
Logged By: E. Carroll

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:

Borehole Diameter: 8"
Casing Diameter: 2"
Well Materials: pvc
Surface Completion:
Boring Method: HSA

DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	BLOW COUNT	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0–4	1	40	1.0	4/5/4	SP	loose, lt red brown, fine-med sand few silt, non cohesive	
6–10	2	50	1.8	4/5/5	SP	SAA	
12–14	3	50	2.7	4/4/4	SP	SAA	
16–20	4	50	2.8	3/3/4	SP	loose, yellow brown, fn sand some silt, non cohesive	
22–24	5	50	2.8	8/10/21	CL	stiff, brown, ~~clay~~ sandy clay cohesive, non-plastic, moist	
26–30	6	50	2.7	12/14/22	CL	SAA	
32	7	70	3.6	10/15/15	SC	lt brown dry clayey sand	
34					CL	very stiff, drk brown, clay few sand cohesive non-plastic	
36–40	8	45	1.7	8/14/19	CL	SAA moist	
42–44	9	60	1.6	6/9/10	CL	Stiff, drk brown, sandy clay moist cohesive non-plastic	
14:30 46–48	10	70	5.2	5/5/4	CL	Soft, drk brown sandy clay cohesive, plastic wet	
50					SP	Loose, redbrown, coarse sand	
14'45	11	80	1.7	8/12/12	CL	Stiff drk brow clay few sand cohesive, plastic	

TD 55' GW 41'

ENSOLUM

Client: HEC
Project Name: SJ 30-6 31A
Project Location: RIO ARRIBA, NM
Project Manager: STUART HYDE

BORING LOG NUMBER: BH10
Project No.:

Date Sampled:
Drilled By:
Driller:
Logged By:

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	BLOW COUNT	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0–4	1	30	1.5	6/7/7	SC	Loose, fn sand, some silt, lt brown, dry, non cohesive, non plastic	
6–10	2	70	2.6	3/4/4	SP	Loose, med-fn sand, few silt brown, moist, non cohesive, non plastic	
12–16	3	75	2.3	6/8/8	SC	med dense, fn sand, few clay/silt brown, moist, non cohesive, non plastic	
16–20	4	90	2.8	7/8/8	~~SP~~ SW	Loose, coarse sand, lt brown dry, non-cohesive, non plastic	
22–24	5	90	3.1	12/14/16	SW CL	SAA wet Stiff, drk brown, clay few sand moist non-cohesive	Sat sand lens PID = 3.2
26–30	6	80	4.0	16/16/16	CL	SAA w interbedded sand layer	
10:15 32–34	7	75	7.9	12/14/14	CL	Stiff, drk brown, clay, ~~few~~ some Sand, moist non-cohesive	
36–40	8	80	4.1	4/6/6	CL	soft, dark brown, sandy clay moist to wet, low plastic, cohesive	
42–44	9	80	2.2		SP	Loose, red brown, coarse, sand non-plastic/cohesive, wet	Saturated sand PID = 1.9
10:40 46–50	10	90	1.8		CL	Stiff, dark brown, clay little Sand, moist, low plastic, cohesive	

ENSOLUM

Client: HEC
Project Name: SJ 30-6 31A
Project Location: RIO ARRIBA, NM
Project Manager: STUART HYDE

BORING LOG NUMBER: BH11
Project No.:

Date Sampled:
Drilled By:
Driller:
Logged By:

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	BLOW COUNT	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0–4	1	40	0.6	3/5/6	SP	Loose, lt brown, med-fn sand, few silt, dry, non-cohesive	
6–10	2	60	0.9	3/3/4	SP	SAA	
12–14	3	60	1.4	2/3/3	SP	med dense lt brown, fn sand, some silt, moist, non-cohesive	
16–20	4	70	1.1	2/3/3	SP	~~m~~Loose, lt brown, med-fn sand little silt, ~~no~~ moist non-cohesive	
22–24	5	75	1.1	5/7/9	SP	med dense, drk brown, fn sand & silt, moist, non cohesive some clay	
26–30	6	70	1.4	8/9/9	SP	SAA	
32–34	7	70	1.5	7/9/10	CL	Stiff, drk brown, sandy clay, moist, non-cohesive	
36–40	8	100	0.8	6/8/8	CL	Stiff, drk brown, clay, some silt, few sand, moist, cohesive med-plastic	
1400 42–44	9	100	2.0	3/4/4	SP CL	Loose, yellow brown coarse sand wet Soft, brown, sandy clay	▶
1415 46–50	10	100	1.4			medium drk brown clay, some silt	

TD: 50' GW ~43'

ENSOLUM

Client:
Project Name:
Project Location:
Project Manager:

BORING LOG NUMBER: BH12
Project No.:

Date Sampled:
Drilled By:
Driller:
Logged By:

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0–4	1	20	7500	2/3/3	SP	Loose, brown, sand, some silt, moist, non cohesive Strong odor	
6–10	2	10	749	2/4/3	SP	SAA	
12–14	3	90	164	3/3/4	SP	med dense, drk brown, sand some silt few clay non-cohesive	
16–20	4	70	509	2/2/1	SP	Loose, yellow brn, fn sand some silt, non-cohesive	
22–24	5	70	262	3/4/4	SP	med dense, lt brown, fn sand some silt/clay non-cohesive	
26–30	6	80	76.7	10/11/11	SP	med dense, drk brown, clayey sand Slight odor	
32–34	7	100	207	13/14/14	CL	Stiff, drk brown, sandy clay	
36–40	8	100 ~~150~~	1505	8/10/11	CL	Soft, drk brown, clay, some sand, cohesive low plasticity	
42–44	9	80	88.5	2/2/3	SP	Loose, coarse sand, wet	
46–50	10	65	4.3	8/8/8	CL	Stiff, lt brown, clay some sand	

ENSOLUM

APPENDIX D

Soil Sample Laboratory Analytical Reports

eurofins | Environment Testing

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

February 03, 2024

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

RE: SJ 30 6 31A OrderNo.: 2401893

Dear Kate Kaufman:

