

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	NAPP2301160771
District RP	
Facility ID	
Application ID	

I Release Notification

Responsible Party

Responsible Party: Hilcorp Energy	OGRID: 372171
Contact Name: Samantha Grabert	Contact Telephone: 713-757-7116
Contact email: Samantha.grabert@hilcorp.com	Incident # (assigned by OCD)
Contact mailing address: 1111 Travis St. Houston, TX 77471	

Location of Release Source

Latitude: 36.77153 Longitude: -107.47234  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: San Juan 30-6 Unit 31A	Site Type: Well Site
Date Release Discovered: 12/27/2022	API# (if applicable): 30-039-25620

Unit Letter	Section	Township	Range	County
F	33	030N	006W	Rio Arriba

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: GOMEZ Y GOMEZ INC.)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls) 92	Volume Recovered (bbls) 0
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Hilcorp operator discovered release due to corrosion on the J leg piping of the condensate tank oil dump line. The tank was emptied and will undergo an integrity inspection and coating before being put back into service.


State of New Mexico  
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?  Release volume was greater than 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?  Immediate notification was made by Samantha Grabert via email at 10:12 AM MST on Wednesday, 12/28/2022 to Nelson Velez at NMOCD.	

**Initial Response**

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:  	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Samantha Grabert</u>	Title: <u>Environmental Specialist</u>
Signature: <u></u>	Date: <u>1/11/2023</u>
email: <u>samantha.grabert@hilcorp.com</u>	Telephone: <u>713-757-7116</u>
<b><u>OCD Only</u></b> Received by: <u>Jocelyn Harimon</u> Date: <u>01/12/2023</u>	

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
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**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 175301

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 175301
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	1/12/2023

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## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>38</u> (ft bgs)
Did this release impact groundwater or surface water?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

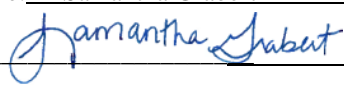
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.



State of New Mexico  
Oil Conservation Division

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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Samantha Grabert Title: Environmental Specialist  
Signature:  Date: 6/21/2023  
email: samantha.grabert@hilcorp.com Telephone: 713-757-7116

**OCD Only**

Received by: Shelley Wells Date: 6/23/2023

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## Remediation Plan


**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

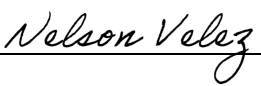
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Samantha Grabert Title: Environmental Specialist  
Signature:  Date: 6/21/2023  
email: samantha.grabert@hilcorp.com Telephone: 713-757-7116

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

- ☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved  
see text box below - NV

Signature:  Date: 09/20/2023

Remediation plan is approved as written. Hilcorp has 90-days (December 19, 2023) to submit its dual phase extraction pilot test report and recommended remedial action(s).



June 21, 2023

**New Mexico Oil Conservation Division**

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

**Re: Site Investigation Report and 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 *Site Investigation Report and 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.

**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. Agency notifications are attached as Appendix A. The release was assigned NMOCD Incident Number NAPP2301160771.

**SITE CHARACTERIZATION**

The Site is located approximately 8 miles southeast of Navajo Dam, New Mexico, on land managed by the New Mexico State Land Office (NMSLO). As part of the site characterization, local geology/hydrogeology and nearby sensitive receptors were assessed in accordance with Title 19, Chapter 15, Part 29, Sections 12 and 13 of the New Mexico Administrative Code (NMAC). This information is further discussed below.

**GEOLOGY AND HYDROGEOLOGY**

The geology underlying the Site is the Tertiary San Jose Formation which is characterized by course-grained arkose with interbedded mudstones and lenses of claystone, siltstone, and poorly consolidated sandstone (Stone, et. al., 1983). This formation ranges in thickness from 200 feet to 2,700 feet. Water bearing units within the San Jose Formation are largely untested and display variable hydrologic properties dependent on location (Stone, et. al., 1983). Where sufficient yield is present, the primary use

of groundwater from this formation is for domestic and/or livestock supply. The San Jose Formation is underlain by the Nacimiento Formation.

### POTENTIAL SENSITIVE RECEPTORS

Potential nearby receptors were assessed through desktop reviews of United States Geological Survey (USGS) topographic maps, Federal Emergency Management Administration (FEMA) Geographic Information System (GIS) maps, New Mexico Office of the State Engineer (NMOSE) database, aerial photographs, and site-specific observations.

The nearest significant watercourse to the Site is Frances Creek located approximately 540 feet east of the Site. The nearest data point for depth to groundwater to the Site is a cathodic well advanced on the San Juan 30-6 Unit #495 well pad, located approximately 1,441 feet south of the Site. This well indicates that the shallowest groundwater is approximately 150 feet below ground surface (bgs) in this area. However, during drilling of borings during the site investigation activities (further described below), groundwater was encountered at a depth of approximately 38 feet bgs.

The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland. No wellhead protection areas, springs, or domestic/stock wells are located within a ½-mile from the Site. The Site is not within a 100-year floodplain, overlying a subsurface mine, or located within an area underlain by unstable geology (area not designated as high potential karst by the Bureau of Land Management). Schools, hospitals, institutions, churches, and/or other occupied permanent residence or structures are not located within 300 feet of the Site. A Site receptor map is shown on Figure 1.

### SITE CLOSURE CRITERIA

Based on the information presented above and in accordance with the *Table 1, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 NMAC), 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

### SITE INVESTIGATION ACTIVITIES

To investigate potential impacts, Hilcorp retained Ensolum to perform delineation activities at the Site. On January 23, 2023, initial investigation efforts were conducted using an excavator to advance three potholes (SS01, SS02, and SS03) at the Site shown on Figure 2. The potholes were advanced to depths of 15 feet bgs. During the investigation, an Ensolum geologist logged soil lithology and inspected the soil for petroleum hydrocarbon staining and odors. Soil descriptions were noted in field books/boring logs and 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 noted in the field book. Based on field screening results, one soil sample, SS01@15', was submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B and TPH following EPA Method 8015M/D. The soil sample was collected directly into laboratory-provided jars and immediately placed on ice.

Laboratory analysis of the soil sample collected at SS01 at a depth of 15 feet identified elevated concentrations of BTEX and TPH. An excavator was remobilized on February 6, 2023, in an attempt to vertically delineate soil impacts at location SS01. One additional sample was collected from a depth of 29 feet bgs. The sample from 29 feet was submitted for BTEX and TPH analysis by the methods

described above, as well as chloride by EPA Method 300.0. Total TPH from SS01 from a depth of 29 feet was 110 mg/kg, above the NMOCD closure criteria for soil. No benzene or chloride was detected and BTEX did not exceed the NMOCD closure criteria. Laboratory analytical results from the initial investigation efforts are summarized in Table 1. Complete laboratory analytical reports are attached in Appendix B.

### DRILLING AND ADDITIONAL DELINEATION ACTIVITIES

Based on the initial field screening and sampling results, additional vertical and horizontal delineation with a drill rig was required. Ensolum submitted notice of sampling to the NMOCD at least 48 hours in advance of the work along with a NM811 Locate Request (Appendix A). Drilling activities took place between May 9 to May 12, 2023 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 seven borings (BH01 through BH07) to depths up to 52 feet bgs. None of the boreholes encountered refusal or bedrock. Borehole locations from the drilling event are presented on Figure 2. Photographs taken during delineation activities are included in Appendix C.

During drilling, an Ensolum geologist logged lithology, inspected the soil for petroleum hydrocarbon staining and odors, and field screened using a PID, with results noted on the field logs. 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. Soil samples were collected directly into laboratory-provided jars and immediately placed on ice. Samples were submitted to Envirotech, Inc. or Hall for analysis of BTEX by EPA Method 8021, TPH-GRO, TPH-DRO, TPH-MRO by EPA Method 8015 M/D, and chloride by EPA Method 300.0.

### SOIL BORING RESULTS

Soil composition at the Site was homogenous and primarily silty clay and clay with varying amounts of fine-grained sand. Soil was generally hard, compacted, brown, silty lean clay with little to some fine sand, increasing plasticity and moisture-content with depth (USCS symbols CL-CH, ML, SC-SM, SP). Split-spoon samples were field screened using a calibrated PID and any indications of petroleum hydrocarbons, including staining and odors, were noted on the logs. Elevated PID values were observed at BH01, BH02, BH03 BH04, and BH05. Field borehole logs are included in Appendix D.

Concentrations of total BTEX and total TPH exceeding the NMOCD Table I Closure Criteria were detected at borehole BH01 between depths of 4 feet to 46 feet bgs. Borehole BH01 was left open for several days while additional boreholes were advanced at the Site. On May 11, 2023, BH01 was advanced an additional five feet to a depth of 51 feet bgs prior to well installation. The analytical sample collected from 51 feet had a greater total BTEX and total TPH than overlying samples from 41 feet and 46 feet, indicating that impacts potentially migrated down the open borehole and are not representative of the actual depth of impacts. Total TPH concentrations exceeding the NMOCD Table I Closure Criteria were also detected in boreholes BH02, BH03, and BH04 at a depth of 41 feet, the approximate elevation of the groundwater interface. Analytical laboratory results for delineation soil samples are presented in Table 1 and on Figure 2.

Based on the activities and analytical results described above, impacted soil resulting from the release discovered on December 27, 2022 have been delineated north and east of the release. However, total TPH from boreholes west and south of the release (BH03 and BH04) exceeds the NMOCD Table I Closure Criteria in soil samples collected at depths between 39 feet and 41 feet. Additional drilling will be required in order to fully delineate the Site and is discussed further in the Remediation Work Plan section below.

## WELL INSTALLATION AND GROUNDWATER RESULTS

Based on the initial site characterization, depth to groundwater at the Site was estimated to be greater than 100 feet and was not anticipated to be encountered. However, groundwater was encountered during drilling at depths of approximately 38 feet to 42 feet bgs. Monitoring wells were installed in all seven 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 10 to 20 feet of 0.010 well screen, depending on the PID field screening observations collected during drilling. Additionally, boreholes BH01 and BH02 were completed with nested wells screened in the vadose zone based on elevated PID values. These wells were installed to serve as Soil Vapor Extraction (SVE) wells for treatment of shallow soil impacts. Well construction details are presented in Table 2. Well locations were surveyed with a handheld GPS unit and Top of Casing (TOC) elevations were surveyed using a laser level to the nearest hundredth of a foot.

On June 2, 2023 the monitoring wells were gauged and sampled to assess current groundwater conditions. Prior to sampling, depth to phase separated hydrocarbons (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 the June 2023 sampling event, wells BH01 D, BH02 D, BH03, and BH04 contained measurable or trace amounts 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. PSH removed from the wells was containerized onsite. Monitoring well BH05 was dry during the June 2023 sampling event and had a total depth of 40.48 feet below top of casing (BTOC). Of note, the total depth of well BH05 is approximately 5 feet higher in elevation than indicated on the field log. It appears that 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. A potentiometric surface map with groundwater flow direction is shown on Figure 3.

Wells with sufficient volumes of water to sample and 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 BH01, BH02, BH03 and BH04 were not sampled due to the presence of PSH in the well (Table 3). In addition, a sample from BH05 was not collected because the well was dry. Groundwater samples for laboratory analysis were only collected from BH06 and BH07. Groundwater sampling forms are included as Appendix E. Groundwater samples were placed directly into laboratory-provided preserved vials and immediately placed on ice. Samples were submitted to Hall for analysis of BTEX by EPA Method 8021. Analytical results from groundwater samples indicated that BTEX constituents were present at concentrations below New Mexico Water Quality Control Commission (NMWQCC) standards in both wells BH06 and BH07. A summary of groundwater analytical results is presented in Table 4 and in Figure 4. Complete laboratory analytical reports are also attached in Appendix B.

## PHASE SEPERATED HYDROCARBON (PSH) RECOVERY

PSH was manually recovered from monitoring wells containing PSH using a disposable bailer. Measurements of the PSH thickness and total volume removed were recorded at each well. In June 2023, a total of 1.5 gallons of PSH was recovered from BH01D and a total of 0.4 gallons of PSH was recovered from BH04. A trace amount of PSH was removed from BH02D. PSH will be gauged and recovered during subsequent site visits. Table 3 presents a summary of PSH thickness measured at the Site.

## REMEDIATION WORK PLAN

Based on the nature and depth of the release and the presence of and proximity of impacted soil to active equipment, Ensolum recommends conducting a pilot study 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. When air is removed from the soil, contaminants are volatilized and also removed. Depending on contaminant concentrations in the removed air, the DPE system may emit the exhaust directly to the atmosphere.

#### DUAL PHASE EXTRACTION PILOT TEST

Ensolum recommends performing a DPE pilot test to evaluate the feasibility of DPE for the Site. Prior to conducting the DPE pilot test, Ensolum will perform a baildown test to estimate the transmissivity of PSH in the aquifer. Permeability information will aid in the design of the DPE system and allow for evaluation of potential product recovery as well as remediation timeframe estimates. Pilot testing will assess the effectiveness of the DPE system and the Site-specific flow and vacuum rates required to volatilize and remove contaminants from the impacted subsurface. Data collected during DPE pilot testing will be used to estimate the system's radius-of-influence (ROI) for both drawdown and vacuum as well as the vacuum radius-of-effect (ROE) which will aid in determining well spacing for the additional DPE wells required at the Site. Pilot testing will also determine the efficacy of DPE in the fine-grained material encountered at the Site. Additionally, pilot test data can be used to appropriately size a holding tank for PSH and impacted groundwater that is extracted from the subsurface during DPE activities, as well as calculate air effluent concentrations over time.

During pilot testing, monitoring well BH01 will be used as the extraction well due to its location within the PSH plume and the varying distances from other, nearby monitoring wells that can be used as observation wells for ROI/ROE data collection. Existing monitoring wells BH02 through BH07 will be used as observation wells. These observation wells have been chosen to provide varying distances from the point of extraction as well as varying well construction and screen intervals.

A vacuum truck will be used to perform the DPE pilot test. An adjustable 1-inch PVC stinger will be installed in the test well allowing the inlet to be adjusted as the water level in the well changes during the dewatering process. The stinger will be connected to the vacuum truck. The well will be sealed off to the atmosphere and vacuum will be applied for the duration of the test. An adjustable manifold will be used to incrementally increase the vacuum being applied to the extraction well in order to determine the minimum vacuum required to air lift the groundwater and PSH from within the well casing.

Once adequate vacuum is applied and the stinger tube is at the bottom of the well, the full screen interval will be exposed, and soil vapor flow will be maximized. The vapor-liquid mixture will enter a knockout drum where the liquid drops out into the drum and the vapor is discharged to the atmosphere. Gradations on the knockout drum will allow technicians to record total water recovered over time and calculate groundwater extraction rates. When the knockout drum is full, the groundwater and PSH mixture will be extracted into the vacuum truck. All liquids extracted during the event will be containerized within the vacuum truck and will be transported off-Site to an approved disposal facility. All vapors recovered will be emitted to the atmosphere.

System parameters, such as vacuum on the truck, vacuum on the well head, vapor extraction flow rate, vapor hydrocarbon concentration as measured by a PID, vapor lower explosive limit (LEL), vapor oxygen concentration, and vapor carbon dioxide concentration will be collected at 15- to 30-minute intervals during the event. The final data collection interval will be dependent upon noted changes in field observations. Prior to initiating the testing event, Ensolum will collect depth to water and wellhead vacuum readings from surrounding observation wells. These readings will be considered the static conditions. Depth to groundwater and wellhead pressures will be collected from the same observation wells at 15- to 30-minute intervals and compared to the static conditions to determine if there is any

measurable influence from the applied vacuum and extraction of fluids from the DPE extraction well. Accumulated groundwater and PSH volumes as observed from knockout drum gradations will also be recorded. The vacuum truck will be gauged following testing activities to determine the total volume of fluids recovered and the estimated volume of PSH recovered.

A vapor sample will be collected after 30 minutes of testing and at the end of the test, prior to vacuum truck shutdown. Additional vapor samples may be collected if increased PID results are observed during the testing. Vapor samples will be collected in 1-liter Tedlar® bags and will be submitted to Hall for analysis of BTEX and total volatile petroleum hydrocarbons (TVPH) by EPA Method 8260.

### PILOT TEST GOALS

The goal of the testing will be to collect data to verify the feasibility of effectively recovering PSH, depressing the groundwater table, and allowing for vapor recovery from the soil intervals with the greatest impacts. Feasibility of DPE at the Site will depend upon the groundwater extraction flow rate, calculated ROI/ROE, and mass removal observed during the testing. After completion of the DPE pilot test, Ensolum will prepare a Pilot Test Report summarizing the results of the test and recommendations for the design and construction of the full-scale DPE system, if warranted. The report will include the calculations for ROI and ROE, system specifications required to remediate subsurface impacts, and an operation and maintenance plan for the system and the proposed remediation schedule and timeline. Hilcorp and Ensolum will perform the DPE pilot test and prepare the *Pilot Test Report* within 90 days of NMOCD approval of this *Site Investigation Report and Remediation Work Plan*.

