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	NCS1929541151
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Jennifer Deal	Contact Telephone 832-839-4585
Contact email jdeal@hilcorp.com	Incident # *(assigned by OCD)* NCS1929541151
Contact mailing address 382 Road 3100, Aztec NM 87410	

Location of Release Source

Latitude 36.758495 Longitude -108.2162476
(NAD 83 in decimal degrees to 5 decimal places)

Site Name FRPC 4 1	Site Type Gas Well
Date Release Discovered 9/25/2019 @ 3:15pm	API# *(if applicable)* 30-045-31995

Unit Letter	Section	Township	Range	County
D	04	29N	13W	San Juan

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:James Whitfield*)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 23 bbls	Volume Recovered (bbls) 13
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A release of ~23 bbls of produced water was released due to the water pump line leaking from corrosion. The operator shut in the well and a one call was submitted to begin excavation to repair the line. Release remained on location. 13 bbls were recovered. Environmental will provide OCD 48 hour notice of sampling.

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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: _____Jennifer Deal_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: ___1/4/2021__

email: _____jdeal@hilcorp.com_____ Telephone: _____5058016517_____

OCD Only

Received by: _____ Date: _____

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?	<50 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☒ Yes ☐ 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)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ 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?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ 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.

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Printed Name: _____Jennifer Deal_____ Title: _____Environmental Specialist_____

Signature:_____ _____ Date: __1/4/2021____

email: _____jdeal@hilcorp.com_____ Telephone: ____5058016517_____

OCD Only

Received by: _____ Date: _____

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.

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Printed Name: _____Jenifer Deal_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: ____1/4/2021___

email: _____jdeal@hilcorp.com_____ Telephone: _____5058016517_____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

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Printed Name: _____Jennifer Deal_____ Title: _____Environmental Specialist_____

Signature:_____ _____ Date: __1/4/2021____

email: _____jdeal@hilcorp.com_____ Telephone: ____5058016517_____

OCD Only

Received by: _____ Date: _____

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Printed Name: Jenifer Deal Title: Environmental Specialist

Signature: Jenifer Deal Date: 1/4/2021

email: jdeal@hilcorp.com Telephone: 5058016517

OCD Only

Received by: Chad Hensley Date: 05/12/2021

☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Chad Hensley Date: 05/21/2021

HILCORP ENERGY COMPANY

REVISED REMEDIATION WORK PLAN

FRPC 4-1
NCS1929541151

DECEMBER 23, 2020

CLICK HERE TO ENTER TEXT.

REVISED REMEDIATION WORK PLAN

FRPC 4-1
NCS1929541151

HILCORP ENERGY COMPANY

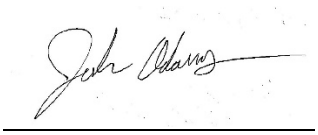
PROJECT NO.: TE017820013
DATE: DECEMBER 23, 2020

WSP
848 E 2ND AVENUE
DURANGO, CO 81301

T: 970-385-1096
F: 970-385-1873
WSP.COM

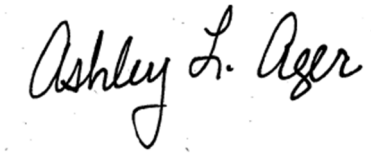
SIGNATURES

PREPARED BY



Josh Adams, PG
Geologist

APPROVED[1] BY *(must be reviewed for technical accuracy prior to approval)*



Ashley Ager
Managing Director

TABLE OF CONTENTS

INTRODUCTION

WSP USA Inc, (WSP) (formerly LT Environmental, Inc.), on behalf of Hilcorp Lower 48 (Hilcorp), presents this revised remediation work plan associated with subsurface impacts encountered at the FRPC 4-1 (Site). The NMOCD has assigned incident number NCS1929541151 to the Site. This work plan is being submitted in response of the denial of the original Remediation Work Plan, submitted to the NMOCD on May 1, 2020. This plan details the site description and background, initial response and assessment, and site characterization. The plan presents the findings of soil delineation activities and proposes remediation per Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC).