Eurofins Environment Testing South Central, LLC received 18 sample(s) on 1/23/2024 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH08 @ 29-31
Project: SJ 30 6 31A
Collection Date: 1/17/2024 11:40:00 AM
Lab ID: 2401893-001 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/26/2024 12:47:04 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/26/2024 12:47:04 PM
Surr: DNOP	85.6	69-147		%Rec	1	1/26/2024 12:47:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/26/2024 5:35:01 PM
Surr: BFB	96.1	15-244		%Rec	1	1/26/2024 5:35:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 5:35:01 PM
Toluene	ND	0.050		mg/Kg	1	1/26/2024 5:35:01 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/26/2024 5:35:01 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/26/2024 5:35:01 PM
Surr: 4-Bromofluorobenzene	87.4	39.1-146		%Rec	1	1/26/2024 5:35:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH08 @ 54-56
Project: SJ 30 6 31A
Collection Date: 1/17/2024 12:00:00 PM
Lab ID: 2401893-002 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/26/2024 1:47:08 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/26/2024 1:47:08 PM
Surr: DNOP	83.5	69-147		%Rec	1	1/26/2024 1:47:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2024 5:58:47 PM
Surr: BFB	95.6	15-244		%Rec	1	1/26/2024 5:58:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 5:58:47 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2024 5:58:47 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2024 5:58:47 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/26/2024 5:58:47 PM
Surr: 4-Bromofluorobenzene	86.3	39.1-146		%Rec	1	1/26/2024 5:58:47 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH09 @ 49-51
Project: SJ 30 6 31A
Collection Date: 1/17/2024 2:30:00 PM
Lab ID: 2401893-003 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/26/2024 1:59:07 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/26/2024 1:59:07 PM
Surr: DNOP	84.6	69-147		%Rec	1	1/26/2024 1:59:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/26/2024 6:22:28 PM
Surr: BFB	100	15-244		%Rec	1	1/26/2024 6:22:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 6:22:28 PM
Toluene	ND	0.046		mg/Kg	1	1/26/2024 6:22:28 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/26/2024 6:22:28 PM
Xylenes, Total	ND	0.092		mg/Kg	1	1/26/2024 6:22:28 PM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	1/26/2024 6:22:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH09 @ 54-56
Project: SJ 30 6 31A
Collection Date: 1/17/2024 2:45:00 PM
Lab ID: 2401893-004 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/26/2024 2:11:11 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 2:11:11 PM
Surr: DNOP	84.7	69-147		%Rec	1	1/26/2024 2:11:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 6:46:09 PM
Surr: BFB	96.5	15-244		%Rec	1	1/26/2024 6:46:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 6:46:09 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 6:46:09 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 6:46:09 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/26/2024 6:46:09 PM
Surr: 4-Bromofluorobenzene	88.6	39.1-146		%Rec	1	1/26/2024 6:46:09 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH10 @ 34-36
Project: SJ 30 6 31A
Collection Date: 1/18/2024 10:15:00 AM
Lab ID: 2401893-005 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	20	10		mg/Kg	1	1/26/2024 2:23:09 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/26/2024 2:23:09 PM
Surr: DNOP	85.5	69-147		%Rec	1	1/26/2024 2:23:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 7:09:45 PM
Surr: BFB	113	15-244		%Rec	1	1/26/2024 7:09:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 7:09:45 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 7:09:45 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 7:09:45 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/26/2024 7:09:45 PM
Surr: 4-Bromofluorobenzene	89.0	39.1-146		%Rec	1	1/26/2024 7:09:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH10 @ 49-51
Project: SJ 30 6 31A
Collection Date: 1/18/2024 10:40:00 AM
Lab ID: 2401893-006 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/26/2024 2:35:07 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 2:35:07 PM
Surr: DNOP	86.6	69-147		%Rec	1	1/26/2024 2:35:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 7:57:17 PM
Surr: BFB	98.4	15-244		%Rec	1	1/26/2024 7:57:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 7:57:17 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 7:57:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 7:57:17 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/26/2024 7:57:17 PM
Surr: 4-Bromofluorobenzene	89.9	39.1-146		%Rec	1	1/26/2024 7:57:17 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH11 @ 44-46
Project: SJ 30 6 31A
Collection Date: 1/18/2024 2:00:00 PM
Lab ID: 2401893-007 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/26/2024 2:47:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/26/2024 2:47:04 PM
Surr: DNOP	87.5	69-147		%Rec	1	1/26/2024 2:47:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/26/2024 8:21:16 PM
Surr: BFB	96.4	15-244		%Rec	1	1/26/2024 8:21:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 8:21:16 PM
Toluene	ND	0.046		mg/Kg	1	1/26/2024 8:21:16 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/26/2024 8:21:16 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/26/2024 8:21:16 PM
Surr: 4-Bromofluorobenzene	88.9	39.1-146		%Rec	1	1/26/2024 8:21:16 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH11 @ 48-50
Project: SJ 30 6 31A
Collection Date: 1/18/2024 2:15:00 PM
Lab ID: 2401893-008 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/26/2024 2:59:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/26/2024 2:59:01 PM
Surr: DNOP	87.9	69-147		%Rec	1	1/26/2024 2:59:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2024 8:44:53 PM
Surr: BFB	97.2	15-244		%Rec	1	1/26/2024 8:44:53 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 8:44:53 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2024 8:44:53 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2024 8:44:53 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/26/2024 8:44:53 PM
Surr: 4-Bromofluorobenzene	89.4	39.1-146		%Rec	1	1/26/2024 8:44:53 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12 @5
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:46:00 AM
Lab ID: 2401893-009 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	100	9.0		mg/Kg	1	1/26/2024 3:10:56 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/26/2024 3:10:56 PM
Surr: DNOP	87.9	69-147		%Rec	1	1/26/2024 3:10:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	1600	24		mg/Kg	5	1/26/2024 9:08:38 PM
Surr: BFB	714	15-244	S	%Rec	5	1/26/2024 9:08:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.47	0.12		mg/Kg	5	1/26/2024 9:08:38 PM
Toluene	26	2.4		mg/Kg	50	1/29/2024 8:35:15 PM
Ethylbenzene	6.0	0.24		mg/Kg	5	1/26/2024 9:08:38 PM
Xylenes, Total	110	4.9		mg/Kg	50	1/29/2024 8:35:15 PM
Surr: 4-Bromofluorobenzene	117	39.1-146		%Rec	5	1/26/2024 9:08:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12 @10
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:48:00 AM
Lab ID: 2401893-010 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	17	8.6		mg/Kg	1	1/26/2024 3:22:53 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	1/26/2024 3:22:53 PM
Surr: DNOP	85.6	69-147		%Rec	1	1/26/2024 3:22:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	2100	96		mg/Kg	20	1/29/2024 8:58:42 PM
Surr: BFB	335	15-244	S	%Rec	20	1/29/2024 8:58:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.78	0.024		mg/Kg	1	1/26/2024 9:32:13 PM
Toluene	45	0.96		mg/Kg	20	1/29/2024 8:58:42 PM
Ethylbenzene	9.0	0.96		mg/Kg	20	1/29/2024 8:58:42 PM
Xylenes, Total	150	1.9		mg/Kg	20	1/29/2024 8:58:42 PM
Surr: 4-Bromofluorobenzene	99.1	39.1-146		%Rec	20	1/29/2024 8:58:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12 @15
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:50:00 AM
Lab ID: 2401893-011 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/26/2024 3:34:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 3:34:53 PM
Surr: DNOP	83.8	69-147		%Rec	1	1/26/2024 3:34:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	15	5.0		mg/Kg	1	1/29/2024 9:45:35 PM
Surr: BFB	109	15-244		%Rec	1	1/29/2024 9:45:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.59	0.025		mg/Kg	1	1/29/2024 9:45:35 PM
Toluene	0.41	0.050		mg/Kg	1	1/29/2024 9:45:35 PM
Ethylbenzene	0.097	0.050		mg/Kg	1	1/29/2024 9:45:35 PM
Xylenes, Total	1.6	0.10		mg/Kg	1	1/29/2024 9:45:35 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	1/29/2024 9:45:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12 @20
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:52:00 AM
Lab ID: 2401893-012 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/26/2024 3:46:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 3:46:47 PM
Surr: DNOP	83.0	69-147		%Rec	1	1/26/2024 3:46:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	110	4.7		mg/Kg	1	1/26/2024 10:19:29 PM
Surr: BFB	353	15-244	S	%Rec	1	1/26/2024 10:19:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.12	0.024		mg/Kg	1	1/26/2024 10:19:29 PM
Toluene	2.9	0.047		mg/Kg	1	1/26/2024 10:19:29 PM
Ethylbenzene	0.37	0.047		mg/Kg	1	1/26/2024 10:19:29 PM
Xylenes, Total	7.0	0.095		mg/Kg	1	1/26/2024 10:19:29 PM
Surr: 4-Bromofluorobenzene	98.6	39.1-146		%Rec	1	1/26/2024 10:19:29 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@25
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:54:00 AM
Lab ID: 2401893-013 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/26/2024 3:58:46 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/26/2024 3:58:46 PM
Surr: DNOP	85.2	69-147		%Rec	1	1/26/2024 3:58:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/30/2024 9:59:34 PM
Surr: BFB	107	15-244		%Rec	1	1/30/2024 9:59:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/30/2024 9:59:34 PM
Toluene	ND	0.049		mg/Kg	1	1/30/2024 9:59:34 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/30/2024 9:59:34 PM
Xylenes, Total	0.16	0.097		mg/Kg	1	1/30/2024 9:59:34 PM
Surr: 4-Bromofluorobenzene	86.6	39.1-146		%Rec	1	1/30/2024 9:59:34 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@30
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:56:00 AM
Lab ID: 2401893-014 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/26/2024 4:10:41 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 4:10:41 PM
Surr: DNOP	83.3	69-147		%Rec	1	1/26/2024 4:10:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2024 11:07:02 PM
Surr: BFB	99.6	15-244		%Rec	1	1/26/2024 11:07:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 11:07:02 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2024 11:07:02 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2024 11:07:02 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/26/2024 11:07:02 PM
Surr: 4-Bromofluorobenzene	84.9	39.1-146		%Rec	1	1/26/2024 11:07:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@35
Project: SJ 30 6 31A
Collection Date: 1/19/2024 10:58:00 AM
Lab ID: 2401893-015 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/26/2024 4:22:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/26/2024 4:22:37 PM
Surr: DNOP	82.8	69-147		%Rec	1	1/26/2024 4:22:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 11:30:36 PM
Surr: BFB	108	15-244		%Rec	1	1/26/2024 11:30:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 11:30:36 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 11:30:36 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 11:30:36 PM
Xylenes, Total	0.10	0.099		mg/Kg	1	1/26/2024 11:30:36 PM
Surr: 4-Bromofluorobenzene	87.3	39.1-146		%Rec	1	1/26/2024 11:30:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@40
Project: SJ 30 6 31A
Collection Date: 1/19/2024 11:00:00 AM
Lab ID: 2401893-016 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/29/2024 1:24:18 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/29/2024 1:24:18 PM
Surr: DNOP	88.8	69-147		%Rec	1	1/29/2024 1:24:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	150	4.9		mg/Kg	1	1/27/2024 1:53:04 AM
Surr: BFB	415	15-244	S	%Rec	1	1/27/2024 1:53:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.25	0.024		mg/Kg	1	1/27/2024 1:53:04 AM
Toluene	3.1	0.049		mg/Kg	1	1/27/2024 1:53:04 AM
Ethylbenzene	0.65	0.049		mg/Kg	1	1/27/2024 1:53:04 AM
Xylenes, Total	9.7	0.097		mg/Kg	1	1/27/2024 1:53:04 AM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	1/27/2024 1:53:04 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 **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@45
Project: SJ 30 6 31A
Collection Date: 1/19/2024 11:02:00 AM
Lab ID: 2401893-017 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/29/2024 1:36:25 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/29/2024 1:36:25 PM
Surr: DNOP	88.8	69-147		%Rec	1	1/29/2024 1:36:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	26	4.6		mg/Kg	1	1/27/2024 3:03:56 AM
Surr: BFB	129	15-244		%Rec	1	1/27/2024 3:03:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	0.090	0.023		mg/Kg	1	1/27/2024 3:03:56 AM
Toluene	0.81	0.046		mg/Kg	1	1/27/2024 3:03:56 AM
Ethylbenzene	0.10	0.046		mg/Kg	1	1/27/2024 3:03:56 AM
Xylenes, Total	1.7	0.092		mg/Kg	1	1/27/2024 3:03:56 AM
Surr: 4-Bromofluorobenzene	91.4	39.1-146		%Rec	1	1/27/2024 3:03:56 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 **2401893**
Date Reported: **2/3/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH12@50
Project: SJ 30 6 31A
Collection Date: 1/19/2024 11:04:00 AM
Lab ID: 2401893-018 **Matrix:** SOIL **Received Date:** 1/23/2024 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/29/2024 1:48:29 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/29/2024 1:48:29 PM
Surr: DNOP	87.7	69-147		%Rec	1	1/29/2024 1:48:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/27/2024 4:14:53 AM
Surr: BFB	98.5	15-244		%Rec	1	1/27/2024 4:14:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/27/2024 4:14:53 AM
Toluene	ND	0.050		mg/Kg	1	1/27/2024 4:14:53 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/27/2024 4:14:53 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/27/2024 4:14:53 AM
Surr: 4-Bromofluorobenzene	87.6	39.1-146		%Rec	1	1/27/2024 4:14:53 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.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401893**