Alternatively, if the pilot test demonstrates that DPE is not viable at the Site, an Updated Remediation Work Plan proposing alternative recommendations for remedial actions will be prepared and submitted to the and NMOCD.

### ADDITIONAL DELINEATION

The pilot test will also identify locations for additional delineation boreholes with idealized spacing to optimize the DPE system. A minimum of three holes are proposed west and south of the release. Precise distances for the boreholes will be determined based on the DPE pilot test results. These boreholes are proposed to be off-pad and will require removal of vegetation for access. Removal of vegetation for borehole access will be performed after approval from the landowner and in accordance with all regulations and best management practices. Additionally, Hilcorp and Ensolum propose a reduced analyte list to include only TPH and BTEX constituents for laboratory analysis for future delineation soil samples. A subsequent report will be submitted to the NMOCD summarizing the results and data from the additional drilling and delineation activities.

### REFERENCES

Stone, W., Lyford, F., Frenzel, P., Mizell, N., & Padgett, E. (1983). Hydrogeology and Water Resources of San Juan Basin, New Mexico. New Mexico Bureau of Mines & Mineral Resources.



Hilcorp Energy Company  
Site Investigation Report and Remediation Work Plan  
San Juan 30-6 Unit 31A

Page 7

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**



Wesley Weichert, PG  
Project Geologist  
(816) 266-8732  
wwweichert@ensolum.com



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

**Attachments:**

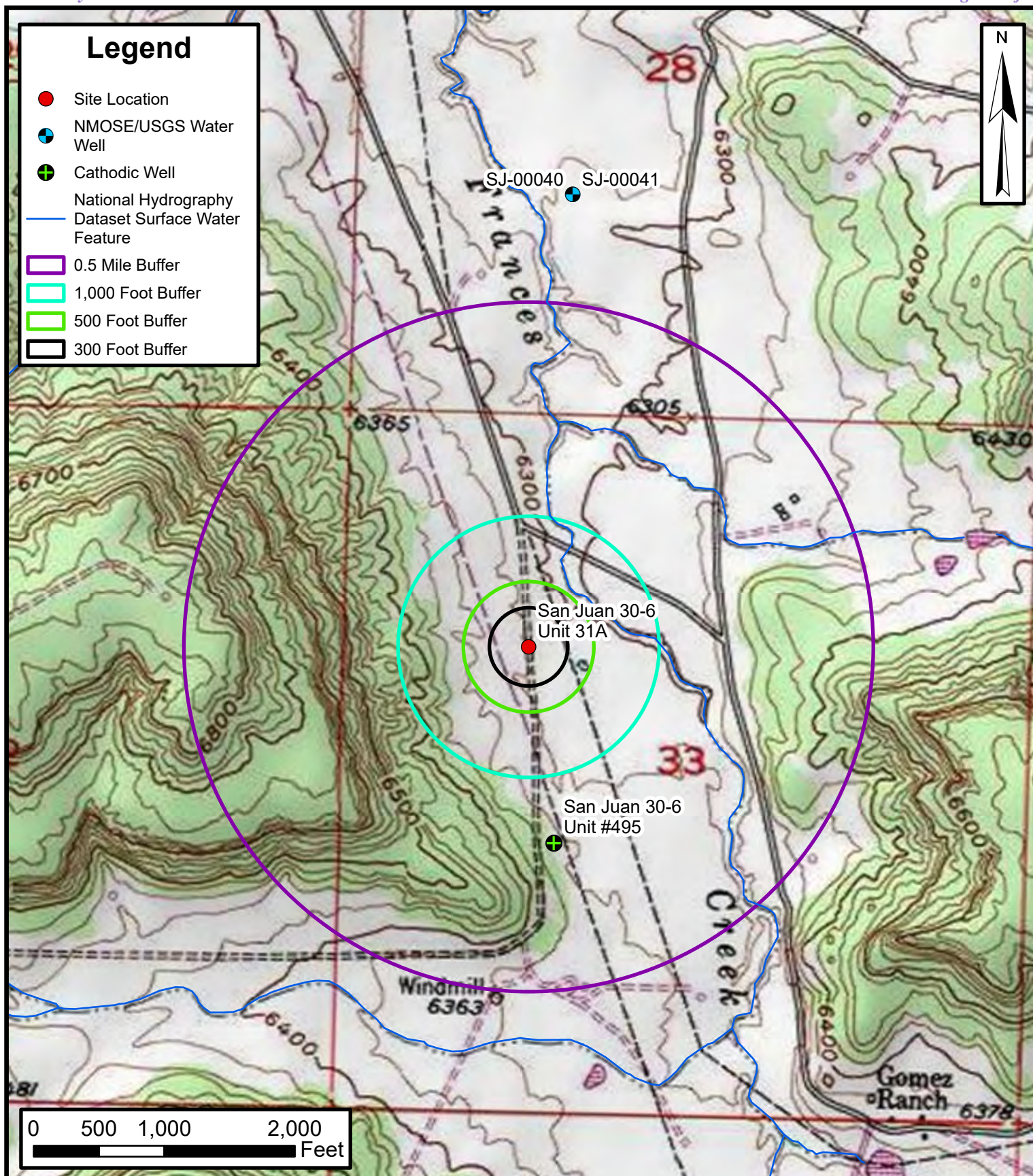
Figure 1: Site Receptor Map  
Figure 2: Delineation Soil Analytical Results  
Figure 3: Groundwater Potentiometric Surface Map (June 2023)  
Figure 4: Groundwater Analytical Results (June 2023)

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

Appendix A: NMOCD Correspondence  
Appendix B: Laboratory Analytical Reports  
Appendix C: Photographic Log  
Appendix D: Field Borehole Logs  
Appendix E: Groundwater Sampling Forms



FIGURES



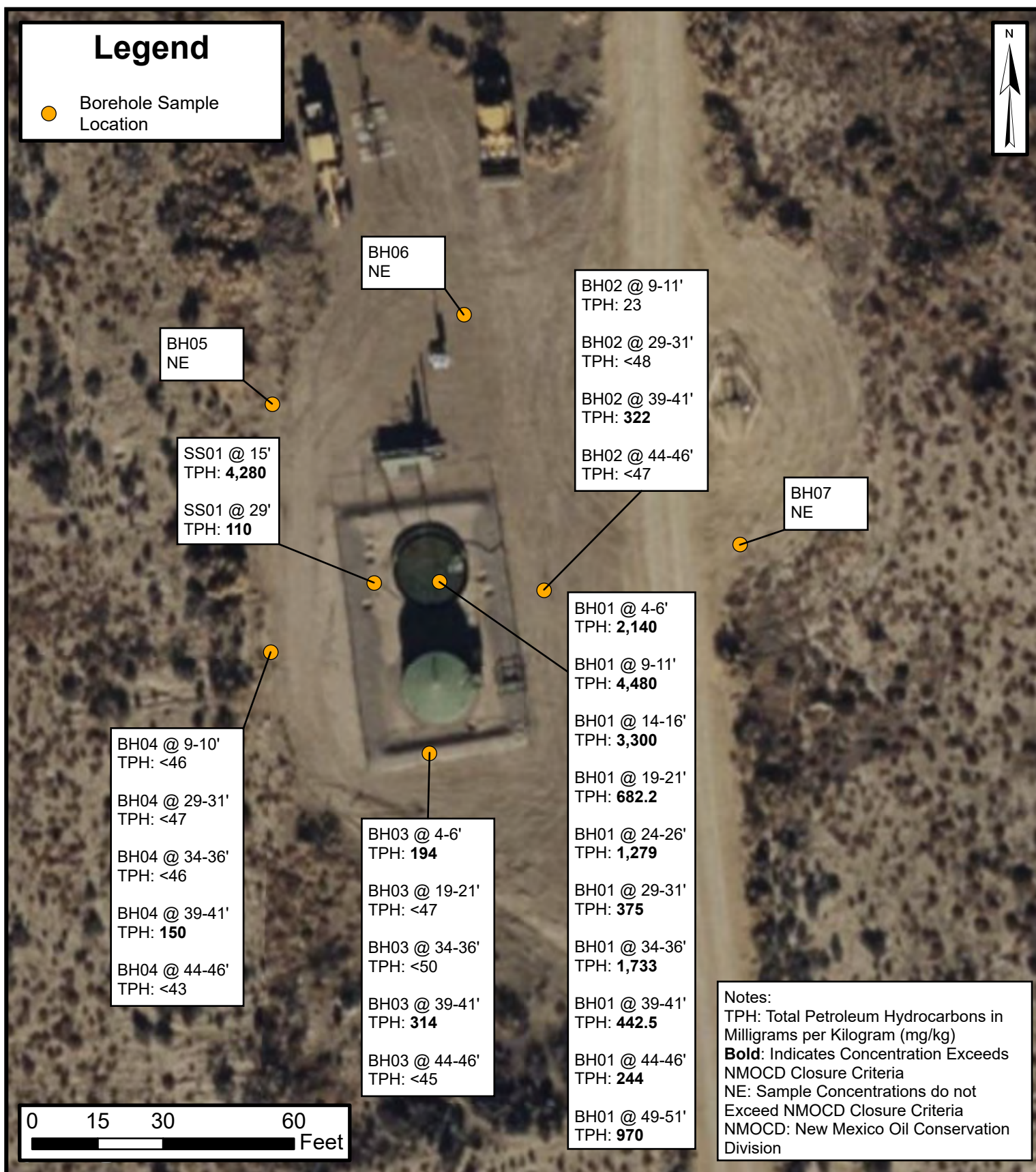
## Site Receptor Map

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





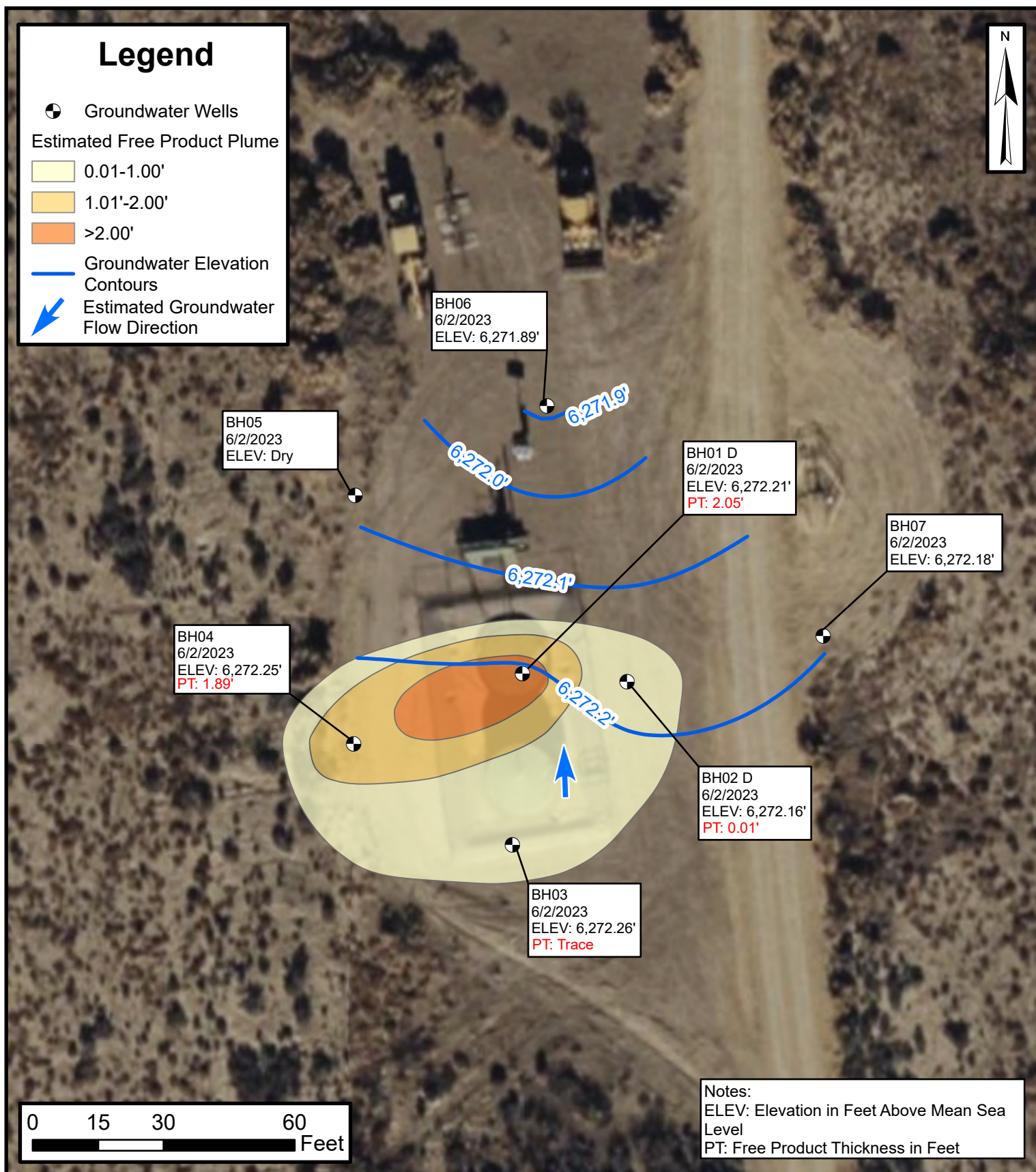


## Delineation Soil Analytical Results

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**





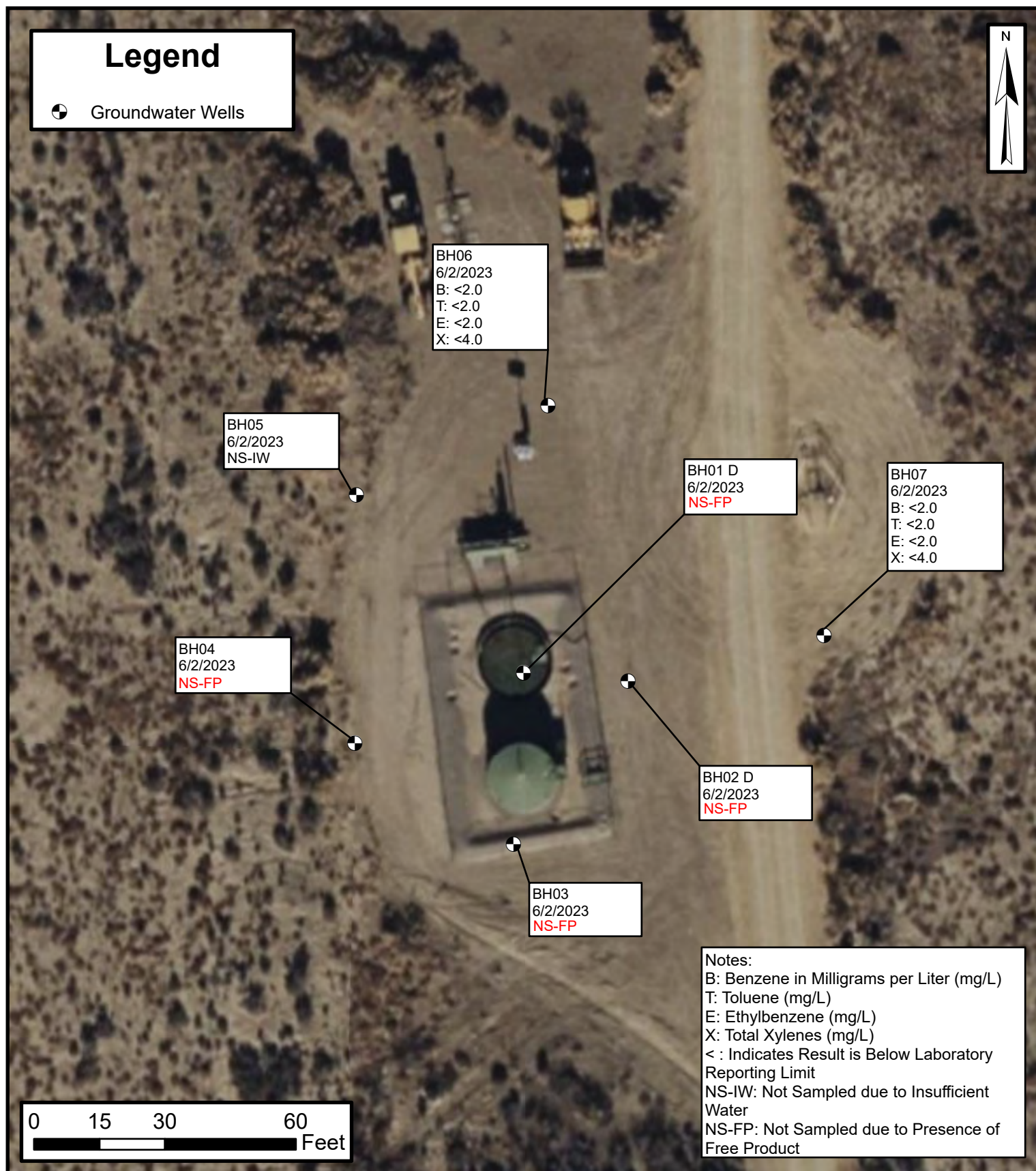
### Groundwater Potentiometric Surface Map (June 2023)