SITE DESCRIPTION AND BACKGROUND

The FRPC 4-1 (Site) is located in the Farmington Glade area approximately 1.12 miles east of the La Plata River and approximately 1.44 miles north of the Farmington Airport in Unit D of Section 4 of Township 29 North, Range 13 West, San Juan County, New Mexico. The Site is located proximal to a seasonal dry wash and irrigated agricultural pastures. The Site is approximately 0.5 miles northeast of the intersection of Pinon Hills Boulevard and West 30th Street on the west side of Farmington, New Mexico (Figure 1). On September 25, 2019, approximately 23 barrels (bbls) of produced water were released from a water transfer line due to corrosion. Upon discovery, Hilcorp shut in the well and began to excavate to repair the line. The release remained on the location and approximately 13 bbls of produced water were recovered. Hilcorp submitted an initial C-141 to the New Mexico Oil Conservation Division (NMOCD) on October 3, 2019 and was assigned Incident Number NCS1929555165.

WSP submitted a Remediation Work Plan to the NMOCD on May 1, 2020 (May 2020 Work Plan).On August 4, 2020 the NMOCD requested additional information pertaining to the work plan. On August 14, 2020 Hicorp responded to the NMOCD's requested and provided the additional information requested. On August 25, 2020 the NMOCD denied the May 2020 Work Plan and instituted a deadline to remediate the Site or submit a revised remediation work plan by December 1, 2020. On October 25, 2020 Hilcorp responded to the denial from the NMOCD and provided additional information and arguments for approval of the original work plan. On November 20, 2020 the NMOCD responded and maintained their position on the originally denied work plan. Hilcorp requested an extension on November 30, 2020 to move the deadline to January 31, 2021. The NMOCD granted Hilcorp an extension but required remediation or a revised remediation work plan by January 6, 2021. Please see Appendix A for the correspondence detailing the extension request.

SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, NMOCD Closure Criteria for Soils Impacted by a Release, of 19.15.29.12 NMAC. The Site is approximately 187 feet northwest from the Farmington Glade and approximately 400 feet northwest of the Halford Independent Irrigation Ditch (HIID) (Figure 2). The closest water well to the Site is the SJ-03203, with a depth to water reported at 20 feet below ground surface (bgs) and total depth of the well at 59 feet bgs. That water well is located approximately 1,870

feet southwest of the Site. The nearest significant watercourse to the Site is the Farmington Glade. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake. The Site is greater than 300 feet of any mapped wetland. Land use surrounding the Site consists of natural gas development, agricultural fields, recreational areas, and residential areas. The nearest residence is located approximately 1,050 feet southeast of the Site. The Site is not within the area of a subsurface mine or unstable area. The Site is within the 100-year flood plain. Due to the Site having a depth to groundwater of less than 50 feet, distance to a significant watercourse, and being in a floodplain, the following NMOCD Closure Criteria apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 100 mg/kg total petroleum hydrocarbons (TPH); and 600 mg/kg chloride.

INITIAL RESPONSE

Hilcorp excavated approximately 258 cubic yards (yds^3) of impacted soil at the Site in order to make repairs to the water transfer line and to remove impacted soil. During the excavation activities Hilcorp personnel collected various soil samples that confirmed the presence of elevated chloride concentrations as a result of produced water impact to soil at the Site. Due to the sampling results and existing size of the excavation, Hilcorp opted to stop the excavation for further investigation.

On January 27, 2020, Hilcorp requested an extension to the 90-day requirement for Site characterization and closure reporting (as required in 19.15.29.11.A NMAC) and proposed a new deadline of February 28, 2020. The NMOCD approved the extension request on January 29, 2020. Between October 8, 2019 and February 25, 2020, Hilcorp personnel collected a total of 42 soil samples to characterize and delineate impact to soil at the Site. Figure 3 shows the locations of the soil samples and Table 1 details the analytical results from these sampling events.

On February 21, 2020, Hilcorp requested an additional extension and proposed a new deadline of May 1, 2020. On April 16, 2019 and April 28, 2020, Hilcorp retained WSP to participate in soil delineation activities using a hollow-stem drill rig and hand auger with field assistance from Hilcorp on some sampling events. Findings from these soil sampling events are described in the following sections of this report.

SITE INVESTIGATION

After the release, Hilcorp and WSP conducted soil investigations at the Site to delineate the vertical and lateral extent of the impact as well as characterize the source material. Hilcorp and WSP utilized a hollow-stem auger drilling rig and a hand auger to advance soil borings and collect soil samples. Soil samples were collected during these efforts to assess subsurface conditions and potential contaminant concentrations.