03-Feb-24

Client: HILCORP ENERGY

Project: SJ 30 6 31A

Sample ID: **MB-80100**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.2		10.00		82.5	69	147			

Sample ID: **LCS-80100**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	83.8	61.9	130			
Surr: DNOP	4.4		5.000		88.7	69	147			

Sample ID: **LCS-80109**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80109**	RunNo: **102750**
Prep Date: **1/26/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796506** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	61.9	130			
Surr: DNOP	4.6		5.000		91.8	69	147			

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#: **2401893**

03-Feb-24

Client: HILCORP ENERGY

Project: SJ 30 6 31A

Sample ID: **lcs-80094**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **80094**	RunNo: **102722**							
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795559**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	111	70	130			
Surr: BFB	2100		1000		214	15	244			

Sample ID: **lcs-80099**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **80099**	RunNo: **102722**							
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795560**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	2100		1000		210	15	244			

Sample ID: **mb-80094**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **80094**	RunNo: **102722**							
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795561**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		98.7	15	244			

Sample ID: **mb-80099**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **80099**	RunNo: **102722**							
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795562**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.4	15	244			

Sample ID: **2401893-016ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH12@40**	Batch ID: **80099**	RunNo: **102745**							
Prep Date: **1/25/2024**	Analysis Date: **1/30/2024**	SeqNo: **3796340**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	110	4.9	24.30	153.7	-196	70	130			S
Surr: BFB	3700		971.8		386	15	244			S

Sample ID: **2401893-016amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH12@40**	Batch ID: **80099**	RunNo: **102745**							
Prep Date: **1/25/2024**	Analysis Date: **1/30/2024**	SeqNo: **3796341**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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#: **2401893**

03-Feb-24

Client: HILCORP ENERGY

Project: SJ 30 6 31A

Sample ID: **2401893-016amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH12@40**	Batch ID: **80099**	RunNo: **102745**
Prep Date: **1/25/2024**	Analysis Date: **1/30/2024**	SeqNo: **3796341** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	52	4.9	24.34	153.7	-417	70	130	74.3	20	RS
Surr: BFB	2400		973.7		245	15	244	0	0	S