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**







### Groundwater Analytical Results (June 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**  
**4**

**ENSOLUM**  
Environmental, Engineering and  
Hydrogeologic Consultants



TABLES



**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)	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 (Groundwater <50 feet)			10	NE	NE	NE	50	NE	NE	NE	100	600
SS01 @15'	1/23/2023	15'	6.8	110	25	320	461.8	3,400	880	<480	4,280	NA
SS01 @29'	2/6/2023	29'	<0.12	0.60	<0.24	4.0	4.60	110	<9.6	<48	110	<60
BH01 4-6	5/9/2023	4'-6'	0.72	24	6.8	110	141.52	1,700	440	<49	2,140	<60
BH01 9-11	5/9/2023	9'-11'	3.0	76	21	340	440.0	3,900	580	<98	4,480	<60
BH01 14-16	5/9/2023	14'-16'	4.4	68	15	220	307.4	3,100	200	<47	3,300	<60
BH01 19-21	5/9/2023	19'-21'	1.26	15.6	3.25	50.5	70.61	605	77.2	<50.0	682.2	<20.0
BH01 24-26	5/9/2023	24'-26'	1.47	25.0	5.11	81.4	112.98	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	23.901	266	109	<50.0	375	23.7
BH01 34-36	5/9/2023	34'-36'	3.16	47.2	8.47	128	186.83	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	47.08	370	72.5	<50.0	442.5	<20.0
BH01 44-46	5/9/2023	44'-46'	0.962	9.13	1.30	19.8	31.192	244	<25.0	<50.0	244	<20.0
BH01 49-51	5/11/2023	49'-51'	2.1	31	5.0	77	115.1	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	39.0	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	1.10	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	32.28	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	15.28	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	1.344	14	<9.3	<46	14	<60
BH05 34-36	5/10/2023	34'-36'	<0.024	0.20	0.074	0.79	1.064	15	<9.6	<48	15	<61
BH05 39-41	5/10/2023	39'-41'	0.12	1.6	0.35	4.0	6.07	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
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

**Notes:**

bgs: below ground surface

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

mg/kg: milligrams per kilogram

NA: Not Analyzed

NE: Not Established

NMOCD: New Mexico Oil Conservation Division

': feet

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

MRO: Motor Oil/Lube Oil Range Organics

TPH: Total Petroleum Hydrocarbon

&lt; : indicates result less than the stated laboratory reporting limit (RL)

Concentrations in **bold** and shaded exceed the New Mexico Oil Conservation Division Table 1 Closure Criteria for Soils Impacted by a Release





**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	50.19
BH05	29 - 41	30 - 45	40.48
BH06	---	35 - 45	50.13
BH07	---	34 - 49	53.35

**Notes:***bgs: below ground surface**BTOC: below top of well casing*



**TABLE 2**  
**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)
BH01 D	6,313.24	51.06	6/2/2023	42.67	40.62	2.05	6,272.21
BH02 D	6,312.40	44.90	6/2/2023	40.25	40.24	0.01	6,272.16
BH03	6,315.61	46.66	6/2/2023	43.35	TRACE	---	6,272.26
BH04	6,315.56	47.19	6/2/2023	44.82	42.93	1.89	6,272.25
BH05	6,313.93	40.48	6/2/2023	DRY	---	---	DRY
BH06	6,314.59	47.13	6/2/2023	42.70	---	---	6,271.89
BH07	6,316.43	53.35	6/2/2023	44.25	---	---	6,272.18

**Notes:**

amsl: above mean sea level

BTOC: below top of casing

--: indicates no GWEL or PSH measured

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



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

Well ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)
<b>NMWQCC Standards</b>		<b>0.005</b>	<b>1.0</b>	<b>0.70</b>	<b>0.62</b>
BH01	6/2/2023	No Sample Collected, PSH Present			
BH02	6/2/2023	No Sample Collected, PSH Present			
BH03	6/2/2023	No Sample Collected, PSH Present			
BH04	6/2/2023	No Sample Collected, PSH Present			
BH05	6/2/2023	Well Dry			
BH06	6/2/2023	<2.0	<2.0	<2.0	<4.0
BH07	6/2/2023	<2.0	<2.0	<2.0	<4.0

**Notes:**

mg/L: milligrams per liter

NMWQCC: New Mexico Water Quality Control Commission

PSH: phase separated hydrocarbons

&lt; : indicates result less than the stated laboratory reporting limit (RL)



## APPENDIX A

### Agency Correspondence

**From:** [Samantha Grabert](#)  
**To:** [Stuart Hyde](#)  
**Subject:** FW: Hilcorp Energy Company - 24 Hour Release Notification - San Juan 30-6 #31A  
**Date:** Wednesday, May 31, 2023 7:47:07 AM

---

[ \*\*EXTERNAL EMAIL\*\* ]

---

**From:** Samantha Grabert  
**Sent:** Wednesday, December 28, 2022 11:12 AM  
**To:** Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>  
**Cc:** Matt Henderson <mhenderson@hilcorp.com>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>  
**Subject:** Hilcorp Energy Company - 24 Hour Release Notification - San Juan 30-6 #31A

Nelson,

On 12/27/2022 at approximately 12:45 pm (MT), Hilcorp Energy Company discovered a condensate release of 92 bbls at the San Juan 30-6 Unit 31A (API: 30-039-25620) in Rio Arriba County (36.77146, -107.47192). Please let this serve as the 24-hour notification as per NMAC 19.15.29.10.A. This release was due to corrosion on the J leg piping of the condensate tank oil dump line. In addition, no fluids have been recovered at this time. It should be noted that the release remained within the unlined containment, and there was no immediate danger to the public nor fire because of this release. An initial C-141 will be submitted to the NMOCD in accordance with NMAC 19.15.29.10.B. Please let me know if you have any questions or require additional information.

Thanks,

*Samantha Grabert*



**713-757-7116 (Office)**  
**337-781-9630 (Mobile)**

---

The information contained in this email message is confidential and may be legally privileged and is intended only for the use of the individual or entity named above. If you are not an intended recipient or if you have received this message in error, you are hereby notified that any dissemination, distribution, or copy of this email is strictly prohibited. If you have received this email in error, please immediately notify us by return email or telephone if the sender's phone number is listed above, then promptly and permanently delete this message.

While all reasonable care has been taken to avoid the transmission of viruses, it is the responsibility of the recipient to ensure that the onward transmission, opening, or use of this message and any attachments will not adversely affect its systems or data. No responsibility is accepted by the company in this regard and the recipient should carry out such virus and other checks as it considers appropriate.

---

**From:** [Stuart Hyde](#)  
**To:** [Velez, Nelson, EMNRD](#)  
**Cc:** [Samantha Grabert](#); [Devin Hencmann](#)  
**Subject:** nAPP2301160771 - San Juan 30-6 31A Delineation and Sampling Notification  
**Date:** Sunday, May 7, 2023 9:26:00 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

Nelson,

On behalf of Hilcorp Energy Company, Ensolum is submitting this delineation and sampling notification for the San Juan 30-6 #31A (API: 30-039-25620) in Rio Arriba County (36.77139, -107.47258). Drilling and sampling activities will commence on Tuesday May 9, 2023 and are anticipated to take approximately three days to complete.

Please reach out with any questions. Thanks.



**Stuart Hyde, LG**

Senior Geologist

970-903-1607

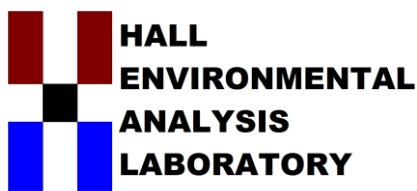
**Ensolum, LLC**

in f 



## APPENDIX B

### Laboratory Analytical Reports



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

February 01, 2023

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

RE: SJ 30-6 31A

OrderNo.: 2301861

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 1 sample(s) on 1/24/2023 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2301861

Date Reported: 2/1/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SS01 @ 15'

Project: SJ 30-6 31A

Collection Date: 1/23/2023 11:30:00 AM

Lab ID: 2301861-001

Matrix: SOIL

Received Date: 1/24/2023 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>SB</b>
Diesel Range Organics (DRO)	880	95		mg/Kg	10	1/27/2023 10:49:58 AM
Motor Oil Range Organics (MRO)	ND	480	D	mg/Kg	10	1/27/2023 10:49:58 AM
Surr: DNOP	0	69-147	S	%Rec	10	1/27/2023 10:49:58 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>CCM</b>
Gasoline Range Organics (GRO)	3400	97		mg/Kg	20	1/26/2023 8:22:00 AM
Surr: BFB	255	37.7-212	S	%Rec	20	1/26/2023 8:22:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>CCM</b>
Benzene	6.8	0.49		mg/Kg	20	1/26/2023 8:22:00 AM
Toluene	110	2.4		mg/Kg	50	1/26/2023 11:42:00 AM
Ethylbenzene	25	0.97		mg/Kg	20	1/26/2023 8:22:00 AM
Xylenes, Total	320	4.9		mg/Kg	50	1/26/2023 11:42:00 AM
Surr: 4-Bromofluorobenzene	194	70-130	S	%Rec	20	1/26/2023 8:22:00 AM

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

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

Page 1 of 4

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2301861

01-Feb-23

**Client:** HILCORP ENERGY**Project:** SJ 30-6 31A

Sample ID: <b>MB-72814</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>72814</b>	RunNo: <b>94191</b>								
Prep Date: <b>1/25/2023</b>	Analysis Date: <b>1/26/2023</b>	SeqNo: <b>3401999</b> Units: <b>mg/Kg</b>								
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	9.8		10.00		97.6	69	147			

Sample ID: <b>LCS-72814</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>72814</b>	RunNo: <b>94191</b>								
Prep Date: <b>1/25/2023</b>	Analysis Date: <b>1/26/2023</b>	SeqNo: <b>3402000</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	118	61.9	130			
Surr: DNOP	4.7		5.000		94.0	69	147			

Sample ID: <b>MB-72830</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>72830</b>	RunNo: <b>94191</b>								
Prep Date: <b>1/25/2023</b>	Analysis Date: <b>1/26/2023</b>	SeqNo: <b>3402654</b> Units: <b>%Rec</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		100	69	147			

Sample ID: <b>LCS-72830</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>72830</b>	RunNo: <b>94191</b>								
Prep Date: <b>1/25/2023</b>	Analysis Date: <b>1/26/2023</b>	SeqNo: <b>3402655</b> Units: <b>%Rec</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.4	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2301861

01-Feb-23

Client: HILCORP ENERGY  
Project: SJ 30-6 31A

Sample ID: lcs-72799	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 72799	RunNo: 94183								
Prep Date: 1/24/2023	Analysis Date: 1/26/2023	SeqNo: 3401214		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	106	72.3	137			
Surr: BFB	1000		1000		104	37.7	212			

Sample ID: mb-72799	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 72799	RunNo: 94183								
Prep Date: 1/24/2023	Analysis Date: 1/26/2023	SeqNo: 3401215		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	920		1000		91.7	37.7	212			

Qualifiers:

- \*

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of standard limits. If undiluted results may be estimated.
- B

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2301861

01-Feb-23

**Client:** HILCORP ENERGY**Project:** SJ 30-6 31A

Sample ID: <b>lcs-72799</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>72799</b>			RunNo: <b>94183</b>						
Prep Date: <b>1/24/2023</b>	Analysis Date: <b>1/26/2023</b>			SeqNo: <b>3401309</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.2	80	120			
Toluene	0.96	0.050	1.000	0	95.8	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.3	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.1	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.6	70	130			

Sample ID: <b>mb-72799</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>72799</b>			RunNo: <b>94183</b>						
Prep Date: <b>1/24/2023</b>	Analysis Date: <b>1/26/2023</b>			SeqNo: <b>3401310</b>		Units: <b>mg/Kg</b>				
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	0.95		1.000		94.7	70	130			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

## Sample Log-In Check List

Client Name: Hilcorp Energy

Work Order Number: 2301861

RcptNo: 1

Received By: **Juan Rojas**

1/24/2023 7:05:00 AM

Completed By: **Tracy Casarrubias**

1/24/2023 8:00:13 AM

Reviewed By: *[Signature]* 1-24-23

### ***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 <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>            |
| 4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to $6.0^{\circ}\text{C}$ | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>            |
| 5. Sample(s) in proper container(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 6. Sufficient sample volume for indicated test(s)?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 7. Are samples (except VOA and ONG) properly preserved?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 8. Was preservative added to bottles?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>            |
| 9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA?                                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | NA <input checked="" type="checkbox"/> |
| 10. Were any sample containers received broken?  | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> |  |
| 11. Does paperwork match bottle labels?<br>(Note discrepancies on chain of custody)            | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 12. Are matrices correctly identified on Chain of Custody?                                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 13. Is it clear what analyses were requested?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
| 14. Were all holding times able to be met?<br>(If no, notify customer for authorization.)      | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |  |
- # of preserved bottles checked for pH: (<2)

Adjusted?

Checked by: \_\_\_\_\_

## 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 are missing on COC.- TMC 1/24/23

16. Additional remarks:

## 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

## Chain-of-Custody Record

Client: Hilcorp Energy

**Mailing Address:**

Phone #:

email or Fax#: dhencmann@ensolum.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

## Accreditation

☐ NELAP      ☐ Other

☐ EDD (Type) \_\_\_\_\_

Turn-Around Time:

5 days

☒ Standard ☐ Rush

Project Name:
---------------

SJ 30-C H 31A

Project #:

Project Manager:

Devin Hennemann - EnSoulum

Sampler: E. Carroll Z. Myers

On Ice: ☒ Yes ☐ No *Went to*

Sample Temperature:  $10.7 + 0.2 = 10.9$

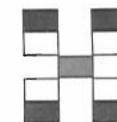
[illegible]

Date:	Time:	Relinquished by:
1/23/23	1448	[Signature]

Date:	Time:	Relinquished by:
1/23/23	1742	Justin Wactus

Received by:	Date	Time
<i>[Signature]</i>	1/23/23	1448

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
\_\_\_\_\_ courier 1/24/23 7:05



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

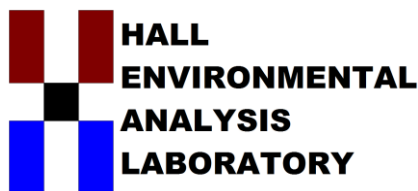
Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

X		BTEX* MTBE + TMB's (8021)
		BTEX + MTBE + TPH (Gas only)
X		TPH 8015B (GRO / DRO / MRO)
		TPH (Method 418.1)
		EDB (Method 504.1)
		PAH's (8310 or 8270 SIMS)
		RCRA 8 Metals
		Anions ( $F, Cl, NO_3, NO_2, PO_4, SO_4$ )
		8081 Pesticides / 8082 PCB's
		8260B (VOA)
		8270 (Semi-VOA)
		Air Bubbles (Y or N)

Remarks:  
CC: ecarroll@ensolum.com  
2myers@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.