SOURCE CHARACTERIZATION

The initial soil sampling conducted by Hilcorp at the Site indicated minor impact from hydrocarbons, but no exceedances of the NMOCD Closure Criteria for the Site. During these sampling events, detectable concentrations of BTEX and TPH were observed but none that exceeded the NMOCD Closure Criteria. Chloride was determined to be the contaminant of concern with chloride concentrations ranging from 48 mg/kg to 25,7000 mg/kg.
On April 16, 2020, WSP advanced a borehole (BH01) near the source area and collected soil samples in order to characterize the source material. Results from these soil samples are summarized in Table 2, displayed on Figure 4, and included in Appendix B.

DELINEATION ACTIVITIES

Between April 16, 2020, and April 28, 2020, WSP conducted soil delineation activities at the Site using a 75 Central Mining Equipment (CME) hollow-stem auger drilling rig and hand auger. A total of eight boreholes (BH01 through BH08) were advanced at the Site ranging from 15 feet to 20 feet bgs. Soil borings were advanced near the release point, then outward from the known impacted area/open excavation. The soil borings were logged by an WSP geologist who observed the soil for visual staining and the presence or absence of odor. The soil was characterized by visually inspecting the soil samples, field screening the soil headspace using a photo-ionization detector (PID) to monitor for the presence of volatile organic vapors and assessing the presence of chloride using Hach® Quantab® titrator strips. WSP's borelogs are included as Appendix C.

A minimum of two soil samples from each soil boring was submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8021, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-motor oil range organics (MRO) by EPA Method 8015, and Chloride by EPA Method 300.0. All collected samples were placed on ice to maintain a temperature of approximately 4 degrees Celsius (°C) and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory (Hall), of Albuquerque, New Mexico, for analysis. Samples were labeled with the date and time of collection, sample name, sampler's name, and parameters to be analyzed. Strict chain-of-custody (COC) procedures were documented including the date and time sampled, sample number, type of sample, sampler's name and signature, preservative used, and analyses required. Soil sample analytical results are summarized in Table 1, displayed on Figure 3, and included as Appendix B.

RESULTS

SOIL SAMPLING RESULTS

Geology at the Site was determined through observations during delineation drilling events. WSP geologist noted that geology surrounding the Site consisted of seasonal dry washes and irrigated fields that both exhibited white crust-like deposits that are indicative of alkali soil deposits.

Near-surface soils within the boreholes consisted mainly of silty sand and poorly graded sand from surface to approximately 5 feet bgs. Between 5 feet bgs and 10 feet bgs, lithology consists of intermixed poorly graded sand and silt. Below 10 feet bgs the dominant lithology is poorly graded sand with some gravel to approximately 20 feet bgs.

Soil samples collected near the source area (BH01, BH03, BH04, and BH06) indicate concentrations of benzene, total BTEX, and TPH were compliant with the NMOCD Closure Criteria for all soil samples. Chloride concentrations exceeded the NMOCD Closure Criteria of 600 mg/kg in several locations with concentrations ranging from 660 mg/kg in BH06 to 1,300 mg/kg in BH03 and BH04.

The shallow sample (2.5'- 5' bgs) from BH06 only contained 230 mg/kg chloride, while the deeper sample from 12.5 feet to 15 feet bgs contained 660 mg/kg chloride. While this result exceeds the NMOCD Closure Criteria of 600 mg/kg, it only exceeds by 60 mg/kg and lateral samples to the east (BH04) and west (BH08) from similar depths are below 600 mg/kg.

Soil samples collected from the delineation boreholes (BH02, BH05, BH07, and BH08) indicate concentrations of benzene, total BTEX, TPH, and chloride were compliant with the NMOCD Closure Criteria for all soil samples.

The soil analytical results, as compared to the NMOCD Closure Criteria, are presented on Figure 4 and summarized in Table 2. The laboratory analytical reports are included as Appendix B.