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#: **2401893**

03-Feb-24

Client: HILCORP ENERGY

Project: SJ 30 6 31A

Sample ID: **LCS-80094**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795615** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.1	70	130			
Toluene	0.93	0.050	1.000	0	92.8	70	130			
Ethylbenzene	0.95	0.050	1.000	0	94.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.3	70	130			
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	39.1	146			

Sample ID: **LCS-80099**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.5	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.5	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.4	70	130			
Surr: 4-Bromofluorobenzene	0.89		1.000		89.0	39.1	146			

Sample ID: **mb-80094**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795617** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.9	39.1	146			

Sample ID: **mb-80099**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795618** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.89		1.000		88.9	39.1	146			

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#: **2401893**

03-Feb-24

Client: HILCORP ENERGY

Project: SJ 30 6 31A

Sample ID: **2401893-017ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH12@45**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795643** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.023	0.9268	0.09050	96.3	70	130			
Toluene	1.6	0.046	0.9268	0.8066	89.3	70	130			
Ethylbenzene	1.0	0.046	0.9268	0.1040	102	70	130			
Xylenes, Total	4.4	0.093	2.780	1.741	96.1	70	130			
Surr: 4-Bromofluorobenzene	0.87		0.9268		94.3	39.1	146			

Sample ID: **2401893-017amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH12@45**	Batch ID: **80099**	RunNo: **102745**
Prep Date: **1/25/2024**	Analysis Date: **1/30/2024**	SeqNo: **3796400** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.65	0.023	0.9174	0.09050	60.9	70	130	40.9	20	RS
Toluene	1.2	0.046	0.9174	0.8066	45.6	70	130	28.6	20	RS
Ethylbenzene	0.80	0.046	0.9174	0.1040	75.5	70	130	27.4	20	R
Xylenes, Total	3.1	0.092	2.752	1.741	49.7	70	130	34.7	20	RS
Surr: 4-Bromofluorobenzene	0.80		0.9174		87.4	39.1	146	0	0	

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

eurofins | Environment Testing

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2401893** RcptNo: **1**

Received By: **Tracy Casarrubias** **1/23/2024 6:30:00 AM**

Completed By: **Tracy Casarrubias** **1/23/2024 7:28:22 AM**

Reviewed By: 1-23-24

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: 1/23/24

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 1/23/24

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes	Morty		

Chain-of-Custody Record

Client: Hilcorp

Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: Kkaufman@hilcorp.com

QA/QC Package:

☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☐ Rush

Project Name:

SJ 30-6 31A

Project #:

Project Manager:

Stuart Hyde - Ensolum

Sampler: E. Carroll

On Ice: ☑ Yes ☐ No marty

# of Coolers: 1

Cooler Temp (Including CF): 2.0 +0.1 = 2.1 (°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. 2401893	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)
1-17	11:40	soil	BH08 @ 29-31	1 4oz	Cool	001	X	X								
	12:00		BH08 @ 54-56			002										
	14:30		BH09 @ 49-51			003										
	14:45		BH09 @ 54-56			004										
1-18	10:15		BH10 @ 34-36			005										
	10:40		BH10 @ 49-51			006										
	14:00		BH11 @ 44-46			007										
	1415		BH11 @ 48-50			008										
1-19	1046		BH12 @ 5			009										
	1048		BH12 @ 10			010										
	1050		BH12 @ 15			011										
	1052		BH12 @ 20			012										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1-22	16:40				1/22/24	1640
1/22/24	1800			courier	1/23/24	6:30

Remarks:

CC: Shyde@ensolum.com

ecarroll@ensolum.com

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

Chain-of-Custody Record

Client: Hilcorp

Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: KKaufman@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: SJ 30-6 31A

Project #:

Project Manager: Stuart Hyde - Ensolum

Sampler: E. Carroll

On Ice: ☒ Yes ☐ No marty

# of Coolers: 1

Cooler Temp(Including CF): 2.0 + 0.1 = 2.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2401893	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)
1-19	1054	soil	BH12 @ 25	1 4oz	cool	013	X	X								
1-19	1056		BH12 @ 30			014										
	1058		BH12 @ 35			015										
	~~10~~ 1100		BH12 @ 40			016										
	1102		BH12 @ 45			017										
	1104		BH12 @ 50			018										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
1-22	1640				1/22/24	1640
1/22/24	1800			courier	1/23/24	6:30

Remarks:

cc: shyde@ensolum.com

ecarroll@ensolum.com

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

ENSOLUM

APPENDIX E

Groundwater Sampling Forms

Groundwater Sample Collection Form

Project Name: San Juan 30-6 Un 31A
Project Number: 07A1988062
Project Location: San Juan County, New Mexico
Sampler: Zach Myers

Sample ID: BH06
Sample Date: 12/19/2023
Laboratory: Hall Environmental
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1325
Shipping Method: Drop-Off w/ Courier

Depth to Water: 43.01
Time: 1300
Total Depth of Well: 47.50
Depth to Product: —

Vol. of Water to Purge: 2.2 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: 3x 40mL VOA

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)C	Conductivity (us or ms)	Comments
1308	1	1	7.07	12.8	5.49	brown-silty no sheen, no odor
1315	.5	1.5	7.54	11.7	5.51	SAA
1319	.5	2.0	7.69	11.2	5.58	SAA
1322	.2	2.2	7.73	11.1	5.57	SAA

Comments: —

Describe Deviations from SOP: —

Signature: Zach Myers Date: 12-19-23

Groundwater Sample Collection Form

Project Name: San Juan 30-6 Un 31A
Project Number: 07A1988062
Project Location: San Juan County, New Mexico
Sampler: Zach Myers

Sample ID: BH07
Sample Date: 12/19/2023
Laboratory: Hall Environmental
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1400
Shipping Method: Drop-Off w/ Courier

Depth to Water: 44.52
Time: 1330
Total Depth of Well: 52.00
Depth to Product: –

Vol. of Water to Purge: 3.65 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: 3x 40mL VOA

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F) C	Conductivity (us or ms)	Comments
1335	1	1	7.83	12.7	2.74	brown - silty no sheen, no odor
1343	1	2	7.82	11.8	4.14	SAA
1350	1	3	7.78	11.7	5.01	SAA
1358	.65	3.65	7.79	11.5	5.16	SAA

Comments: –

Describe Deviations from SOP: –

Signature: [signature] Date: 12-19-23

Groundwater Sample Collection Form

Project Name: SJ 30-6 31A
Project Number:
Project Location: San Juan County, NM
Sampler:
Sample ID: MW06
Sample Date: 1-31-24
Laboratory: Hall
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1308
Shipping Method: Drop off w/ courier
Depth to Water: 43.09
Time: 1250
Total Depth of Well: 47.50
Depth to Product: —
Vol. of Water to Purge: 2.15
(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging:
Method of Sampling:

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)C	Conductivity (us or ms)	Comments
1255	1	1	6.98	12.1	3.70	brown/silty, no sheen, no odor
1300	0.5	1.5	7.41	11.3	3.85	SAA
1304	0.5	2.0	7.67	11.2	4.24	SAA
1306	0.15	2.15	7.69	10.9	4.13	SAA

Comments: ✓

Describe Deviations from SOP: ✓

Signature: [signature] Date: 1-31-24

Groundwater Sample Collection Form

Project Name: SJ 30-6 31A
Project Number:
Project Location: San Juan County, NM
Sampler: Zach Myers