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

February 13, 2023

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

RE: SJ 30 6 31A

OrderNo.: 2302267

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/7/2023 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**Lab Order **2302267**Date Reported: **2/13/2023****CLIENT:** HILCORP ENERGY**Client Sample ID:** SS01 @ 29'**Project:** SJ 30 6 31A**Collection Date:** 2/6/2023 1:20:00 PM**Lab ID:** 2302267-001**Matrix:** SOIL**Received Date:** 2/7/2023 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	2/10/2023 2:32:50 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/10/2023 2:32:50 PM
Surr: DNOP	95.1	69-147		%Rec	1	2/10/2023 2:32:50 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	2/11/2023 4:18:58 AM
<b>EPA METHOD 8260B: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	0.12		mg/Kg	5	2/8/2023 9:50:57 PM
Toluene	0.60	0.24		mg/Kg	5	2/8/2023 9:50:57 PM
Ethylbenzene	ND	0.24		mg/Kg	5	2/8/2023 9:50:57 PM
Xylenes, Total	4.0	0.48		mg/Kg	5	2/8/2023 9:50:57 PM
Surr: 1,2-Dichloroethane-d4	128	70-130		%Rec	5	2/8/2023 9:50:57 PM
Surr: 4-Bromofluorobenzene	122	70-130		%Rec	5	2/8/2023 9:50:57 PM
Surr: Dibromofluoromethane	115	70-130		%Rec	5	2/8/2023 9:50:57 PM
Surr: Toluene-d8	105	70-130		%Rec	5	2/8/2023 9:50:57 PM
<b>EPA METHOD 8015D MOD: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	110	24		mg/Kg	5	2/8/2023 9:50:57 PM
Surr: BFB	122	70-130		%Rec	5	2/8/2023 9:50:57 PM

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

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



QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2302267  
13-Feb-23

Client: HILCORP ENERGY  
Project: SJ 30 6 31A

Sample ID: MB-73129	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 73129	RunNo: 94561
Prep Date: 2/10/2023	Analysis Date: 2/10/2023	SeqNo: 3418099 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-73129	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 73129	RunNo: 94561
Prep Date: 2/10/2023	Analysis Date: 2/10/2023	SeqNo: 3418100 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 95.5 90 110

Qualifiers:

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

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2302267

13-Feb-23

**Client:** HILCORP ENERGY**Project:** SJ 30 6 31A

Sample ID: <b>LCS-73072</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>73072</b>		RunNo: <b>94521</b>							
Prep Date: <b>2/8/2023</b>	Analysis Date: <b>2/10/2023</b>		SeqNo: <b>3416239</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	105	61.9	130			
Surr: DNOP	5.4		5.000		109	69	147			

Sample ID: <b>MB-73072</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>73072</b>		RunNo: <b>94521</b>							
Prep Date: <b>2/8/2023</b>	Analysis Date: <b>2/10/2023</b>		SeqNo: <b>3416240</b>		Units: <b>mg/Kg</b>					
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	9.6		10.00		96.4	69	147			

Sample ID: <b>MB-73034</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>73034</b>		RunNo: <b>94521</b>							
Prep Date: <b>2/6/2023</b>	Analysis Date: <b>2/10/2023</b>		SeqNo: <b>3417017</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		88.9	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2302267

13-Feb-23

**Client:** HILCORP ENERGY**Project:** SJ 30 6 31A

Sample ID: <b>LCS-73058</b>	SampType: <b>LCS4</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>							
Client ID: <b>BatchQC</b>	Batch ID: <b>73058</b>		RunNo: <b>94486</b>							
Prep Date: <b>2/7/2023</b>	Analysis Date: <b>2/8/2023</b>		SeqNo: <b>3414319</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.9	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.9	80	120			
Xylenes, Total	3.0	0.10	3.000	0	102	80	120			
Surr: 1,2-Dichloroethane-d4	0.61		0.5000		123	70	130			
Surr: 4-Bromofluorobenzene	0.56		0.5000		112	70	130			
Surr: Dibromofluoromethane	0.55		0.5000		111	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			

Sample ID: <b>mb-73058</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260B: Volatiles Short List</b>							
Client ID: <b>PBS</b>	Batch ID: <b>73058</b>		RunNo: <b>94486</b>							
Prep Date: <b>2/7/2023</b>	Analysis Date: <b>2/8/2023</b>		SeqNo: <b>3414320</b>		Units: <b>mg/Kg</b>					
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: 1,2-Dichloroethane-d4	0.60		0.5000		121	70	130			
Surr: 4-Bromofluorobenzene	0.60		0.5000		120	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		108	70	130			
Surr: Toluene-d8	0.54		0.5000		109	70	130			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2302267  
13-Feb-23

Client: HILCORP ENERGY  
Project: SJ 30 6 31A

Sample ID: LCS-73058	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 73058	RunNo: 94486								
Prep Date: 2/7/2023	Analysis Date: 2/8/2023	SeqNo: 3414303			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	108	70	130			
Surr: BFB	580		500.0		116	70	130			

Sample ID: mb-73058	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 73058	RunNo: 94486								
Prep Date: 2/7/2023	Analysis Date: 2/8/2023	SeqNo: 3414304			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	570		500.0		114	70	130			

Qualifiers:

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



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

## Sample Log-In Check List

Client Name: Hilcorp Energy

Work Order Number: 2302267

RcptNo: 1

Received By: Juan Rojas

2/7/2023 6:50:00 AM

*Juan Rojas*

Completed By: Tracy Casarrubias

2/7/2023 8:46:37 AM

Reviewed By: *JA 2-7-23*

### 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: *JA 2/7/23*

### 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:

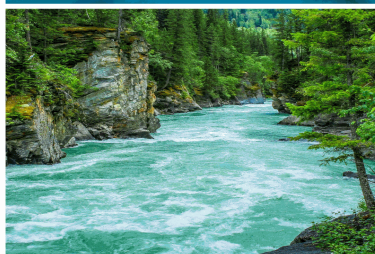
16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.7	Good	Yes	MORTY		



Report to:  
Samantha Grabert



# envirotech

*Practical Solutions for a Better Tomorrow*

## Analytical Report

Hilcorp Energy Co

Project Name: SJ 30-6 31A

Work Order: E305056

Job Number: 17051-0002

Received: 5/9/2023

Revision: 1

Report Reviewed By:

Walter Hinchman  
Laboratory Director  
5/11/23

5796 U.S. Hwy 64  
Farmington, NM 87401

Phone: (505) 632-1881  
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.  
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.  
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.  
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.  
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.



Date Reported: 5/11/23

Samantha Grabert  
PO Box 61529  
Houston, TX 77208



Project Name: SJ 30-6 31A  
Workorder: E305056  
Date Received: 5/9/2023 1:53:00PM

Samantha Grabert,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 5/9/2023 1:53:00PM, under the Project Name: SJ 30-6 31A.

The analytical test results summarized in this report with the Project Name: SJ 30-6 31A apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

**Walter Hinchman**  
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**Rayny Hagan**  
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Sample Summary

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	Reported: 05/11/23 13:24
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Samantha Grabert	

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH01 24-26	E305056-01A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.
BH01 29-31	E305056-02A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.
BH01 19-21	E305056-03A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.
BH01 34-36	E305056-04A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.
BH01 39-41	E305056-05A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.
BH01 44-46	E305056-06A	Soil	05/09/23	05/09/23	Glass Jar, 4 oz.



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

## BH01 24-26

## E305056-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Benzene	1.47	0.500	20	05/10/23	05/10/23	
Ethylbenzene	5.11	0.500	20	05/10/23	05/10/23	
Toluene	25.0	0.500	20	05/10/23	05/10/23	
o-Xylene	13.5	0.500	20	05/10/23	05/10/23	
p,m-Xylene	67.9	1.00	20	05/10/23	05/10/23	
Total Xylenes	81.4	0.500	20	05/10/23	05/10/23	
Surrogate: 4-Bromochlorobenzene-PID	95.3 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Gasoline Range Organics (C6-C10)	1020	400	20	05/10/23	05/10/23	
Surrogate: 1-Chloro-4-fluorobenzene-FID	103 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2319037
Diesel Range Organics (C10-C28)	259	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
Surrogate: n-Nonane	161 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2319041
Chloride	ND	20.0	1	05/10/23	05/10/23	



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

BH01 29-31

E305056-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Benzene	0.391	0.125	5	05/10/23	05/10/23	
Ethylbenzene	1.09	0.125	5	05/10/23	05/10/23	
Toluene	5.02	0.125	5	05/10/23	05/10/23	
o-Xylene	3.16	0.125	5	05/10/23	05/10/23	
p,m-Xylene	14.3	0.250	5	05/10/23	05/10/23	
Total Xylenes	17.4	0.125	5	05/10/23	05/10/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	94.4 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Gasoline Range Organics (C6-C10)	266	100	5	05/10/23	05/10/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	106 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2319037
Diesel Range Organics (C10-C28)	109	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
<i>Surrogate: n-Nonane</i>						
	113 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2319041
Chloride	23.7	20.0	1	05/10/23	05/10/23	



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

BH01 19-21

E305056-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Benzene	1.26	0.250	10	05/10/23	05/10/23	
Ethylbenzene	3.25	0.250	10	05/10/23	05/10/23	
Toluene	15.6	0.250	10	05/10/23	05/10/23	
o-Xylene	8.43	0.250	10	05/10/23	05/10/23	
p,m-Xylene	42.0	0.500	10	05/10/23	05/10/23	
Total Xylenes	50.5	0.250	10	05/10/23	05/10/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	94.6 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Gasoline Range Organics (C6-C10)	605	200	10	05/10/23	05/10/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	104 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2319037
Diesel Range Organics (C10-C28)	77.2	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
<i>Surrogate: n-Nonane</i>						
	121 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2319041
Chloride	ND	20.0	1	05/10/23	05/10/23	



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

## BH01 34-36

## E305056-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2319040	
Benzene	3.16	0.500	20	05/10/23	05/10/23	
Ethylbenzene	8.47	0.500	20	05/10/23	05/10/23	
Toluene	47.2	0.500	20	05/10/23	05/10/23	
o-Xylene	21.1	0.500	20	05/10/23	05/10/23	
p,m-Xylene	107	1.00	20	05/10/23	05/10/23	
Total Xylenes	128	0.500	20	05/10/23	05/10/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	93.5 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2319040	
Gasoline Range Organics (C6-C10)	1600	400	20	05/10/23	05/10/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	110 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg	Analyst: KM		Batch: 2319037	
Diesel Range Organics (C10-C28)	133	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
<i>Surrogate: n-Nonane</i>						
	141 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg	Analyst: BA		Batch: 2319041	
Chloride	ND	20.0	1	05/10/23	05/10/23	



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

BH01 39-41

E305056-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2319040	
Benzene	1.14	0.250	10	05/10/23	05/10/23	
Ethylbenzene	2.04	0.250	10	05/10/23	05/10/23	
Toluene	12.0	0.250	10	05/10/23	05/10/23	
o-Xylene	5.25	0.250	10	05/10/23	05/10/23	
p,m-Xylene	26.6	0.500	10	05/10/23	05/10/23	
Total Xylenes	31.9	0.250	10	05/10/23	05/10/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	96.5 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg	Analyst: RKS		Batch: 2319040	
Gasoline Range Organics (C6-C10)	370	200	10	05/10/23	05/10/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	98.5 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg	Analyst: KM		Batch: 2319037	
Diesel Range Organics (C10-C28)	72.5	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
<i>Surrogate: n-Nonane</i>						
	118 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg	Analyst: BA		Batch: 2319041	
Chloride	ND	20.0	1	05/10/23	05/10/23	



## Sample Data

Hilcorp Energy Co  
PO Box 61529  
Houston TX, 77208

Project Name: SJ 30-6 31A  
Project Number: 17051-0002  
Project Manager: Samantha Grabert

**Reported:**  
5/11/2023 1:24:35PM

BH01 44-46

E305056-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Volatile Organics by EPA 8021B</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Benzene	0.962	0.125	5	05/10/23	05/10/23	
Ethylbenzene	1.30	0.125	5	05/10/23	05/10/23	
Toluene	9.13	0.125	5	05/10/23	05/10/23	
o-Xylene	3.19	0.125	5	05/10/23	05/10/23	
p,m-Xylene	16.6	0.250	5	05/10/23	05/10/23	
Total Xylenes	19.8	0.125	5	05/10/23	05/10/23	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	95.5 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - GRO</b>						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2319040
Gasoline Range Organics (C6-C10)	244	100	5	05/10/23	05/10/23	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	104 %	70-130		05/10/23	05/10/23	
<b>Nonhalogenated Organics by EPA 8015D - DRO/ORO</b>						
	mg/kg	mg/kg		Analyst: KM		Batch: 2319037
Diesel Range Organics (C10-C28)	ND	25.0	1	05/10/23	05/10/23	
Oil Range Organics (C28-C36)	ND	50.0	1	05/10/23	05/10/23	
<i>Surrogate: n-Nonane</i>						
	99.9 %	50-200		05/10/23	05/10/23	
<b>Anions by EPA 300.0/9056A</b>						
	mg/kg	mg/kg		Analyst: BA		Batch: 2319041
Chloride	ND	20.0	1	05/10/23	05/10/23	





## QC Summary Data

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Samantha Grabert	5/11/2023 1:24:35PM

## Volatile Organics by EPA 8021B

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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## Blank (2319040-BLK1)

Prepared: 05/10/23 Analyzed: 05/10/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	7.57		8.00		94.6	70-130			

## LCS (2319040-BS1)

Prepared: 05/10/23 Analyzed: 05/11/23

Benzene	4.93	0.0250	5.00		98.5	70-130			
Ethylbenzene	5.15	0.0250	5.00		103	70-130			
Toluene	5.24	0.0250	5.00		105	70-130			
o-Xylene	5.27	0.0250	5.00		105	70-130			
p,m-Xylene	10.5	0.0500	10.0		105	70-130			
Total Xylenes	15.7	0.0250	15.0		105	70-130			
Surrogate: 4-Bromochlorobenzene-PID	7.79		8.00		97.4	70-130			

## Matrix Spike (2319040-MS1)

Source: E305060-04

Prepared: 05/10/23 Analyzed: 05/11/23

Benzene	4.55	0.0250	5.00	ND	91.0	54-133			
Ethylbenzene	5.38	0.0250	5.00	0.622	95.2	61-133			
Toluene	5.11	0.0250	5.00	0.277	96.7	61-130			
o-Xylene	5.71	0.0250	5.00	0.676	101	63-131			
p,m-Xylene	11.2	0.0500	10.0	1.69	95.3	63-131			
Total Xylenes	16.9	0.0250	15.0	2.37	97.1	63-131			
Surrogate: 4-Bromochlorobenzene-PID	8.22		8.00		103	70-130			

## Matrix Spike Dup (2319040-MSD1)

Source: E305060-04

Prepared: 05/10/23 Analyzed: 05/11/23

Benzene	4.61	0.0250	5.00	ND	92.2	54-133	1.27	20	
Ethylbenzene	5.65	0.0250	5.00	0.622	101	61-133	4.82	20	
Toluene	5.30	0.0250	5.00	0.277	100	61-130	3.60	20	
o-Xylene	6.01	0.0250	5.00	0.676	107	63-131	5.09	20	
p,m-Xylene	11.8	0.0500	10.0	1.69	101	63-131	4.90	20	
Total Xylenes	17.8	0.0250	15.0	2.37	103	63-131	4.96	20	
Surrogate: 4-Bromochlorobenzene-PID	8.23		8.00		103	70-130			



## QC Summary Data

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	<b>Reported:</b>
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Samantha Grabert	5/11/2023 1:24:35PM

## Nonhalogenated Organics by EPA 8015D - GRO

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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## Blank (2319040-BLK1)

Prepared: 05/10/23 Analyzed: 05/10/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.58		8.00		94.8	70-130			

## LCS (2319040-BS2)

Prepared: 05/10/23 Analyzed: 05/11/23

Gasoline Range Organics (C6-C10)	54.6	20.0	50.0		109	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.62		8.00		95.3	70-130			

## Matrix Spike (2319040-MS2)

Source: E305060-04

Prepared: 05/10/23 Analyzed: 05/11/23

Gasoline Range Organics (C6-C10)	85.8	20.0	50.0	47.9	75.8	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.07		8.00		101	70-130			

## Matrix Spike Dup (2319040-MSD2)

Source: E305060-04

Prepared: 05/10/23 Analyzed: 05/11/23

Gasoline Range Organics (C6-C10)	106	20.0	50.0	47.9	116	70-130	21.1	20	R3
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.57		8.00		107	70-130			



QC Summary Data

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Samantha Grabert	5/11/2023 1:24:35PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
---------	-----------------	-----------------------------	-------------------------	---------------------------	----------	--------------------	----------	-------------------	-------

Blank (2319037-BLK1)					Prepared: 05/10/23 Analyzed: 05/10/23				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	45.3		50.0		90.7	50-200			

LCS (2319037-BS1)					Prepared: 05/10/23 Analyzed: 05/10/23				
Diesel Range Organics (C10-C28)	256	25.0	250		102	38-132			
Surrogate: n-Nonane	43.8		50.0		87.7	50-200			

Matrix Spike (2319037-MS1)					Source: E305056-01		Prepared: 05/10/23 Analyzed: 05/10/23		
Diesel Range Organics (C10-C28)	431	25.0	250	259	68.7	38-132			
Surrogate: n-Nonane	65.5		50.0		131	50-200			

Matrix Spike Dup (2319037-MSD1)					Source: E305056-01		Prepared: 05/10/23 Analyzed: 05/10/23		
Diesel Range Organics (C10-C28)	418	25.0	250	259	63.4	38-132	3.11	20	
Surrogate: n-Nonane	64.5		50.0		129	50-200			