CONCLUSIONS

No hydrocarbon impacts to soil above the NMOCD Closure Criteria for benzene, total BTEX, or TPH were identified during the soil sampling events. Chloride impacts to soil were delineated by WSP during the April site investigation. The lateral extent of the release was restricted to a small area near the release point and characterized by elevated chloride concentrations in the shallow samples from BH01, BH03, and BH04. Elevated chloride is primarily restricted to five feet bgs and above. The highest chloride concentration detected was 1,300 mg/kg in both BH03 and BH04 from samples representing 2.5 feet to 5 feet bgs. Chloride impacted soils have been delineated laterally by analytical results observed in BH08, BH07, BH02, and BH05.

All samples collected from the boreholes at depth (12.5 feet to 15 feet) were compliant with the NMOCD Closure Criteria except the sample collected from BH06. WSP believes that, based on lithology and results from the other soil samples, the slightly elevated chloride concentration observed in BH06 is caused by naturally occurring conditions. BH06 is located between two other samples (BH04@12.5'-15' and BH08@12.5'-15') collected at the same depths that did not contain chloride exceeding 600 mg/kg. The Site is proximal to a seasonal dry wash and irrigated field, which are known to discharge mineral laden water that create alkali soil deposits. These alkali soils were identified in the field as white crust-like layers observed at the ground surface and in the nearby upgradient dry wash. Those same minerals that deposit at the surface could easily infiltrate the soil and cause elevated chloride concentrations throughout the soil column.

Since BH04 represents a point of compliance and separates BH06 from the source material, another point of compliance (BH08) has been established less than 15 feet away, and the chloride concentration in BH06@12.5-15' is only 60 mg/kg above the standard, Hilcorp is requesting that 15 feet bgs represent vertical delineation at BH06 and that BH06 represent lateral delineation of the shallow impacts identified in BH04. As such, Hilcorp believes the source material at the Site has been delineated laterally and vertically.

REMEDIATION PLAN

Chloride impacted soil associated with FRPC 4-1 is generally restricted to the top 5 feet of the subsurface. Approximately 258 cubic yards of impacted soil were excavated from the Site. Figure 5 shows the existing excavations at the Site that range from 2 feet in depth to 8 feet in depth. Based on delineation soil sampling results from BH03 and BH04, additional soil needs to be remediated.

Due to the nature of the release (produced water containing chloride), extent of impact in the subsurface (chloride impact to approximately 5 feet bgs and no identified hydrocarbon impacts above the NMOCD closure standards), Hilcorp proposes additional excavation to remove the entirety of the top 4 feet of impacted soil (well pad material and underlying future root zone), then installation of a liner to mitigate further migration of chloride into the subsurface.