Sample ID: MW07
Sample Date: 1-31-24
Laboratory: Hall
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1340
Shipping Method: drop off w/ cooler

Depth to Water: 44.61
Time: 1315
Total Depth of Well: 52.00
Depth to Product: -

Vol. of Water to Purge: 3.6 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: installed bailer
Method of Sampling: 3x VOA

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)C	Conductivity (us or ms)	Comments
1320	1	1	7.49	12.2	4.17	brown/silty, no sheen, no odor
1326	1	2	7.60	11.5	4.64	SAA
1333	1	3	7.69	11.4	5.09	SAA
1337	0.6	3.6	7.82	11.0	4.98	SAA

Comments: -

Describe Deviations from SOP: -

Signature: Zach Myers Date: 1-31-24

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Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062

Project Location: San Juan 30-6-31A
Sampler: RH/PA

Sample ID: MW-08
Sample Date: 1/23/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX

Matrix: Groundwater
Sample Time: 10:45
Shipping Method: Hand Delivery

Depth to Water: 51.19
Time:

Total Depth of Well: 54.39
Depth to Product: —

Vol. of Water to Purge: 1.57 gal
(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. ~~(F)~~ C	Conductivity (us or ~~ms~~)	Comments
1034	0.25	0.25	6.66	12.7	5.63	mostly clear No sheen/odor
1036	0.25	.5	7.05	12.9	5.46	slt. murky tan No S/O
1039	0.5	1.0	7.37	13.2	5.40	SAA
1041	0.5	1.5	7.47	13.3	5.40	SAA
1042	0.5	2.0	7.61	13.3	5.39	more silty SAA

Comments: Good recharge

Describe Deviations from SOP: —

Signature: [signature]

Date: 1/23/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: RH/PA

Sample ID: MW09
Sample Date: 1/23/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 11:22
Shipping Method: Hand Delivery

Depth to Water: 49.86
Time: 1109
Total Depth of Well: 54.40
Depth to Product: —

Vol. of Water to Purge: 2.22 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
11:11	0.5	0.5	6.6	12.5	5.71	Silty Brown N Sean/Gdr
11:13	0.5	1.0	7.18	13.2	5.74	↓
11:18	0.5	1.5	7.33	13.3	5.75	↓
11:20	0.5	2.0	7.53	13.3	5.75	↓

Comments: re-charged w/ clearish water for sampling

Describe Deviations from SOP: Well Began to bail Dry @ 2gal

Signature: RH
Date: 1/23/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: RH/PA

Sample ID: MW10
Sample Date: 1/23/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1200
Shipping Method: Hand Delivery

Depth to Water: 41.03
Time: 1200
Total Depth of Well: 48.20
Depth to Product: —

Vol. of Water to Purge: 3.5 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
1145	1.0	1.0	6.12	12.0	5.25	Brown Silty No odor/Sheen
1151	1.0	2.0	7.21	12.8	5.26	SAA
1155	0.5	2.5	7.56	12.8	5.28	SAA
1157	0.5	3.0	7.66	12.8	5.27	Slight less silty SAA
1158	0.5	3.5	7.69	12.7	5.28	SAA

Comments:

Describe Deviations from SOP:

Signature: RH Date: 1/23/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: RH/PA

Sample ID: MW11
Sample Date: 1/23/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1235
Shipping Method: Hand Delivery

Depth to Water: 41.36
Time: 12:15
Total Depth of Well: 49.70
Depth to Product: —

Vol. of Water to Purge: 4.08 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Bailer

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
12:18	1.0	1.0	6.34	12.5	4.78	Brown Silty NO SHO
12:21	1.0	2.0	7.18	12.8	4.75	SAA
12:24	1.0	3.0	7.57	13.1	4.75	SAA
12:30	1.0	4.0	7.73	13.1	4.75	

Comments: —

Describe Deviations from SOP: —

Signature: PA
Date: 1/23/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW06
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1335
Shipping Method: Hand Delivery

Depth to Water: 43.02
Time: 1320
Total Depth of Well: 47.50
Depth to Product:

Vol. of Water to Purge: 2.2 gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Grab

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	1.0	1.0	6.98	57.6	5.25	NOS/O first bailer clear then silty brown
	0.5	1.5	6.96	56.4	5.24	Silty brown NOS/O
	0.5	2.0	6.97	56.5	5.12	↓
	0.25	2.25	6.97	56.8	5.09	↓

Comments: /

Describe Deviations from SOP: /

Signature: PA
Date: 5/8/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062

Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW07
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX

Matrix: Groundwater
Sample Time: 1515
Shipping Method: Hand Delivery

Depth to Water: 44.55
Time:

Total Depth of Well: 52.00
Depth to Product: —

Vol. of Water to Purge: 3.6gal
(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Grab

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	1.0	1	7.25	57.4	5.10	
	1.0	2	~~6.99~~ 7.46	56.1	5.06	
	1.0	3	7.13	55.9	4.99	
	0.5	3.5	7.05	56.0	4.92	
	0.25	3.75	7.07	55.8	4.90	
	~~0.25~~	~~NA~~				

Comments:

Describe Deviations from SOP:

Signature: PA

Date: 5/8/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062

Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW08
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX

Matrix: Groundwater
Sample Time: 1205
Shipping Method: Hand Delivery

Depth to Water: 51.13
Time: 1138

Total Depth of Well: 54.39
Depth to Product: —

Vol. of Water to Purge: 1.6 gal
Method of Purging: Bailer
Method of Sampling: Grab

(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	0.25	0.25	6.21	61.1	5.48	NO S/O Some Silts
	0.25	0.5	6.70	58.1	5.39	SAA
	0.25	0.75	6.83	57.2	5.44	SAA
	0.25	1.0	6.94	57.0	5.42	
	0.5	1.5	6.97	56.4	5.41	
	0.25	1.75	6.99	56.1	5.39	
	0.2	1.95	7.00	55.8	5.42	

Comments:

Describe Deviations from SOP:

Signature: PS

Date: 5/8/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW09
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1230
Shipping Method: Hand Delivery

Depth to Water: 49.82
Time: 1210
Total Depth of Well: 54.40
Depth to Product: —

Vol. of Water to Purge: 2.25 gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Grab

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	0.5	0.5	6.66	56.9	6.57	NO S/O Silty Brown
	0.5	1.0	6.93	56.1	5.90	SAA
	0.5	1.5	7.03	56.0	5.88	
	0.5	2.0	7.05	56.2	5.88	
	0.25	2.25	7.09	56.3	5.88	Purging Complete

Comments: —

Describe Deviations from SOP: —

Signature: PA
Date: 5/8/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW10
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1305
Shipping Method: Hand Delivery

Depth to Water: 40.98
Time: 1243
Total Depth of Well: 48.20
Depth to Product:

Vol. of Water to Purge: 3.5 gal (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Grab

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	1.0	1.0	7.3	57.0	5.22	NO S/O Some Silts Brown
	1.0	2.0	7.0	56.2	5.29	SAA
	1.0	3.0	7.03	56.3	5.25	↓
	0.5	3.5	7.02	55.9	5.28	↓

Comments:

Describe Deviations from SOP:

Signature: RA
Date: 5/8/24

ENSOLUM

Groundwater Sample Collection Form

Project Name: San Juan 30-6-31A
Project Number: 07A1988062
Project Location: San Juan 30-6-31A
Sampler: PA