QC Summary Data

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	Reported:
PO Box 61529	Project Number:	17051-0002	
Houston TX, 77208	Project Manager:	Samantha Grabert	5/11/2023 1:24:35PM

Anions by EPA 300.0/9056A

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2319041-BLK1)					Prepared: 05/10/23 Analyzed: 05/10/23				
Chloride	ND	20.0							
LCS (2319041-BS1)					Prepared: 05/10/23 Analyzed: 05/10/23				
Chloride	242	20.0	250		97.0	90-110			
Matrix Spike (2319041-MS1)					Source: E305039-20		Prepared: 05/10/23 Analyzed: 05/10/23		
Chloride	272	20.0	250	27.3	98.1	80-120			
Matrix Spike Dup (2319041-MSD1)					Source: E305039-20		Prepared: 05/10/23 Analyzed: 05/10/23		
Chloride	265	20.0	250	27.3	95.2	80-120	2.64	20	

QC Summary Report Comment:  
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.  
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Hilcorp Energy Co	Project Name:	SJ 30-6 31A	
PO Box 61529	Project Number:	17051-0002	Reported:
Houston TX, 77208	Project Manager:	Samantha Grabert	05/11/23 13:24

- R3        The RPD exceeded the acceptance limit. LCS spike recovery met acceptance criteria.
- ND        Analyte NOT DETECTED at or above the reporting limit
- NR        Not Reported
- RPD       Relative Percent Difference
- DNI       Did Not Ignite

Note (1): Methods marked with \*\* are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



## Project Information

## Chain of Custody

Page 1 of 1

Client: <u>Hilcorp Energy Company</u> Project: <u>SJ 30-6 3YA</u> Project Manager: <u>Samantha Grabert</u> Address: _____ City, State, Zip: _____ Phone: <u>337-781-9630 (cell)</u> Email: <u>Samantha.grabert@hilcorp.com</u> Report due by: _____					Bill To Attention: <u>Hilcorp</u> Address: _____ City, State, Zip: _____ Phone: _____ Email: _____					Lab Use Only Lab WO# <u>E 3050560</u> Job Number <u>17051-0002</u> Analysis and Method					TAT 1D 2D 3D Standard				EPA Program CWA SDWA	
														RCRA						
														State NM CO UT AZ TX						
														Remarks						
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0									
11:58	5/9/23	S	1	BHD1 24-26	1	X	X	X			X									
12:00	5/9/23	S	1	BHD1 29-31	2															
11:55	5/9/23	S	1	BHD1 19-21	3															
12:03	5/9/23	S	1	BHD1 34-36	4															
12:05	5/9/23	S	1	BHD1 39-41	5															
12:08	5/9/23	S	1	BHD1 44-46	6															
Additional Instructions:																				
I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.																				
Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.																				
Relinquished by: (Signature) <u>Samantha Grabert</u> Date <u>5/9/23</u> Time <u>13:51</u>																				
Received by: (Signature) <u>[Signature]</u> Date <u>5/9/23</u> Time <u>13:53</u>																				
Relinquished by: (Signature) _____ Date _____ Time _____																				
Received by: (Signature) _____ Date _____ Time _____																				
Relinquished by: (Signature) _____ Date _____ Time _____																				
Received by: (Signature) _____ Date _____ Time _____																				
Lab Use Only Received on ice: <u>YY</u> N T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4</u>																				
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____																				
Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA																				
Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.																				

## Envirotech Analytical Laboratory

Printed: 5/9/2023 2:23:54PM

## Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Hilcorp Energy Co	Date Received:	05/09/23 13:53	Work Order ID:	E305056
Phone:	(337) 781-9630	Date Logged In:	05/09/23 14:03	Logged In By:	Alexa Michaels
Email:	samantha.grabert@hilcorp.com	Due Date:	05/10/23 17:00 (1 day TAT)		

**Chain of Custody (COC)**

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: Samantha Grabert**Comments/Resolution****Sample Turn Around Time (TAT)**

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

**Sample Cooler**

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? No
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C? Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

**Sample Container**

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

**Field Label**

20. Were field sample labels filled out with the minimum information:
  - Sample ID? Yes
  - Date/Time Collected? Yes
  - Collectors name? Yes

**Sample Preservation**

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

**Multiphase Sample Matrix**

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

**Subcontract Laboratory**

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: NA

**Client Instruction**

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.





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

May 24, 2023

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

RE: San Juan 30 6 31A

OrderNo.: 2305751

Dear Samantha Grabert:

Hall Environmental Analysis Laboratory received 27 sample(s) on 5/13/2023 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109



## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH01 4-6

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 12:15:00 PM

Lab ID: 2305751-001

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	440	9.7		mg/Kg	1	5/19/2023 10:49:49 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/19/2023 10:49:49 PM
Surr: DNOP	140	69-147		%Rec	1	5/19/2023 10:49:49 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	1700	50		mg/Kg	10	5/17/2023 3:09:53 PM
Surr: BFB	1990	15-244	S	%Rec	10	5/17/2023 3:09:53 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	0.72	0.25		mg/Kg	10	5/18/2023 7:07:24 PM
Toluene	24	0.50		mg/Kg	10	5/18/2023 7:07:24 PM
Ethylbenzene	6.8	0.50		mg/Kg	10	5/18/2023 7:07:24 PM
Xylenes, Total	110	1.0		mg/Kg	10	5/18/2023 7:07:24 PM
Surr: 4-Bromofluorobenzene	120	39.1-146		%Rec	10	5/18/2023 7:07:24 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:28:54 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH01 9-11

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 12:18:00 PM

Lab ID: 2305751-002

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	580	20		mg/Kg	2	5/22/2023 10:45:32 AM
Motor Oil Range Organics (MRO)	ND	98		mg/Kg	2	5/22/2023 10:45:32 AM
Surr: DNOP	105	69-147		%Rec	2	5/22/2023 10:45:32 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	3900	100		mg/Kg	20	5/17/2023 4:43:52 PM
Surr: BFB	2000	15-244	S	%Rec	20	5/17/2023 4:43:52 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	3.0	1.2		mg/Kg	50	5/18/2023 7:30:46 PM
Toluene	76	2.5		mg/Kg	50	5/18/2023 7:30:46 PM
Ethylbenzene	21	2.5		mg/Kg	50	5/18/2023 7:30:46 PM
Xylenes, Total	340	5.0		mg/Kg	50	5/18/2023 7:30:46 PM
Surr: 4-Bromofluorobenzene	115	39.1-146		%Rec	50	5/18/2023 7:30:46 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:41:19 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH01 14-16

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 12:21:00 PM

Lab ID: 2305751-003

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	200	9.4		mg/Kg	1	5/19/2023 11:11:25 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2023 11:11:25 PM
Surr: DNOP	103	69-147		%Rec	1	5/19/2023 11:11:25 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	3100	240		mg/Kg	50	5/18/2023 7:54:06 PM
Surr: BFB	615	15-244	S	%Rec	50	5/18/2023 7:54:06 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	4.4	1.2		mg/Kg	50	5/18/2023 7:54:06 PM
Toluene	68	2.4		mg/Kg	50	5/18/2023 7:54:06 PM
Ethylbenzene	15	2.4		mg/Kg	50	5/18/2023 7:54:06 PM
Xylenes, Total	220	4.8		mg/Kg	50	5/18/2023 7:54:06 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	50	5/18/2023 7:54:06 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	ND	60		mg/Kg	20	5/19/2023 4:53:44 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH01 49-51

Project: San Juan 30 6 31A

Collection Date: 5/11/2023 2:05:00 PM

Lab ID: 2305751-004

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	5/19/2023 11:22:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2023 11:22:11 PM
Surr: DNOP	139	69-147		%Rec	1	5/19/2023 11:22:11 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	960	48		mg/Kg	10	5/17/2023 9:01:14 PM
Surr: BFB	745	15-244	S	%Rec	10	5/17/2023 9:01:14 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	2.1	0.24		mg/Kg	10	5/18/2023 8:17:32 PM
Toluene	31	0.48		mg/Kg	10	5/18/2023 8:17:32 PM
Ethylbenzene	5.0	0.48		mg/Kg	10	5/18/2023 8:17:32 PM
Xylenes, Total	77	0.96		mg/Kg	10	5/18/2023 8:17:32 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	10	5/18/2023 8:17:32 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 5:30:59 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH02 9-11

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 1:45:00 PM

Lab ID: 2305751-005

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/19/2023 11:32:57 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2023 11:32:57 PM
Surr: DNOP	104	69-147		%Rec	1	5/19/2023 11:32:57 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	23	4.8		mg/Kg	1	5/18/2023 8:40:55 PM
Surr: BFB	518	15-244	S	%Rec	1	5/18/2023 8:40:55 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 8:40:55 PM
Toluene	ND	0.048		mg/Kg	1	5/18/2023 8:40:55 PM
Ethylbenzene	0.057	0.048		mg/Kg	1	5/18/2023 8:40:55 PM
Xylenes, Total	0.11	0.096		mg/Kg	1	5/18/2023 8:40:55 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	5/18/2023 8:40:55 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	59		mg/Kg	20	5/19/2023 5:43:23 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH02 29-31

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 1:40:00 PM

Lab ID: 2305751-006

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/19/2023 11:43:41 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2023 11:43:41 PM
Surr: DNOP	105	69-147		%Rec	1	5/19/2023 11:43:41 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/18/2023 9:04:14 PM
Surr: BFB	199	15-244		%Rec	1	5/18/2023 9:04:14 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 9:04:14 PM
Toluene	ND	0.048		mg/Kg	1	5/18/2023 9:04:14 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/18/2023 9:04:14 PM
Xylenes, Total	0.13	0.096		mg/Kg	1	5/18/2023 9:04:14 PM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	5/18/2023 9:04:14 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	59		mg/Kg	20	5/19/2023 5:55:48 PM

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

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



## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH02 39-41

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 1:53:00 PM

Lab ID: 2305751-007

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	32	9.8		mg/Kg	1	5/19/2023 11:54:25 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/19/2023 11:54:25 PM
Surr: DNOP	107	69-147		%Rec	1	5/19/2023 11:54:25 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	290	47		mg/Kg	10	5/18/2023 9:27:00 PM
Surr: BFB	320	15-244	S	%Rec	10	5/18/2023 9:27:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	1.3	0.24		mg/Kg	10	5/18/2023 9:27:36 PM
Toluene	11	0.47		mg/Kg	10	5/18/2023 9:27:36 PM
Ethylbenzene	1.7	0.47		mg/Kg	10	5/18/2023 9:27:36 PM
Xylenes, Total	25	0.94		mg/Kg	10	5/18/2023 9:27:36 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	10	5/18/2023 9:27:36 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	ND	60		mg/Kg	20	5/19/2023 6:08:12 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH02 44-46

Project: San Juan 30 6 31A

Collection Date: 5/9/2023 3:30:00 PM

Lab ID: 2305751-008

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/20/2023 12:05:08 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/20/2023 12:05:08 AM
Surr: DNOP	115	69-147		%Rec	1	5/20/2023 12:05:08 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/18/2023 9:50:55 PM
Surr: BFB	119	15-244		%Rec	1	5/18/2023 9:50:55 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	5/18/2023 9:50:55 PM
Toluene	0.12	0.049		mg/Kg	1	5/18/2023 9:50:55 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2023 9:50:55 PM
Xylenes, Total	0.35	0.098		mg/Kg	1	5/18/2023 9:50:55 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	5/18/2023 9:50:55 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	ND	61		mg/Kg	20	5/19/2023 6:20:36 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH03 4-6

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 10:30:00 AM

Lab ID: 2305751-009

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	130	9.8		mg/Kg	1	5/20/2023 12:15:50 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/20/2023 12:15:50 AM
Surr: DNOP	114	69-147		%Rec	1	5/20/2023 12:15:50 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	64	4.8		mg/Kg	1	5/17/2023 8:14:34 PM
Surr: BFB	626	15-244	S	%Rec	1	5/17/2023 8:14:34 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	5/18/2023 10:14:21 PM
Toluene	ND	0.048		mg/Kg	1	5/18/2023 10:14:21 PM
Ethylbenzene	0.23	0.048		mg/Kg	1	5/18/2023 10:14:21 PM
Xylenes, Total	0.87	0.096		mg/Kg	1	5/18/2023 10:14:21 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	5/18/2023 10:14:21 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	ND	60		mg/Kg	20	5/19/2023 6:33:00 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH03 19-21

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 10:33:00 AM

Lab ID: 2305751-010

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/20/2023 12:26:32 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/20/2023 12:26:32 AM
Surr: DNOP	82.8	69-147		%Rec	1	5/20/2023 12:26:32 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/17/2023 8:37:53 PM
Surr: BFB	201	15-244		%Rec	1	5/17/2023 8:37:53 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	5/18/2023 10:37:50 PM
Toluene	ND	0.047		mg/Kg	1	5/18/2023 10:37:50 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/18/2023 10:37:50 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/18/2023 10:37:50 PM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	5/18/2023 10:37:50 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:45:25 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH03 34-36

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 10:35:00 AM

Lab ID: 2305751-011

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/20/2023 12:37:12 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/20/2023 12:37:12 AM
Surr: DNOP	79.2	69-147		%Rec	1	5/20/2023 12:37:12 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/17/2023 10:58:08 PM
Surr: BFB	92.0	15-244		%Rec	1	5/17/2023 10:58:08 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2023 11:24:32 PM
Toluene	ND	0.050		mg/Kg	1	5/18/2023 11:24:32 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2023 11:24:32 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/18/2023 11:24:32 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	5/18/2023 11:24:32 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:57:50 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH03 39-41

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 10:38:00 AM

Lab ID: 2305751-012

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	24	9.3		mg/Kg	1	5/20/2023 12:47:56 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/20/2023 12:47:56 AM
Surr: DNOP	118	69-147		%Rec	1	5/20/2023 12:47:56 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	290	24		mg/Kg	5	5/19/2023 1:24:36 PM
Surr: BFB	597	15-244	S	%Rec	5	5/19/2023 1:24:36 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	0.58	0.12		mg/Kg	5	5/19/2023 1:24:36 PM
Toluene	8.3	0.24		mg/Kg	5	5/19/2023 1:24:36 PM
Ethylbenzene	1.4	0.24		mg/Kg	5	5/19/2023 1:24:36 PM
Xylenes, Total	22	0.47		mg/Kg	5	5/19/2023 1:24:36 PM
Surr: 4-Bromofluorobenzene	112	39.1-146		%Rec	5	5/19/2023 1:24:36 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 7:10:15 PM

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

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



## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH03 44-46

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 10:40:00 AM

Lab ID: 2305751-013

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/20/2023 1:09:17 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/20/2023 1:09:17 AM
Surr: DNOP	85.9	69-147		%Rec	1	5/20/2023 1:09:17 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/17/2023 11:44:53 PM
Surr: BFB	83.6	15-244		%Rec	1	5/17/2023 11:44:53 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	5/19/2023 12:11:14 AM
Toluene	ND	0.046		mg/Kg	1	5/19/2023 12:11:14 AM
Ethylbenzene	ND	0.046		mg/Kg	1	5/19/2023 12:11:14 AM
Xylenes, Total	ND	0.092		mg/Kg	1	5/19/2023 12:11:14 AM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	5/19/2023 12:11:14 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 1:09:36 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH04 9-10

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 2:00:00 PM

Lab ID: 2305751-014

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/20/2023 1:19:58 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/20/2023 1:19:58 AM
Surr: DNOP	84.6	69-147		%Rec	1	5/20/2023 1:19:58 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/18/2023 12:08:16 AM
Surr: BFB	105	15-244		%Rec	1	5/18/2023 12:08:16 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.025		mg/Kg	1	5/19/2023 12:34:32 AM
Toluene	ND	0.050		mg/Kg	1	5/19/2023 12:34:32 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/19/2023 12:34:32 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/19/2023 12:34:32 AM
Surr: 4-Bromofluorobenzene	99.2	39.1-146		%Rec	1	5/19/2023 12:34:32 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	61		mg/Kg	20	5/19/2023 1:22:01 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH04 29-31

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 2:03:00 PM

Lab ID: 2305751-015

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/20/2023 1:30:39 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/20/2023 1:30:39 AM
Surr: DNOP	87.2	69-147		%Rec	1	5/20/2023 1:30:39 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/18/2023 12:31:35 AM
Surr: BFB	82.2	15-244		%Rec	1	5/18/2023 12:31:35 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	5/19/2023 12:57:54 AM
Toluene	ND	0.049		mg/Kg	1	5/19/2023 12:57:54 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/19/2023 12:57:54 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/19/2023 12:57:54 AM
Surr: 4-Bromofluorobenzene	99.7	39.1-146		%Rec	1	5/19/2023 12:57:54 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 1:34:25 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH04 34-36

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 2:06:00 PM

Lab ID: 2305751-016

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/20/2023 1:41:19 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/20/2023 1:41:19 AM
Surr: DNOP	88.1	69-147		%Rec	1	5/20/2023 1:41:19 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/18/2023 12:54:54 AM
Surr: BFB	78.7	15-244		%Rec	1	5/18/2023 12:54:54 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	5/19/2023 1:21:16 AM
Toluene	ND	0.047		mg/Kg	1	5/19/2023 1:21:16 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/19/2023 1:21:16 AM
Xylenes, Total	ND	0.093		mg/Kg	1	5/19/2023 1:21:16 AM
Surr: 4-Bromofluorobenzene	98.9	39.1-146		%Rec	1	5/19/2023 1:21:16 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 1:46:50 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH04 39-41

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 2:08:00 PM

Lab ID: 2305751-017

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/20/2023 1:51:57 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/20/2023 1:51:57 AM
Surr: DNOP	86.9	69-147		%Rec	1	5/20/2023 1:51:57 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	150	9.3		mg/Kg	2	5/19/2023 1:44:34 AM
Surr: BFB	734	15-244	S	%Rec	2	5/19/2023 1:44:34 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	0.17	0.046		mg/Kg	2	5/19/2023 1:44:34 AM
Toluene	3.4	0.093		mg/Kg	2	5/19/2023 1:44:34 AM
Ethylbenzene	0.71	0.093		mg/Kg	2	5/19/2023 1:44:34 AM
Xylenes, Total	11	0.19		mg/Kg	2	5/19/2023 1:44:34 AM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	2	5/19/2023 1:44:34 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 1:59:15 PM

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

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

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**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**Lab Order **2305751**Date Reported: **5/24/2023****CLIENT:** HILCORP ENERGY**Client Sample ID:** BH04 44-46**Project:** San Juan 30 6 31A**Collection Date:** 5/10/2023 2:10:00 PM**Lab ID:** 2305751-018**Matrix:** SOIL**Received Date:** 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	5/20/2023 2:02:37 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/20/2023 2:02:37 AM
Surr: DNOP	86.2	69-147		%Rec	1	5/20/2023 2:02:37 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/18/2023 1:41:43 AM
Surr: BFB	97.3	15-244		%Rec	1	5/18/2023 1:41:43 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	5/19/2023 2:07:55 AM
Toluene	ND	0.048		mg/Kg	1	5/19/2023 2:07:55 AM
Ethylbenzene	ND	0.048		mg/Kg	1	5/19/2023 2:07:55 AM
Xylenes, Total	ND	0.096		mg/Kg	1	5/19/2023 2:07:55 AM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	5/19/2023 2:07:55 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 2:11:39 PM

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

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



## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH05 24-26

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 4:13:00 PM

Lab ID: 2305751-019

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/19/2023 5:28:27 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/19/2023 5:28:27 PM
Surr: DNOP	117	69-147		%Rec	1	5/19/2023 5:28:27 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2023 11:14:00 AM
Surr: BFB	96.8	15-244		%Rec	1	5/19/2023 11:14:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2023 12:19:00 PM
Toluene	ND	0.050		mg/Kg	1	5/18/2023 12:19:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2023 12:19:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/18/2023 12:19:00 PM
Surr: 4-Bromofluorobenzene	87.0	39.1-146		%Rec	1	5/18/2023 12:19:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	68	60		mg/Kg	20	5/19/2023 2:24:04 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH05 29-31

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 4:15:00 PM

Lab ID: 2305751-020

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/19/2023 5:39:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/19/2023 5:39:04 PM
Surr: DNOP	114	69-147		%Rec	1	5/19/2023 5:39:04 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	14	4.9		mg/Kg	1	5/19/2023 12:19:00 PM
Surr: BFB	124	15-244		%Rec	1	5/19/2023 12:19:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 10:25:00 PM
Toluene	0.28	0.049		mg/Kg	1	5/18/2023 10:25:00 PM
Ethylbenzene	0.074	0.049		mg/Kg	1	5/18/2023 10:25:00 PM
Xylenes, Total	0.99	0.097		mg/Kg	1	5/18/2023 10:25:00 PM
Surr: 4-Bromofluorobenzene	92.2	39.1-146		%Rec	1	5/18/2023 10:25:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 2:36:28 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH05 34-36

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 4:17:00 PM

Lab ID: 2305751-021

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/19/2023 5:49:45 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2023 5:49:45 PM
Surr: DNOP	119	69-147		%Rec	1	5/19/2023 5:49:45 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	15	4.8		mg/Kg	1	5/19/2023 3:55:00 PM
Surr: BFB	136	15-244		%Rec	1	5/19/2023 3:55:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 2:51:00 PM
Toluene	0.20	0.048		mg/Kg	1	5/18/2023 2:51:00 PM
Ethylbenzene	0.074	0.048		mg/Kg	1	5/18/2023 2:51:00 PM
Xylenes, Total	0.79	0.095		mg/Kg	1	5/18/2023 2:51:00 PM
Surr: 4-Bromofluorobenzene	94.8	39.1-146		%Rec	1	5/18/2023 2:51:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	61		mg/Kg	20	5/19/2023 3:13:42 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH05 39-41

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 4:19:00 PM

Lab ID: 2305751-022

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/19/2023 6:00:29 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/19/2023 6:00:29 PM
Surr: DNOP	112	69-147		%Rec	1	5/19/2023 6:00:29 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	69	5.0		mg/Kg	1	5/19/2023 4:17:00 PM
Surr: BFB	248	15-244	S	%Rec	1	5/19/2023 4:17:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	0.12	0.025		mg/Kg	1	5/18/2023 3:13:00 PM
Toluene	1.6	0.050		mg/Kg	1	5/18/2023 3:13:00 PM
Ethylbenzene	0.35	0.050		mg/Kg	1	5/18/2023 3:13:00 PM
Xylenes, Total	4.0	0.099		mg/Kg	1	5/18/2023 3:13:00 PM
Surr: 4-Bromofluorobenzene	116	39.1-146		%Rec	1	5/18/2023 3:13:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 3:26:06 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH05 44-46

Project: San Juan 30 6 31A

Collection Date: 5/10/2023 4:21:00 PM

Lab ID: 2305751-023

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/19/2023 6:11:15 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2023 6:11:15 PM
Surr: DNOP	113	69-147		%Rec	1	5/19/2023 6:11:15 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2023 4:38:00 PM
Surr: BFB	90.5	15-244		%Rec	1	5/19/2023 4:38:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 3:34:00 PM
Toluene	ND	0.048		mg/Kg	1	5/18/2023 3:34:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/18/2023 3:34:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/18/2023 3:34:00 PM
Surr: 4-Bromofluorobenzene	86.5	39.1-146		%Rec	1	5/18/2023 3:34:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:03:20 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH06 14-16

Project: San Juan 30 6 31A

Collection Date: 5/11/2023 12:10:00 PM

Lab ID: 2305751-024

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/19/2023 6:22:03 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/19/2023 6:22:03 PM
Surr: DNOP	99.6	69-147		%Rec	1	5/19/2023 6:22:03 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/19/2023 5:00:00 PM
Surr: BFB	85.0	15-244		%Rec	1	5/19/2023 5:00:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.023		mg/Kg	1	5/18/2023 3:56:00 PM
Toluene	ND	0.046		mg/Kg	1	5/18/2023 3:56:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/18/2023 3:56:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/18/2023 3:56:00 PM
Surr: 4-Bromofluorobenzene	84.5	39.1-146		%Rec	1	5/18/2023 3:56:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:15:45 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH06 34-36

Project: San Juan 30 6 31A

Collection Date: 5/11/2023 12:13:00 PM

Lab ID: 2305751-025

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/19/2023 6:32:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/19/2023 6:32:52 PM
Surr: DNOP	117	69-147		%Rec	1	5/19/2023 6:32:52 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/19/2023 5:21:00 PM
Surr: BFB	85.7	15-244		%Rec	1	5/19/2023 5:21:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 4:18:00 PM
Toluene	ND	0.049		mg/Kg	1	5/18/2023 4:18:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2023 4:18:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/18/2023 4:18:00 PM
Surr: 4-Bromofluorobenzene	84.6	39.1-146		%Rec	1	5/18/2023 4:18:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:28:10 PM

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

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

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## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH06 39-41

Project: San Juan 30 6 31A

Collection Date: 5/11/2023 12:15:00 PM

Lab ID: 2305751-026

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/19/2023 6:43:42 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/19/2023 6:43:42 PM
Surr: DNOP	116	69-147		%Rec	1	5/19/2023 6:43:42 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/19/2023 5:43:00 PM
Surr: BFB	86.8	15-244		%Rec	1	5/19/2023 5:43:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.023		mg/Kg	1	5/18/2023 4:39:00 PM
Toluene	ND	0.046		mg/Kg	1	5/18/2023 4:39:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/18/2023 4:39:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/18/2023 4:39:00 PM
Surr: 4-Bromofluorobenzene	85.8	39.1-146		%Rec	1	5/18/2023 4:39:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:40:34 PM

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

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

## Analytical Report

Lab Order 2305751

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH06 44-46

Project: San Juan 30 6 31A

Collection Date: 5/11/2023 12:17:00 PM

Lab ID: 2305751-027

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/19/2023 6:54:34 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2023 6:54:34 PM
Surr: DNOP	122	69-147		%Rec	1	5/19/2023 6:54:34 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/19/2023 6:04:00 PM
Surr: BFB	87.6	15-244		%Rec	1	5/19/2023 6:04:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2023 5:01:00 PM
Toluene	ND	0.049		mg/Kg	1	5/18/2023 5:01:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2023 5:01:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/18/2023 5:01:00 PM
Surr: 4-Bromofluorobenzene	85.0	39.1-146		%Rec	1	5/18/2023 5:01:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 4:52:59 PM

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

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

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>MB-75059</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75059</b>	RunNo: <b>96890</b>								
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3514760</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-75059</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75059</b>	RunNo: <b>96890</b>								
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3514761</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Sample ID: <b>MB-75055</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75055</b>	RunNo: <b>96891</b>								
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3514831</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-75055</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75055</b>	RunNo: <b>96891</b>								
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3514832</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	90	110			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

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**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>2305751-018AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>BH04 44-46</b>	Batch ID: <b>75037</b>	RunNo: <b>96907</b>								
Prep Date: <b>5/18/2023</b>	Analysis Date: <b>5/20/2023</b>	SeqNo: <b>3515351</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	8.7	43.40	0	94.5	54.2	135			
Surr: DNOP	4.2		4.340		97.1	69	147			

Sample ID: <b>2305751-018AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>BH04 44-46</b>	Batch ID: <b>75037</b>	RunNo: <b>96907</b>								
Prep Date: <b>5/18/2023</b>	Analysis Date: <b>5/20/2023</b>	SeqNo: <b>3515352</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	8.5	42.59	0	94.3	54.2	135	2.04	29.2	
Surr: DNOP	4.2		4.259		98.7	69	147	0	0	

Sample ID: <b>LCS-75018</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75018</b>	RunNo: <b>96907</b>								
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515397</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	77	10	50.00	0	155	61.9	130			S
Surr: DNOP	8.2		5.000		163	69	147			S

Sample ID: <b>LCS-75037</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>75037</b>	RunNo: <b>96907</b>								
Prep Date: <b>5/18/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515400</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.5	61.9	130			
Surr: DNOP	4.7		5.000		94.9	69	147			

Sample ID: <b>MB-75018</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>75018</b>	RunNo: <b>96907</b>								
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515401</b> Units: <b>mg/Kg</b>								
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	12		10.00		116	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>MB-75037</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75037</b>		RunNo: <b>96907</b>							
Prep Date: <b>5/18/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515404</b>		Units: <b>mg/Kg</b>					
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	14		10.00		137	69	147			

Sample ID: <b>LCS-75018</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75018</b>		RunNo: <b>96925</b>							
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/22/2023</b>		SeqNo: <b>3517131</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.6	61.9	130			
Surr: DNOP	5.3		5.000		106	69	147			

**Qualifiers:**

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D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
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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#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>ics-74980</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74980</b>		RunNo: <b>96812</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/17/2023</b>		SeqNo: <b>3511527</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.2	70	130			
Surr: BFB	5000		1000		504	15	244			S

Sample ID: <b>mb-74980</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74980</b>		RunNo: <b>96812</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/17/2023</b>		SeqNo: <b>3511528</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		95.1	15	244			

Sample ID: <b>ics-74980</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74980</b>		RunNo: <b>96868</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513890</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.5	70	130			
Surr: BFB	4900		1000		486	15	244			S

Sample ID: <b>mb-74980</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74980</b>		RunNo: <b>96868</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513891</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	810		1000		81.0	15	244			

Sample ID: <b>mb-74988</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74988</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515415</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.5	15	244			

Sample ID: <b>ics-74988</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74988</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515416</b>		Units: <b>mg/Kg</b>					
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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>ics-74988</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74988</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515416</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.6	70	130			
Surr: BFB	1900		1000		191	15	244			

Sample ID: <b>2305751-019AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>BH05 24-26</b>	Batch ID: <b>74988</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515418</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.80	2.592	81.3	70	130			
Surr: BFB	2000		992.1		198	15	244			

Sample ID: <b>2305751-019amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>BH05 24-26</b>	Batch ID: <b>74988</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515419</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.83	2.592	83.3	70	130			
Surr: BFB	2000		993.0		203	15	244			

Sample ID: <b>mb-74964</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74964</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515469</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.5	15	244			

Sample ID: <b>ics-74964</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74964</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515470</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		190	15	244			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>LCS-74980</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74980</b>		RunNo: <b>96812</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/17/2023</b>		SeqNo: <b>3511530</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.78	0.025	1.000	0	78.2	70	130			
Toluene	0.81	0.050	1.000	0	80.7	70	130			
Ethylbenzene	0.82	0.050	1.000	0	81.6	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.0	70	130			
Surr: 4-Bromofluorobenzene	0.84		1.000		84.3	39.1	146			

Sample ID: <b>mb-74980</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74980</b>		RunNo: <b>96812</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/17/2023</b>		SeqNo: <b>3511531</b>		Units: <b>mg/Kg</b>					
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	0.82		1.000		82.0	39.1	146			

Sample ID: <b>LCS-74980</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74980</b>		RunNo: <b>96868</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513913</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.1	70	130			
Toluene	0.96	0.050	1.000	0	95.5	70	130			
Ethylbenzene	0.97	0.050	1.000	0	97.1	70	130			
Xylenes, Total	2.9	0.10	3.000	0	96.9	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	39.1	146			

Sample ID: <b>mb-74980</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74980</b>		RunNo: <b>96868</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513914</b>		Units: <b>mg/Kg</b>					
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	1.0		1.000		100	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305751

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>2305751-020amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>BH05 29-31</b>	Batch ID: <b>74988</b>	RunNo: <b>96869</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>	SeqNo: <b>3513974</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.024	0.9681	0.01698	83.2	70	130	5.17	20	
Toluene	1.2	0.048	0.9681	0.2828	90.7	70	130	0.832	20	
Ethylbenzene	0.88	0.048	0.9681	0.07363	83.1	70	130	3.95	20	
Xylenes, Total	3.5	0.097	2.904	0.9938	85.3	70	130	0.735	20	
Surr: 4-Bromofluorobenzene	0.85		0.9681		87.8	39.1	146	0	0	

Sample ID: <b>lcs-74988</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>74988</b>	RunNo: <b>96869</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>	SeqNo: <b>3513975</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.9	70	130			
Toluene	0.87	0.050	1.000	0	87.2	70	130			
Ethylbenzene	0.85	0.050	1.000	0	84.8	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.9	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.4	39.1	146			

Sample ID: <b>mb-74988</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>74988</b>	RunNo: <b>96869</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>	SeqNo: <b>3513976</b> Units: <b>mg/Kg</b>								
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	0.85		1.000		84.9	39.1	146			

Sample ID: <b>2305751-020ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>BH05 29-31</b>	Batch ID: <b>74988</b>	RunNo: <b>96869</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>	SeqNo: <b>3514000</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9709	0.01698	87.4	70	130			
Toluene	1.2	0.049	0.9709	0.2828	89.4	70	130			
Ethylbenzene	0.91	0.049	0.9709	0.07363	86.5	70	130			
Xylenes, Total	3.4	0.097	2.913	0.9938	84.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		0.9709		88.7	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305751

24-May-23

Client: HILCORP ENERGY

Project: San Juan 30 6 31A

Sample ID: <b>mb-74964</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>74964</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515482</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.85		1.000		84.6	39.1	146			

Sample ID: <b>lcs-74964</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>74964</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/20/2023</b>	SeqNo: <b>3515483</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.86		1.000		85.7	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 35 of 35