Sample ID: MW11
Sample Date: 5/8/2024
Laboratory: Eurofins Albuquerque
Analyses: BTEX
Matrix: Groundwater
Sample Time: 1410
Shipping Method: Hand Delivery

Depth to Water: 41.40
Time: 1350
Total Depth of Well: 49.70
Depth to Product: —

Vol. of Water to Purge: 4.0 (height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols
Method of Purging: Bailer
Method of Sampling: Grab

Time	Vol. Removed	Total Vol. Removed (gallons)	pH (std. units)	Temp. (F)	Conductivity (us or ms)	Comments
	1.0	~~7.0~~ 1.0	7.00	57.6	4.80	NO S/O Silty Brown
	1.0	2.0	6.95	56.4	4.79	SAA
	1.0	3.0	6.98	56.1	4.78	"
	1.0	4.0	6.96	56.5	4.75	√

Comments: —

Describe Deviations from SOP: —

Signature: RA

Date: 5/8/24

ENSOLUM

APPENDIX F

Groundwater Sample Laboratory Analytical Reports

eurofins | Environment Testing

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

December 29, 2023

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

RE: San Juan 30 6 UN 31A OrderNo.: 2312C49

Dear Kate Kaufman:

Eurofins Environment Testing South Central, LLC received 2 sample(s) on 12/21/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2312C49**
Date Reported: **12/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH06
Project: San Juan 30 6 UN 31A **Collection Date:** 12/19/2023 1:25:00 PM
Lab ID: 2312C49-001 **Matrix:** AQUEOUS **Received Date:** 12/21/2023 6:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	140	2.0		µg/L	2	12/27/2023 4:04:20 PM
Toluene	ND	2.0		µg/L	2	12/27/2023 4:04:20 PM
Ethylbenzene	21	2.0		µg/L	2	12/27/2023 4:04:20 PM
Xylenes, Total	51	4.0		µg/L	2	12/27/2023 4:04:20 PM
Surr: 4-Bromofluorobenzene	95.2	52.4-148		%Rec	2	12/27/2023 4:04:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2312C49**
Date Reported: **12/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07
Project: San Juan 30 6 UN 31A
Collection Date: 12/19/2023 2:00:00 PM
Lab ID: 2312C49-002 **Matrix:** AQUEOUS **Received Date:** 12/21/2023 6:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	2.0	D	µg/L	2	12/27/2023 4:28:02 PM
Toluene	ND	2.0	D	µg/L	2	12/27/2023 4:28:02 PM
Ethylbenzene	ND	2.0	D	µg/L	2	12/27/2023 4:28:02 PM
Xylenes, Total	ND	4.0	D	µg/L	2	12/27/2023 4:28:02 PM
Surr: 4-Bromofluorobenzene	93.5	52.4-148	D	%Rec	2	12/27/2023 4:28:02 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312C49**

29-Dec-23

Client: HILCORP ENERGY

Project: San Juan 30 6 UN 31A

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **BA102084**	RunNo: **102084**
Prep Date:	Analysis Date: **12/27/2023**	SeqNo: **3768109** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	18	1.0	20.00	0	92.4	70	130			
Ethylbenzene	19	1.0	20.00	0	93.4	70	130			
Xylenes, Total	56	2.0	60.00	0	93.5	70	130			
Surr: 4-Bromofluorobenzene	19		20.00		95.1	52.4	148			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **BA102084**	RunNo: **102084**
Prep Date:	Analysis Date: **12/27/2023**	SeqNo: **3768110** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	19		20.00		96.1	52.4	148			

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

eurofins | Environment Testing

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2312C49 RcptNo: 1

Received By: Tracy Casarrubias 12/21/2023 6:40:00 AM

Completed By: Tracy Casarrubias 12/21/2023 11:15:34 AM

Reviewed By: SCM 12/21/23

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: SCM 12/21/23

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,phone number and Email/Fax are missing on COC- TMC 12/21/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Hilcorp: Kate Kaufman
kkaufman@hilcorp.com
Mailing Address:

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

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: San Juan 30-6 UN 31A
Project #:
Project Manager: Stuart Hyde
shyde@ensolum.com
Sampler: Zach Myers
On Ice: ☑ Yes ☐ No Yogi
# of Coolers: 1
Cooler Temp(including CF): 0.3+0=0.3 (°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. 2312C49	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)
12/19/23	1325	water	BH06	3xVOA	HCl	001	X									
12/19/23	1400	water	BH07	3xVOA	HCl	002	X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12/19/23	1620				12/19/23	1620
12/20/23	1730			courier	12/21/23	6:40

Remarks:
cc:
zmyers@ensolum.com

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

eurofins | Environment Testing

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

January 30, 2024

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

RE: San Juan 30 6 31A OrderNo.: 2401944

Dear Kate Kaufman:

Eurofins Environment Testing South Central, LLC received 4 sample(s) on 1/24/2024 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2401944**
Date Reported: **1/30/2024**

CLIENT: HILCORP ENERGY **Client Sample ID:** MW08
Project: San Juan 30 6 31A **Collection Date:** 1/23/2024 10:45:00 AM
Lab ID: 2401944-001 **Matrix:** GROUNDWA **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	2.0	D	µg/L	2	1/25/2024 12:37:41 AM
Toluene	ND	2.0	D	µg/L	2	1/25/2024 12:37:41 AM
Ethylbenzene	ND	2.0	D	µg/L	2	1/25/2024 12:37:41 AM
Xylenes, Total	ND	4.0	D	µg/L	2	1/25/2024 12:37:41 AM
Surr: 4-Bromofluorobenzene	83.3	52.4-148	D	%Rec	2	1/25/2024 12:37:41 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 **2401944**
Date Reported: **1/30/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW09
Project: San Juan 30 6 31A **Collection Date:** 1/23/2024 11:22:00 AM
Lab ID: 2401944-002 **Matrix:** GROUNDWA **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	1.0		µg/L	1	1/25/2024 1:01:44 AM
Toluene	ND	1.0		µg/L	1	1/25/2024 1:01:44 AM
Ethylbenzene	ND	1.0		µg/L	1	1/25/2024 1:01:44 AM
Xylenes, Total	ND	2.0		µg/L	1	1/25/2024 1:01:44 AM
Surr: 4-Bromofluorobenzene	86.4	52.4-148		%Rec	1	1/25/2024 1:01:44 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 **2401944**
Date Reported: **1/30/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW10
Project: San Juan 30 6 31A **Collection Date:** 1/23/2024 12:00:00 PM
Lab ID: 2401944-003 **Matrix:** GROUNDWA **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	1.0		µg/L	1	1/24/2024 5:05:48 PM
Toluene	ND	1.0		µg/L	1	1/24/2024 5:05:48 PM
Ethylbenzene	ND	1.0		µg/L	1	1/24/2024 5:05:48 PM
Xylenes, Total	ND	2.0		µg/L	1	1/24/2024 5:05:48 PM
Surr: 4-Bromofluorobenzene	83.3	52.4-148		%Rec	1	1/24/2024 5:05:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401944**
Date Reported: **1/30/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** MW11
Project: San Juan 30 6 31A **Collection Date:** 1/23/2024 12:35:00 PM
Lab ID: 2401944-004 **Matrix:** GROUNDWA **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	1.0		µg/L	1	1/24/2024 5:29:31 PM
Toluene	ND	1.0		µg/L	1	1/24/2024 5:29:31 PM
Ethylbenzene	ND	1.0		µg/L	1	1/24/2024 5:29:31 PM
Xylenes, Total	ND	2.0		µg/L	1	1/24/2024 5:29:31 PM
Surr: 4-Bromofluorobenzene	85.2	52.4-148		%Rec	1	1/24/2024 5:29:31 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401944**