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

## Sample Log-In Check List

Client Name: HILCORP ENERGY

Work Order Number: 2305751

RcptNo: 1

Received By: Juan Rojas

5/13/2023 7:20:00 AM

*Juan Rojas*

Completed By: Juan Rojas

5/13/2023 7:47:02 AM

*Juan Rojas*

Reviewed By: *JR 5/13/23*

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

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: *TMC 5/13/23*

### 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: \_\_\_\_\_

16. Additional remarks:

Client missing mailing address and phone number. JR 5/13/23

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	No	Morty		





## Chain-of-Custody Record

Client: Hilcorp  
 Attn: Samantha Grabert  
 Mailing Address:  
 Phone #:  
 email or Fax#: Samantha.Grabert@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 Juan 30-6 #31A

Project #:

Project Manager:

Stuart Hyde  
shyde@ersolun.com

Sampler:

Reece Hanson

On Ice:

☐ Yes ☐ No

# of Coolers:

1 MA-74

Cooler Temp (including CF):

1.1 - 0.1 (°C)

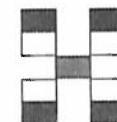
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
5/10/23	1040	Soil	BH03 44-46	1, 402	Cool	-013
	1400		BH04 9-10			-014
	1403		BH04 29-31			-015
	1406		BH04 34-36			-016
	1408		BH04 39-41			-017
	1410		BH04 44-46			-018
	1613		BH05 24-26			-019
	1615		BH05 29-31			-020
	1617		BH05 34-36			-021
	1619		BH05 39-41			-022
	1621		BH05 44-46			-023
5/11/23	1210		BH06 14-16			-024

Date: 5/12/23 Time: 1206 Relinquished by: [Signature]

Received by: [Signature] Via: [Signature] Date: 5/12/23 Time: 1304

Date: 5/12/23 Time: 1804 Relinquished by: [Signature]

Received by: [Signature] Via: [Signature] Date: 5/13/23 Time: 7:20



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## 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 <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub>	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)										
X	X					X													

Remarks: cc: rhanson@ersolun.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: IT:corp

Attn: Samantha Goebert

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

Phone #: \_\_\_\_\_

email or Fax#: \_\_\_\_\_

QA/QC Package:

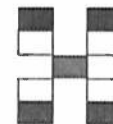
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other \_\_\_\_\_

☐ EDD (Type) \_\_\_\_\_

Turn-Around Time:	5-day
<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> Rush
Project Name:	San Juan 30-6 #31A
Project #:	
Project Manager:	Stuart Hyle shyle@consolium.com
Sampler:	Reece Hanson
On Ice:	<input type="checkbox"/> Yes <input type="checkbox"/> No
# of Coolers:	1
Cooler Temp (Including CF):	1.1-0 = 1.1 (°C)



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]





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

May 24, 2023

Stuart Hyde

HILCORP ENERGY

PO Box 4700

Farmington, NM 87499

TEL: (505) 564-0733

FAX:

RE: San Juan 30 6 31A

OrderNo.: 2305752

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/13/2023 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2305752

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH07 (5-7ft)

Project: San Juan 30 6 31A

Collection Date: 5/12/2023 11:45:00 AM

Lab ID: 2305752-001

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/19/2023 7:16:16 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2023 7:16:16 PM
Surr: DNOP	159	69-147	S	%Rec	1	5/19/2023 7:16:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/19/2023 6:26:00 PM
Surr: BFB	85.6	15-244		%Rec	1	5/19/2023 6:26:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2023 5:23:00 PM
Toluene	ND	0.049		mg/Kg	1	5/18/2023 5:23:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2023 5:23:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/18/2023 5:23:00 PM
Surr: 4-Bromofluorobenzene	82.6	39.1-146		%Rec	1	5/18/2023 5:23:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 5:05:23 PM

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

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

## Analytical Report

Lab Order 2305752

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH07 (20-22ft)

Project: San Juan 30 6 31A

Collection Date: 5/12/2023 11:50:00 AM

Lab ID: 2305752-002

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/19/2023 7:27:17 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2023 7:27:17 PM
Surr: DNOP	119	69-147		%Rec	1	5/19/2023 7:27:17 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/19/2023 6:48:00 PM
Surr: BFB	90.2	15-244		%Rec	1	5/19/2023 6:48:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 6:06:00 PM
Toluene	ND	0.049		mg/Kg	1	5/18/2023 6:06:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/18/2023 6:06:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/18/2023 6:06:00 PM
Surr: 4-Bromofluorobenzene	81.3	39.1-146		%Rec	1	5/18/2023 6:06:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:07:27 PM

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

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

## Analytical Report

Lab Order 2305752

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH07 (30-32ft)

Project: San Juan 30 6 31A

Collection Date: 5/12/2023 12:00:00 PM

Lab ID: 2305752-003

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/19/2023 7:38:16 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2023 7:38:16 PM
Surr: DNOP	129	69-147		%Rec	1	5/19/2023 7:38:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/19/2023 7:31:00 PM
Surr: BFB	85.7	15-244		%Rec	1	5/19/2023 7:31:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 6:28:00 PM
Toluene	ND	0.047		mg/Kg	1	5/18/2023 6:28:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/18/2023 6:28:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/18/2023 6:28:00 PM
Surr: 4-Bromofluorobenzene	83.3	39.1-146		%Rec	1	5/18/2023 6:28:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:19:51 PM

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

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

## Analytical Report

Lab Order 2305752

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH07 (40-42ft)

Project: San Juan 30 6 31A

Collection Date: 5/12/2023 11:55:00 AM

Lab ID: 2305752-004

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	5/19/2023 7:49:14 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/19/2023 7:49:14 PM
Surr: DNOP	110	69-147		%Rec	1	5/19/2023 7:49:14 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2023 7:52:00 PM
Surr: BFB	87.7	15-244		%Rec	1	5/19/2023 7:52:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	5/18/2023 6:49:00 PM
Toluene	ND	0.050		mg/Kg	1	5/18/2023 6:49:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/18/2023 6:49:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/18/2023 6:49:00 PM
Surr: 4-Bromofluorobenzene	83.7	39.1-146		%Rec	1	5/18/2023 6:49:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:32:16 PM

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

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

## Analytical Report

Lab Order 2305752

Date Reported: 5/24/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH07 (50-52ft)

Project: San Juan 30 6 31A

Collection Date: 5/12/2023 12:15:00 PM

Lab ID: 2305752-005

Matrix: SOIL

Received Date: 5/13/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/19/2023 8:00:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/19/2023 8:00:13 PM
Surr: DNOP	110	69-147		%Rec	1	5/19/2023 8:00:13 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2023 8:14:00 PM
Surr: BFB	84.7	15-244		%Rec	1	5/19/2023 8:14:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	5/18/2023 7:11:00 PM
Toluene	ND	0.048		mg/Kg	1	5/18/2023 7:11:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/18/2023 7:11:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/18/2023 7:11:00 PM
Surr: 4-Bromofluorobenzene	82.8	39.1-146		%Rec	1	5/18/2023 7:11:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	ND	60		mg/Kg	20	5/19/2023 6:44:40 PM

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2305752

24-May-23

Client: HILCORP ENERGY

Project: San Juan 30 6 31A

Sample ID: <b>MB-75059</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75059</b>		RunNo: <b>96890</b>							
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3514760</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-75059</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75059</b>		RunNo: <b>96890</b>							
Prep Date: <b>5/19/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3514761</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305752

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>LCS-75018</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75018</b>		RunNo: <b>96907</b>							
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515397</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	77	10	50.00	0	155	61.9	130			S
Surr: DNOP	8.2		5.000		163	69	147			S

Sample ID: <b>MB-75018</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75018</b>		RunNo: <b>96907</b>							
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515401</b>		Units: <b>mg/Kg</b>					
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	12		10.00		116	69	147			

Sample ID: <b>LCS-75018</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75018</b>		RunNo: <b>96925</b>							
Prep Date: <b>5/17/2023</b>	Analysis Date: <b>5/22/2023</b>		SeqNo: <b>3517131</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.6	61.9	130			
Surr: DNOP	5.3		5.000		106	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305752

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>mb-74988</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>74988</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515415</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.5	15	244			

Sample ID: <b>lcs-74988</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>74988</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515416</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.6	70	130			
Surr: BFB	1900		1000		191	15	244			

Sample ID: <b>mb-74964</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>74964</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515469</b> Units: <b>%Rec</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.5	15	244			

Sample ID: <b>lcs-74964</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>74964</b>	RunNo: <b>96906</b>								
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>	SeqNo: <b>3515470</b> Units: <b>%Rec</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		190	15	244			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2305752

24-May-23

**Client:** HILCORP ENERGY**Project:** San Juan 30 6 31A

Sample ID: <b>lcs-74988</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74988</b>		RunNo: <b>96869</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513975</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.9	70	130			
Toluene	0.87	0.050	1.000	0	87.2	70	130			
Ethylbenzene	0.85	0.050	1.000	0	84.8	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.9	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.4	39.1	146			

Sample ID: <b>mb-74988</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74988</b>		RunNo: <b>96869</b>							
Prep Date: <b>5/16/2023</b>	Analysis Date: <b>5/18/2023</b>		SeqNo: <b>3513976</b>		Units: <b>mg/Kg</b>					
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	0.85		1.000		84.9	39.1	146			

Sample ID: <b>mb-74964</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>74964</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/19/2023</b>		SeqNo: <b>3515482</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.85		1.000		84.6	39.1	146			

Sample ID: <b>lcs-74964</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>74964</b>		RunNo: <b>96906</b>							
Prep Date: <b>5/15/2023</b>	Analysis Date: <b>5/20/2023</b>		SeqNo: <b>3515483</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.86		1.000		85.7	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 Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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

## Sample Log-In Check List

Client Name: HILCORP ENERGY

Work Order Number: 2305752

RcptNo: 1

Received By: Juan Rojas

5/13/2023 7:20:00 AM

*Juan Rojas*

Completed By: Juan Rojas

5/13/2023 8:21:16 AM

*Juan Rojas*

Reviewed By: *JWR 5/13/23*

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

# of preserved  
bottles checked  
for pH:

( $\leq 2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: *TMC 5/13/23*

### 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: \_\_\_\_\_

16. Additional remarks:

Client missing email address on COC. JR 5/13/23

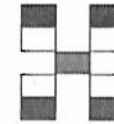
17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	No	Mortyn		

## Chain-of-Custody Record

Client: Hilcorp  
EnSolum  
 Mailing Address: 776 E. 2nd Ave  
Durango, CO 81301  
 Phone #: 970-903-1607  
 email or Fax#: \_\_\_\_\_  
 QA/QC Package:  
☐ Standard ☐ Level 4 (Full Validation)  
 Accreditation: ☐ Az Compliance  
☐ NELAC ☐ Other \_\_\_\_\_  
☐ EDD (Type) \_\_\_\_\_

Turn-Around Time:  
☒ 5 day ☐ Rush  
 Project Name:  
San Juan 30-6 #31A  
 Project #: \_\_\_\_\_  
 Project Manager:  
Stuart Hyde  
 Sampler:  
 On Ice: ☒ Yes ☐ No  
 # of Coolers: 1 Marty  
 Cooler Temp (including CF): 1.1-0-1.1 (°C)

HALL ENVIRONMENTAL  
ANALYSIS LABORATORY

www.hallenvironmental.com

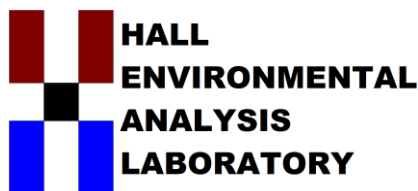
4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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 <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub>	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5-12-23	11:45	S	BH-07 (5-7 ft)	4oz glass	Nine	-001	X	X								
	11:50	S	BH-07 (20-22 ft)			-002										
	12:00	S	BH-07 (30-32 ft)			-003										
	11:55	S	BH-07 (40-42 ft)			-004										
	12:15	S	BH-07 (50-52 ft)			-005										
<div>WW</div> <div>3-15-23</div>																
<div> <div>Date: 5-12-23 Time: 15:15 Relinquished by: <u>Wm Warrant</u></div> <div>Received by: <u>Wm Warrant</u> Date: 5/12/23 Time: 15:15</div> </div>																
<div> <div>Date: 5/12/23 Time: 1804 Relinquished by: <u>[Signature]</u></div> <div>Received by: <u>[Signature]</u> Date: 5/13/23 Time: 7:20</div> </div>																

Remarks:



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

June 08, 2023

Stuart Hyde

HILCORP ENERGY

PO Box 4700

Farmington, NM 87499

TEL: (505) 564-0733

FAX:

RE: SJ 30 6 31A

OrderNo.: 2306119

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/3/2023 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2306119

Date Reported: 6/8/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: BH06

Project: SJ 30 6 31A

Collection Date: 6/2/2023 12:14:00 PM

Lab ID: 2306119-001

Matrix: AQUEOUS

Received Date: 6/3/2023 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	2.0	D	µg/L	2	6/6/2023 3:11:26 PM
Toluene	ND	2.0	D	µg/L	2	6/6/2023 3:11:26 PM
Ethylbenzene	ND	2.0	D	µg/L	2	6/6/2023 3:11:26 PM
Xylenes, Total	ND	4.0	D	µg/L	2	6/6/2023 3:11:26 PM
Surr: 4-Bromofluorobenzene	88.4	52.4-148	D	%Rec	2	6/6/2023 3:11:26 PM

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

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

Page 1 of 3



**Hall Environmental Analysis Laboratory, Inc.****Analytical Report**Lab Order **2306119**Date Reported: **6/8/2023****CLIENT:** HILCORP ENERGY**Client Sample ID:** BH07**Project:** SJ 30 6 31A**Collection Date:** 6/2/2023 1:00:00 PM**Lab ID:** 2306119-002**Matrix:** AQUEOUS**Received Date:** 6/3/2023 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	2.0	D	µg/L	2	6/6/2023 3:35:01 PM
Toluene	ND	2.0	D	µg/L	2	6/6/2023 3:35:01 PM
Ethylbenzene	ND	2.0	D	µg/L	2	6/6/2023 3:35:01 PM
Xylenes, Total	ND	4.0	D	µg/L	2	6/6/2023 3:35:01 PM
Surr: 4-Bromofluorobenzene	85.7	52.4-148	D	%Rec	2	6/6/2023 3:35:01 PM

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

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

Page 2 of 3

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**

WO#: 2306119

08-Jun-23

**Client:** HILCORP ENERGY**Project:** SJ 30 6 31A

Sample ID: <b>100ng btex lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R97227</b>		RunNo: <b>97227</b>							
Prep Date:	Analysis Date: <b>6/6/2023</b>		SeqNo: <b>3531241</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	16	1.0	20.00	0	78.5	70	130			
Toluene	16	1.0	20.00	0	79.9	70	130			
Ethylbenzene	16	1.0	20.00	0	79.9	70	130			
Xylenes, Total	48	2.0	60.00	0	80.2	70	130			
Surr: 4-Bromofluorobenzene	17		20.00		86.3	52.4	148			

Sample ID: <b>mb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R97227</b>		RunNo: <b>97227</b>							
Prep Date:	Analysis Date: <b>6/6/2023</b>		SeqNo: <b>3531242</b>		Units: <b>µg/L</b>					
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	16		20.00		81.6	52.4	148			

Sample ID: <b>2306119-001ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH06</b>	Batch ID: <b>R97227</b>		RunNo: <b>97227</b>							
Prep Date:	Analysis Date: <b>6/6/2023</b>		SeqNo: <b>3531720</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	31	2.0	40.00	0.8560	74.3	70	130			D
Toluene	31	2.0	40.00	0.7360	75.9	70	130			D
Ethylbenzene	31	2.0	40.00	0	78.3	70	130			D
Xylenes, Total	96	4.0	120.0	1.268	78.6	70	130			D
Surr: 4-Bromofluorobenzene	35		40.00		87.6	52.4	148			D

Sample ID: <b>2306119-001amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH06</b>	Batch ID: <b>R97227</b>		RunNo: <b>97227</b>							
Prep Date:	Analysis Date: <b>6/6/2023</b>		SeqNo: <b>3531721</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	30	2.0	40.00	0.8560	73.6	70	130	0.986	20	D
Toluene	31	2.0	40.00	0.7360	75.4	70	130	0.710	20	D
Ethylbenzene	31	2.0	40.00	0	77.9	70	130	0.410	20	D
Xylenes, Total	95	4.0	120.0	1.268	78.1	70	130	0.701	20	D
Surr: 4-Bromofluorobenzene	37		40.00		92.0	52.4	148	0	0	D