30-Jan-24

Client: HILCORP ENERGY

Project: San Juan 30 6 31A

Sample ID: **2401944-001ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **MW08**	Batch ID: **BW102647**	RunNo: **102647**							
Prep Date:	Analysis Date: **1/25/2024**	SeqNo: **3792812**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	35	2.0	40.00	0.4000	86.1	70	130			D
Toluene	35	2.0	40.00	0	88.4	70	130			D
Ethylbenzene	36	2.0	40.00	0	89.3	70	130			D
Xylenes, Total	110	4.0	120.0	0.6920	88.8	70	130			D
Surr: 4-Bromofluorobenzene	36		40.00		89.0	52.4	148			D

Sample ID: **2401944-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **MW08**	Batch ID: **BW102647**	RunNo: **102647**							
Prep Date:	Analysis Date: **1/25/2024**	SeqNo: **3792813**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	34	2.0	40.00	0.4000	83.1	70	130	3.45	20	D
Toluene	34	2.0	40.00	0	85.4	70	130	3.48	20	D
Ethylbenzene	35	2.0	40.00	0	86.6	70	130	3.08	20	D
Xylenes, Total	110	4.0	120.0	0.6920	87.6	70	130	1.31	20	D
Surr: 4-Bromofluorobenzene	35		40.00		87.6	52.4	148	0	0	D

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSW**	Batch ID: **BW102647**	RunNo: **102647**							
Prep Date:	Analysis Date: **1/24/2024**	SeqNo: **3792819**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.9	70	130			
Toluene	18	1.0	20.00	0	91.2	70	130			
Ethylbenzene	18	1.0	20.00	0	92.2	70	130			
Xylenes, Total	56	2.0	60.00	0	92.8	70	130			
Surr: 4-Bromofluorobenzene	18		20.00		91.2	52.4	148			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBW**	Batch ID: **BW102647**	RunNo: **102647**							
Prep Date:	Analysis Date: **1/24/2024**	SeqNo: **3792820**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	18		20.00		89.0	52.4	148			

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

Sample Log-In Check List

Client Name: **Hilcorp Energy** Work Order Number: **2401944** RcptNo: **1**

Received By: **Tracy Casarrubias** **1/24/2024 7:15:00 AM**

Completed By: **Tracy Casarrubias** **1/24/2024 8:42:34 AM**

Reviewed By: TMC 1/24/24

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 SCM 1/24/24

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 1/24/24

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes	yogi		

Chain-of-Custody Record

Client: Hilcorp

Attn: Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: KKaufman@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 1/25/24

☐ Standard ☒ Rush Next Day

Project Name: San Juan 30-6 #31A

Project #:

Project Manager: Stuart Hyde

Sampler: Reece Hanson, Pete Anderson

On Ice: ☒ Yes ☐ No 4001

# of Coolers: 1

Cooler Temp (Including CF): 1.4-0.1=1.3 (°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. 2401944	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)
1/22/24	10:45	GW	MW08	3 VOA	Cool	001	X									
	11:22		MW09			002	X									
	12:00		MW10			003	X									
	12:35		MW11			004	X									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/23/24	15:10				1/23/24	1510
1/23/24	1743			courier	1/24/24	7:15

Remarks:

cc: shyde@ensolum.com
rhanson
panderson

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

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February 14, 2024

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

RE: San Juan 30 6 31A OrderNo.: 2402012

Dear Mitch Killough:

Eurofins Environment Testing South Central, LLC received 2 sample(s) on 2/1/2024 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2402012**
Date Reported: **2/14/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW06
Project: San Juan 30 6 31A
Collection Date: 1/31/2024 1:08:00 PM
Lab ID: 2402012-001 **Matrix:** AQUEOUS **Received Date:** 2/1/2024 6:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	140	2.0		µg/L	2	2/6/2024 5:47:45 PM
Toluene	ND	2.0		µg/L	2	2/6/2024 5:47:45 PM
Ethylbenzene	18	2.0		µg/L	2	2/6/2024 5:47:45 PM
Xylenes, Total	16	4.0		µg/L	2	2/6/2024 5:47:45 PM
Surr: 4-Bromofluorobenzene	93.2	52.4-148		%Rec	2	2/6/2024 5:47:45 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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

Analytical Report
Lab Order **2402012**
Date Reported: **2/14/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: MW07
Project: San Juan 30 6 31A
Collection Date: 1/31/2024 1:40:00 PM
Lab ID: 2402012-002 **Matrix:** AQUEOUS **Received Date:** 2/1/2024 6:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	2.0	D	µg/L	2	2/6/2024 6:11:39 PM
Toluene	ND	2.0	D	µg/L	2	2/6/2024 6:11:39 PM
Ethylbenzene	ND	2.0	D	µg/L	2	2/6/2024 6:11:39 PM
Xylenes, Total	ND	4.0	D	µg/L	2	2/6/2024 6:11:39 PM
Surr: 4-Bromofluorobenzene	89.7	52.4-148	D	%Rec	2	2/6/2024 6:11:39 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2402012**

14-Feb-24

Client: HILCORP ENERGY

Project: San Juan 30 6 31A

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBW**	Batch ID: **BA102890**	RunNo: **102890**							
Prep Date:	Analysis Date: **2/6/2024**	SeqNo: **3801983**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	17		20.00		84.8	52.4	148			

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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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: 2402012 RcptNo: 1

Received By: Tracy Casarrubias 2/1/2024 6:55:00 AM

Completed By: Tracy Casarrubias 2/1/2024 9:04:24 AM

Reviewed By: JH 2-1-24

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 ☐
   Samples not Frozen
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: JH 2/1/24

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	-0.8	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Hilcorp attn: Kate Kaufman
kkaufman@hilcorp.com

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: San Juan 30-9 31A

Project #:

Project Manager: Stuart Hyde
shyde@ensolum.com

Sampler: Zach Myers

On Ice: ☑ Yes ☐ No 4.0i

# of Coolers: 1

Cooler Temp(including CF): -0.7-0.1=-0.8 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2402012
1/31/24	1308	water	MW06	3xVOA	cool	001
1/31/24	1340	water	MW07	3xVOA	cool	002

Analysis Request

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)
✓									
✓									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/31/24	1455				1/31/24	1455
1/31/24	1720			courier	2/1/24	6:55

Remarks:
cc: zmyers@ensolum.com

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

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kate Kaufman
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 5/24/2024 11:20:56 AM

JOB DESCRIPTION

San Juan 30-6 31A

JOB NUMBER

885-4277-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
5/24/2024 11:20:56 AM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Laboratory Job ID: 885-4277-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Job ID: 885-4277-1
Project/Site: San Juan 30-6 31A

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: San Juan 30-6 31A

Job ID: 885-4277-1

Job ID: 885-4277-1 Eurofins Albuquerque

Job Narrative
885-4277-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/10/2024 7:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.9°C.