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit



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

## Sample Log-In Check List

Client Name: HILCORP ENERGY

Work Order Number: 2306119

RcptNo: 1

Received By: Cheyenne Cason 6/3/2023 8:15:00 AM

Completed By: Cheyenne Cason 6/3/2023 8:56:07 AM

Reviewed By: *mc 6.5.23*

*Chul*

*Chul*

### Chain of Custody

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

### Log In

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

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: *mc 6/5/23*

### 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: \_\_\_\_\_

16. Additional remarks:

No mailing address on COC - CMC 6/3/23

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.5	Good	Yes	Yogi		





## APPENDIX C

### Photographic Log



**Photographic Log**

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



Photograph: 1                      Date: 1/23/2023  
Description: Advancing pothole SS01  
View: Northwest



Photograph: 2                      Date: 1/23/2023  
Description: Advancing pothole SS01  
View: Northwest



Photograph: 3                      Date: 5/9/2023  
Description: Site prepared for drilling  
View: North




Photograph: 4                      Date: 5/11/2023  
Description: Completing well installation, BH01 D  
View: East









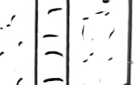



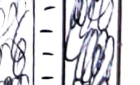

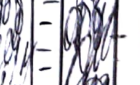

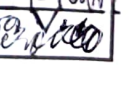
## APPENDIX D

### Field Borehole Logs



					Client: <u>H:/corp</u> Project Name: <u>San Juan 30-6 #31A</u> Project Location: Project Manager: <u>Stuart Hyde</u>		BORING LOG NUMBER <u>BH 01</u> Project No.:	
Date Sampled: <u>5/9/23</u> Drilled By: <u>Enviro-Drill</u> Driller: <u>Joan</u> Logged By: <u>Reece Hanson</u>					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2"</u> Well Materials: <u>PVC</u> Surface Completion: Boring Method: <u>Hollow-stem Auger, Split spoon</u>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

*Handwritten note:* Split spoon sampling every 5'


 <b>ENSOLUM</b>				Client: Hilcorp Project Name: San Jaun 30-6 #31A Project Location: Project Manager: Stuart Hyde		<b>BORING LOG NUMBER</b> <b>BH-01</b> Project No.:	
Date Sampled: 5/9 & 5/11/23 Drilled By: Penver Drift Driller: Sumner Logged By: RH				Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC Surface Completion: Boring Method: Hollow Stem	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
25		100	3094	silt moist		brown, med plasticity clay w/ some silt, rare v. fine sand. Mod. odor	
26							
27							
28		100	2940	silt moist		mostly lean silty clay, w/ 2" band of fine med. tan sand @ 29', mod odor	
29							
30							
31			1845	silt moist		top 2-4" tan, dry fine-med. sand, tan w/ silt. Bottom 1.5' lean silty clay, mod. odor	
32							
33							
34			2205	moist		Bits of metal @ top of interval. Plug @ bottom v. moist to wet. Strong odor. some fine sand. mostly silty clay.	
35							
36							
37			2691			separate top 4" because of odor	
38							
39							
40			674			SAND - silty clay, rare v. fine sand, No odor	
41							
42							
43		100				TOE 45' 50'	
44							
45							
46							
47							
48							
49							
50							

sand, not grain

Hole collapse

1/20 wet

Top sandy clay, middle fine clay, bottom > 50% v. fine - fine sand w/ silt & clay


				Client: <u>H. Corp</u> Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER <u>BH-02</u> Project No.:	
Date Sampled: <u>5/9/23</u> Drilled By: <u>Environ. Drill</u> Driller: <u>Sam</u> Logged By: <u>RH</u>				Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2 1/8"</u> Well Materials: <u>PVC</u> Surface Completion: Boring Method: <u>ollow-stem</u>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PTD READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0							
1							
2							
3						poor recovery	
4						brown silt w/ some	
5	X	25	68	dry		finer + rare v. fine sand	
6						silt. odor @ plug	
7							
8							
9						brown silt w/ lean	
10	X	50	610	silt no silt		clay, silt-mud odor	
11						some sand	
12							
13							
14						brown, lean silty clay	
15	X	75	48	silt mud		no odor	
16							
17							
18							
19						SAA	
20	X	100	84				
21							
22							
23							
24							
25	X						




ENSOLUM		Client: Hilcorp Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER BH 02			
Date Sampled: 5/9/23 Drilled By: Enviro-Drill Driller: Juma Logged By: Rlt		Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: 2" Well Materials: PVC Surface Completion: Boring Method: Hollow-Stem			
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL-METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
25	X	100	17.5	silt most		brown, md. plasticity clay w/ silt, No odor	
26	X						
27							
28							
29	X	75	78	silt most		hard, brown, compacted lean clay w/ silt, mod. odor when broken up	
30	X						
31	X						
32							
33							
34	X	80	15	silt most		SAA No odor, some black, carbonaceous inclusions	
35	X						
36	X						
37							
38							
39	X					softer, brown clays w/ silt, mod. odor	
40	X		1100				
41	X						
42							
43							
44	X		10.4			e center of interval fine is wet, sandy clay top & bottom silty clay. bottom very moist	
45	X						
46	X						
47							
48							
49	X		16.3			Wet sandy clay in GWE top of interval, v. moist silty clay @ bottom	
50	X		22.8			No odor	

No odor

TOE 50, backfill to 45'

					Client: <i>Hilcorp</i> Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER <i>BH03</i> Project No.:	
Date Sampled: <i>5/10/23</i> Drilled By: <i>Environ Drill</i> Driller: <i>John</i> Logged By: <i>RL</i>					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <i>8"</i> Casing Diameter: <i>2"</i> Well Materials: <i>PVC</i> Surface Completion: Boring Method: <i>Hollow Stem</i>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								


		Client: Hilcorp		BORING LOG NUMBER	
		Project Name: San Jaun 30-6 #31A		DH 03	
Date Sampled: 5/10/23		Project Location:		Project No.:	
Drilled By: Envin - Drill		Ground Surface Elevation:		Borehole Diameter: 8"	
Driller: Swan		Top of Casing Elevation:		Casing Diameter:	
Logged By: RH		North Coordinate:		Well Materials:	
		West Coordinate:		Surface Completion:	
				Boring Method:	


DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
25	X	100	3.7	silt moist		compacted, brown, low plasticity clays w/ silt, No odor	X
26							
27							
28	X	100	21.6	dry		to break up almost dry, hard, compacted clays w/ silt, No odor	X
29							
30							
31	X	100	15.9	silt moist		silty, silt moist	X
32							
33							
34	X	100	25.6	v moist		brown, softer, med. plasticity clays w/ some silt, some black inclusions mod. strong odor	X
35							
36							
37	X	75	7.4	wet (GW)		wet sandy clay, tan @ top of interval, v. moist silty clay @ bottom	X
38							
39							
40	X	75	7.4	wet (GW)		wet sandy clay, tan @ top of interval, v. moist silty clay @ bottom	X
41							
42							
43	X	75	7.4	wet (GW)		wet sandy clay, tan @ top of interval, v. moist silty clay @ bottom	X
44							
45							
46	X	75	7.4	wet (GW)		wet sandy clay, tan @ top of interval, v. moist silty clay @ bottom	X
47							
48							
49	X	75	7.4	wet (GW)		wet sandy clay, tan @ top of interval, v. moist silty clay @ bottom	X
50							
51							


TD @ 45' @ 10:20




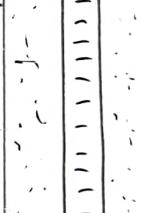


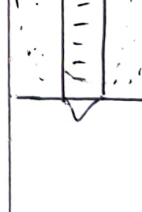



					Client: <u>H-1 Corp</u> Project Name: <u>San Juan 30-6 #31A</u> Project Location: Project Manager: <u>Stuart Hyde</u>		BORING LOG NUMBER <u>BH 04</u>	
					Date Sampled: <u>5/10/23</u> Drilled By: <u>Environ Drill</u> Driller: <u>Jim</u> Logged By: <u>RH</u>		Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								




					Client: Hilcorp Project Name: San Jaun 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER 31404 Project No.:	
Date Sampled: 5/10/23 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 (%)	FTD/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
25	X	100	3.1	moist		Compacted, brown, low-medium plasticity clay w/ some silt, No S/O	X	
26								
27								
28	X	80	21	silt moist		Compacted brown silty clay low plasticity, No S/O	X	
29								
30								
31	X	75	13.7	silt moist		SAA	X	
32								
33								
34	X	100	1924	✓ moist		dark brown, soft clay w/ silt, mod-strong odor	X	
35								
36								
37	X	100	23.9	wet		wet sandy clay @ top, lean fat clay @ bottom, No S/O	X	
38								
39								
40	X					TD @ 45'		
41								
42								
43	X							
44								
45								
46	X							
47								
48								
49	X							
50								


					Client: <i>H. Long</i> Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER <i>BH 05</i>	
					Date Sampled: <i>5/10</i> Drilled By: <i>Environ Drill</i> Driller: <i>J. M.</i> Logged By: <i>RH</i>		Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0								
1								
2								
3								
4								
5	X	60	70.5	silt moist		Brown silt w/ v fine to fine sand + some clays No S/O		
6	X							
7								
8								
9								
10	X	80	32.5	moist		SAA		
11	X							
12								
13								
14								
15	X	80	56	moist		brown silt w/ clays, low plasticity, No S/O		
16	X							
17								
18								
19								
20	X	60	74	moist		top of interval SAA, bottom = silt + v. fine fine sand, No S/O		
21	X							
22								
23								
24								
25								

					Client: Hilcorp Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER 1314 05-	
Date Sampled: 5/10 Drilled By: Driller: Logged By: RH					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: Well Materials: Surface Completion: Boring Method:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
25	X	75	86	moist		brown, med. Plasticity clay w/ some silt,		
26								
27								
28	X	80	770	silt moist		Compacted, silty clays, low plasticity, silt - mod odor when broken up		
29								
30								
31								
32	X	75	886	silt moist		SAA, less odor		
33								
34								
35	X	75	576	moist		softer, moist silty clays med. plasticity mod. odor when mixed up		
36								
37								
38								
39	X	90	12.8	wet		wet sandy clay No odor		
40								
41								
42	X					TO E 45'		
43								
44								
45								
46								
47								
48								
49								
50								


				Client: H. I. Corp Project Name: San Juan 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER TS1406 Project No.:	
Date Sampled: 5/11/23 Drilled By: Envia-Drill Driller: Sun Logged By: JH				Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 2" E Casing Diameter: 2" E Well Materials: PVC Surface Completion: Boring Method: Follow-String	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
0							
1		30					
2							
3							
4							
5			0.6	silt moist		brown, silt w/ v. fine to fine sand & some clay No S/O	
6							
7							
8							
9							
10		75	0.1	silt moist		coarse v. fine - fine sand, silt w/ some clay, low plasticity, Brown No S/O	
11							
12							
13							
14							
15		75	0.6	moist		high plasticity, soft brown clay, some silt, No S/O	
16							
17							
18							
19							
20			0			sandy clay @ bottom of interval, silty clay @ top No S/O	
21							
22							
23							
24							
25							



				Client: Hilcorp Project Name: San Jaun 30-6 #31A Project Location: Project Manager: Stuart Hyde		BORING LOG NUMBER 13106 Project No.:	
Date Sampled: Drilled By: Driller: Logged By:				Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: 8" Casing Diameter: Well Materials: Surface Completion: Boring Method:	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PID READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION
25	X	75	0	silt moist		brown, firm, med. plasticity clay w/ some silt No S/O	
26							
27							
28							
29	X	80	0	silt moist		SAA	
30							
31							
32							
33	X	100	0	silt moist		brown firm, med. plasticity clay w/ some silt, No S/O	
34							
35							
36							
37	X	100	0	silt moist		SAA	
38							
39							
40							
41	X	75	0	wet		middle of interval, fine-med. sand w/ some clay, bottom sandy clay, top silty clay, in GW, No S/O TDE 45' @ 12:00	
42							
43							
44							
45							
46							
47							
48							
49							
50							

					Client: <u>Hill Corp</u> Project Name: <u>San Juan 30-6 #31A</u> Project Location: Project Manager: <u>Stuart Hyde</u>		BORING LOG NUMBER <u>BH-07</u> Project No.:	
Date Sampled: <u>5-12-2023</u> Drilled By: <u>Enviro-Drill</u> Driller: <u>Juan</u> Logged By: <u>W. Weichert</u>					Ground Surface Elevation: Top of Casing Elevation: North Coordinate: West Coordinate:		Borehole Diameter: <u>8"</u> Casing Diameter: <u>2"</u> Well Materials: <u>SCH 40 PVC</u> Surface Completion: Boring Method: <u>HSA</u>	
DEPTH (FEET)	SAMPLE INTERVAL	RECOVERY (%)	FID/PIB READING (PPM)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
0						SILT w/ Fine SAND @ surface.		
1								
2								
3								
4								
5								
6	X	75%	3.9 ppm		ML Sample	SILT w/ Fine SAND tan to light brown, Fine grained, Well sorted, Dry Some Rootlets, Unconsolidated, No odor		
7	X							
8								
9								
10								
11	X	60%	1.5 ppm		ML	SILT w/ Fine SAND-SAA, becoming gray, Firm, Dry, No odor		
12	X							
13								
14								
15								
16	X	70%	0.4 ppm		CL	CLAY w/ SILT- Brown, trace fine sand, hard, Consolidated, Caliche present, Micaceous, Dry, No odor. → 20+ Blow counts. Hard to break w/ hammer R2-R3. * Slow Drilling		
17	X							
18								
19								
20								
21	X	80%	0.8 ppm		SP Sample	SAND- Brown, Very fine to fine w/ silt, Well sorted, rounded, to sub-rounded, Qtz rich, Dry, no odor		
22	X							
23								
24								
25								



					Client: Hilcorp Project Name: San Jaun 30-6 #31A Project Location: Project Manager: Stuart Hyde		<b>BORING LOG NUMBER</b> BH-07 Project No.:	
Date Sampled: 5-12-23 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)	POTENTIAL METRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING/WELL COMPLETION	
25	X	80%	0.6 PPM		SP	SAND - As Above *Sharp Contact		
26					CL	CLAY - Brown, hard (RZ) Caliche Present, Mica, Consolidated, Dry, No odor,		
27	X	70%	0.5 PPM		CL Sample	CLAY - As above, hard (RZ) 25 spt blows Dry, No odor,		
28								
29	X	80%	0.2 PPM		CL	CLAY - As Above, Brown, Very hard (RZ) Consolidated, Caliche, Mica, Dry, No odor		
30								
31	X	100%	0.3 PPM	X	CL Sample	CLAY - Dark brown, Firm, Consolidated, increasing moisture, slightly moist, little / trace silt, moderate plasticity. No odor.		
32								
33	X	100%	0.0 PPM		SP	*Water @ 42 ft. SAND w/ SILT + CLAY tan - light brown, Very fine to fine, well sorted, Some organics, Wet, No Visual Impacts or odor.		
34								
35	X	80%	0.1 PPM			SAND - As Above, FeO <sub>2</sub> staining.		
36								
37	X							
38								
39	X							
40								
41	X							
42								
43	X							
44								
45	X							
46								
47	X							
48								
49	X							
50								
51	X							

Seal @ 30 ft

Tos = 34 ft

Bos = 49 ft





## APPENDIX E

### Groundwater Sampling Forms

Project Name: SJ 30-6 31A	Project Location: Hilcorp SJ 30-6 31A
Project Number:	Sampler: Al Thomson
Sample ID: BHO6	Matrix: Groundwater
Sample Date: 6/2/2023	Sample Time: 12:14
Laboratory: Hall Environmental	Shipping Method: Hand Delivery
Analyses: BTEX 8021	
Depth to Water: 42.70	Total Depth of Well: 47.13
Time: 11:45	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: Bailer

[illegible]

Comments: No odor, no sheen

Describe Deviations from SOP:

Signature:  Date: 6/2/23

Project Name: SJ 30-6 31A  
Project Number: \_\_\_\_\_  
Sample ID: BH07  
Sample Date: 6/2/2023  
Laboratory: Hall Environmental  
Analyses: BTEX 8021  
Depth to Water: 44.25  
Time: 12:35  
Vol. of Water to Purge: 4.5  
Method of Purging: Bailer  
Method of Sampling: Bailer

Project Location: Hilcorp SJ 30-6 31A  
Sampler: Al Thomson  
Matrix: Groundwater  
Sample Time: 13:00  
Shipping Method: Hand Delivery  
Total Depth of Well: 53.35  
Depth to Product: —  
(height of water column \* 0.1631 for 2" well or 0.6524 for 4" well) \* 3 well vols

[illegible]

Comments: No odor, No Sheen

**Describe Deviations from SOP:**

**Signature:**

Date: 6/2/23

**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 231798

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 231798
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Remediation plan is approved as written. Hilcorp has 90-days (December 19, 2023) to submit its dual phase extraction pilot test report and recommended remedial action(s).	9/20/2023