GC VOA
Method 8021B: The following sample was diluted due to the nature of the sample matrix: MW06 (885-4277-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW06
Date Collected: 05/08/24 13:35
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-1
Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**140**		2.0		ug/L			05/13/24 22:45	2
Ethylbenzene	**12**		2.0		ug/L			05/13/24 22:45	2
Toluene	ND		2.0		ug/L			05/13/24 22:45	2
Xylenes, Total	**11**		4.0		ug/L			05/13/24 22:45	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*43 - 158*		*05/13/24 22:45*	*2*

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW07
Date Collected: 05/08/24 15:15
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-2
Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/L			05/14/24 00:19	2
Ethylbenzene	ND		2.0		ug/L			05/14/24 00:19	2
Toluene	ND		2.0		ug/L			05/14/24 00:19	2
Xylenes, Total	ND		4.0		ug/L			05/14/24 00:19	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*43 - 158*		*05/14/24 00:19*	*2*

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW08

Date Collected: 05/08/24 12:05
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-3

Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/14/24 00:42	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 00:42	1
Toluene	ND		1.0		ug/L			05/14/24 00:42	1
Xylenes, Total	ND		2.0		ug/L			05/14/24 00:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*43 - 158*		*05/14/24 00:42*	*1*

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW09
Date Collected: 05/08/24 12:30
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-4
Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/14/24 01:06	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 01:06	1
Toluene	ND		1.0		ug/L			05/14/24 01:06	1
Xylenes, Total	ND		2.0		ug/L			05/14/24 01:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*43 - 158*		*05/14/24 01:06*	*1*

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW10

Date Collected: 05/08/24 13:05
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-5

Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/14/24 01:29	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 01:29	1
Toluene	ND		1.0		ug/L			05/14/24 01:29	1
Xylenes, Total	ND		2.0		ug/L			05/14/24 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*43 - 158*		*05/14/24 01:29*	*1*

Client Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW11
Date Collected: 05/08/24 14:10
Date Received: 05/10/24 07:45

Lab Sample ID: 885-4277-6
Matrix: Water

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/14/24 01:53	1
Ethylbenzene	ND		1.0		ug/L			05/14/24 01:53	1
Toluene	ND		1.0		ug/L			05/14/24 01:53	1
Xylenes, Total	ND		2.0		ug/L			05/14/24 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*43 - 158*		*05/14/24 01:53*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-4925/37
Matrix: Water
Analysis Batch: 4925

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/13/24 11:48	1
Ethylbenzene	ND		1.0		ug/L			05/13/24 11:48	1
Toluene	ND		1.0		ug/L			05/13/24 11:48	1
Xylenes, Total	ND		2.0		ug/L			05/13/24 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*43 - 158*		*05/13/24 11:48*	*1*

Lab Sample ID: MB 885-4925/38
Matrix: Water
Analysis Batch: 4925

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			05/13/24 23:55	1
Ethylbenzene	ND		1.0		ug/L			05/13/24 23:55	1
Toluene	ND		1.0		ug/L			05/13/24 23:55	1
Xylenes, Total	ND		2.0		ug/L			05/13/24 23:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*43 - 158*		*05/13/24 23:55*	*1*

Lab Sample ID: LCS 885-4925/35
Matrix: Water
Analysis Batch: 4925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	18.7		ug/L		93	70 - 130		
Ethylbenzene			20.0	18.3		ug/L		91	70 - 130		
Toluene			20.0	18.0		ug/L		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*43 - 158*

Lab Sample ID: LCS 885-4925/36
Matrix: Water
Analysis Batch: 4925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			20.0	17.7		ug/L		89	70 - 130		
Ethylbenzene			20.0	17.2		ug/L		86	70 - 130		
Toluene			20.0	16.8		ug/L		84	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*43 - 158*

QC Association Summary

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

GC VOA

Analysis Batch: 4925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4277-1	MW06	Total/NA	Water	8021B	
885-4277-2	MW07	Total/NA	Water	8021B	
885-4277-3	MW08	Total/NA	Water	8021B	
885-4277-4	MW09	Total/NA	Water	8021B	
885-4277-5	MW10	Total/NA	Water	8021B	
885-4277-6	MW11	Total/NA	Water	8021B	
MB 885-4925/37	Method Blank	Total/NA	Water	8021B	
MB 885-4925/38	Method Blank	Total/NA	Water	8021B	
LCS 885-4925/35	Lab Control Sample	Total/NA	Water	8021B	
LCS 885-4925/36	Lab Control Sample	Total/NA	Water	8021B	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: San Juan 30-6 31A

Job ID: 885-4277-1

Client Sample ID: MW06 — Lab Sample ID: 885-4277-1

Date Collected: 05/08/24 13:35 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		2	4925	JP	EET ALB	05/13/24 22:45

Client Sample ID: MW07 — Lab Sample ID: 885-4277-2

Date Collected: 05/08/24 15:15 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		2	4925	JP	EET ALB	05/14/24 00:19

Client Sample ID: MW08 — Lab Sample ID: 885-4277-3

Date Collected: 05/08/24 12:05 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		1	4925	JP	EET ALB	05/14/24 00:42

Client Sample ID: MW09 — Lab Sample ID: 885-4277-4

Date Collected: 05/08/24 12:30 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		1	4925	JP	EET ALB	05/14/24 01:06

Client Sample ID: MW10 — Lab Sample ID: 885-4277-5

Date Collected: 05/08/24 13:05 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		1	4925	JP	EET ALB	05/14/24 01:29

Client Sample ID: MW11 — Lab Sample ID: 885-4277-6

Date Collected: 05/08/24 14:10 — **Matrix: Water**
Date Received: 05/10/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8021B		1	4925	JP	EET ALB	05/14/24 01:53

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Job ID: 885-4277-1
Project/Site: San Juan 30-6 31A

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8021B		Water	Benzene
8021B		Water	Ethylbenzene
8021B		Water	Toluene
8021B		Water	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: H.E.C.

Attn: Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: KKaufman@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
5 day
☐ Standard ☐ Rush

Project Name:
~~San~~ 30-6 31A
San Juan

Project #:

Project Manager:
Stuart Hyde
Shyde@Ensolum.com

Sampler:
On Ice: ☑ Yes ☐ No
# of Coolers: ~~4~~ 1 in 5/10/24 Yog
Cooler Temp(including CF): 4.9-0=4.9 (°C)

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

885-4277 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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)					
5/8/24	1335	GW	MW06	VOA 3	HCl/cool	1															
	1515		MW07	3		2															
	1205		MW08	3		3															
	1230		MW09	3		4															
	1305		MW10	5		5															
	1410		MW11	3		6															

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/8/24	1800	Peter Anderson			5/8/24	1800
5/9/24	1730			courier	5/10/24	7:45

Remarks: CC: Panderson@Ensolum.com

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-4277-1

Login Number: 4277 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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 349483

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 349483
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Updated remediation plan is approved and must meet the following conditions; 1. Sampling frequency is required to meet 200 square feet per one (1) five (5)-point composite sample and to be applied to the sidewalls only. 2. Hilcorp may proceed to remediate soil &/or groundwater with an amendment of hydrogen perioxide. If used, Hilcorp must provide documentation on its application and verify the timeframe between the initiation of the application and the follow up sampling conducted. 3. If any other amendment is planned on being used, pre-approval by OCD prior to implementing must be granted by supplying, at a minimum, a material data sheet and references to any case studies.	7/30/2024