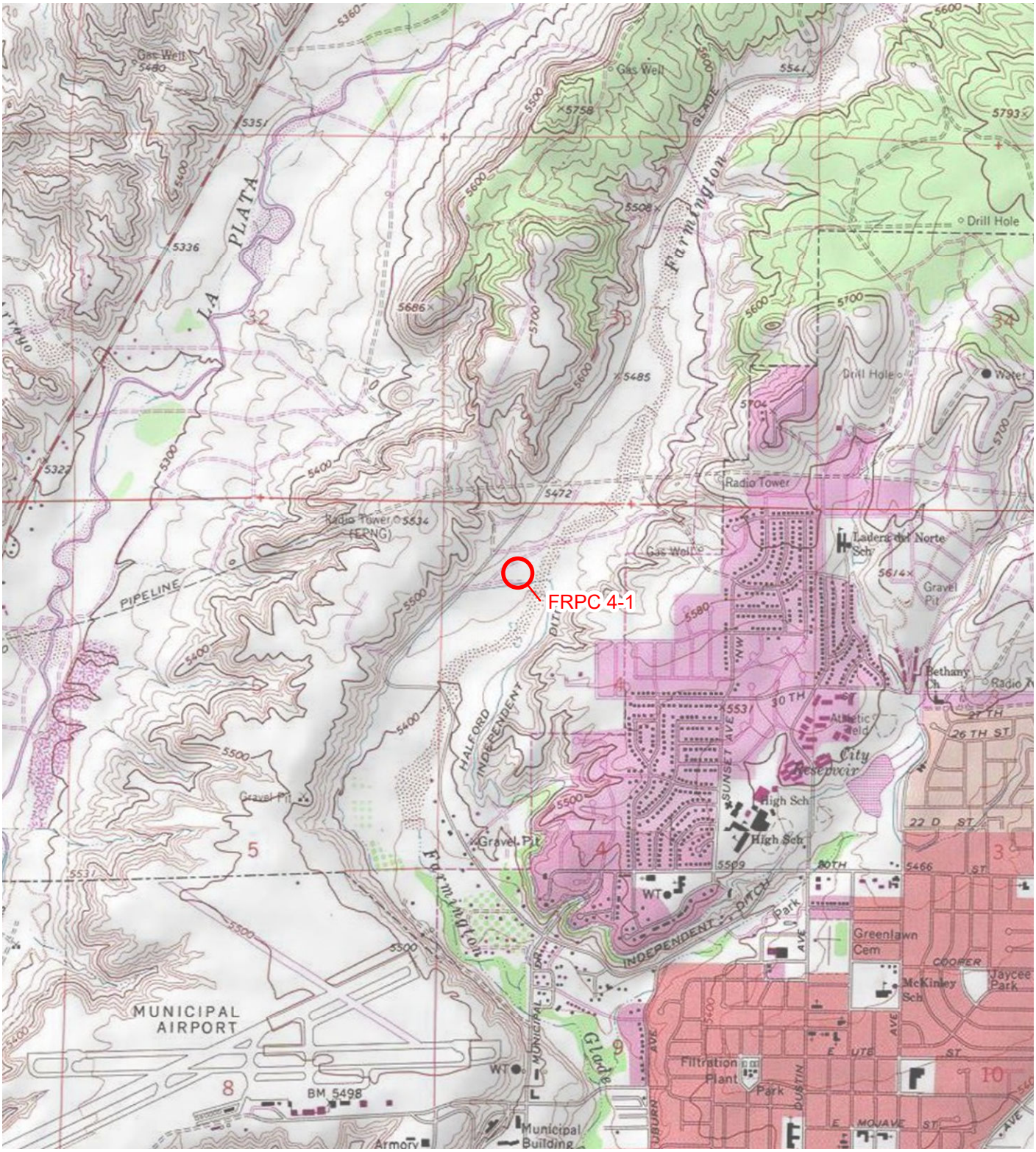
Hilcorp estimates removing an additional 345 cubic yards of soil from the delineated release extent in the area shown on Figure 5 and within the proposed trenches surrounding the excavation. Hilcorp will excavate to 4 feet bgs in the proposed excavation area depicted on Figure 5. Hilcorp will collect 5-point composite soil samples at a frequency of every 200 square feet from the sidewalls and floor of the excavation to confirm the lateral extent, potential vertical extent, and/or characterize chloride concentrations to be left in place. Once the sidewalls of the excavation are below NMOCD closure criteria, Hilcorp will trench down along each edge of the excavation to 8 feet bgs. Hilcorp will also collect 5-point composite samples every 200 lateral feet within the base of the exterior trenches surrounding the excavation with a minimum of one composite sample collected form each trench.

Following the additional excavation and soil sampling, Hilcorp requests to install a 20-mil impermeable liner laterally at the base of the excavation and vertically within the trenches surrounding the excavation and backfill with non-waste containing soil. The liner will be installed in the entire excavation extent and to the terminal depths of the trenches. The liner within the trenches and at the base of the excavation will serve as a barrier to prevent potential vertical and lateral migration of contaminated soil that will remain in the subsurface.

Upon completion of fieldwork, Hilcorp will provide a report to NMOCD documenting excavation, excavation confirmation sampling results, and liner installation. The report will request deferral of any remaining chloride concentrations until final plugging and abandonment and reclamation of the Site. Hilcorp will complete the excavation and liner installation within 90 days of the date of approval of this work plan by NMOCD. The report will be provided within 2 weeks of receipt of final analytical results.

WSP appreciates the opportunity to provide this remediation work plan to the NMOCD. If you have any questions or comments regarding this remediation work plan, do not hesitate to contact Ashley Ager at (970) 385-1096 or via email at ashley.ager@wsp.com or Jennifer Deal at (505)-599-3400 or at jdeal@hilcorp.com.

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
FRPC 4-1
UNIT D SEC 4-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820013_FRPC 4-1\017820013_FIG01_SL_2020.mxd

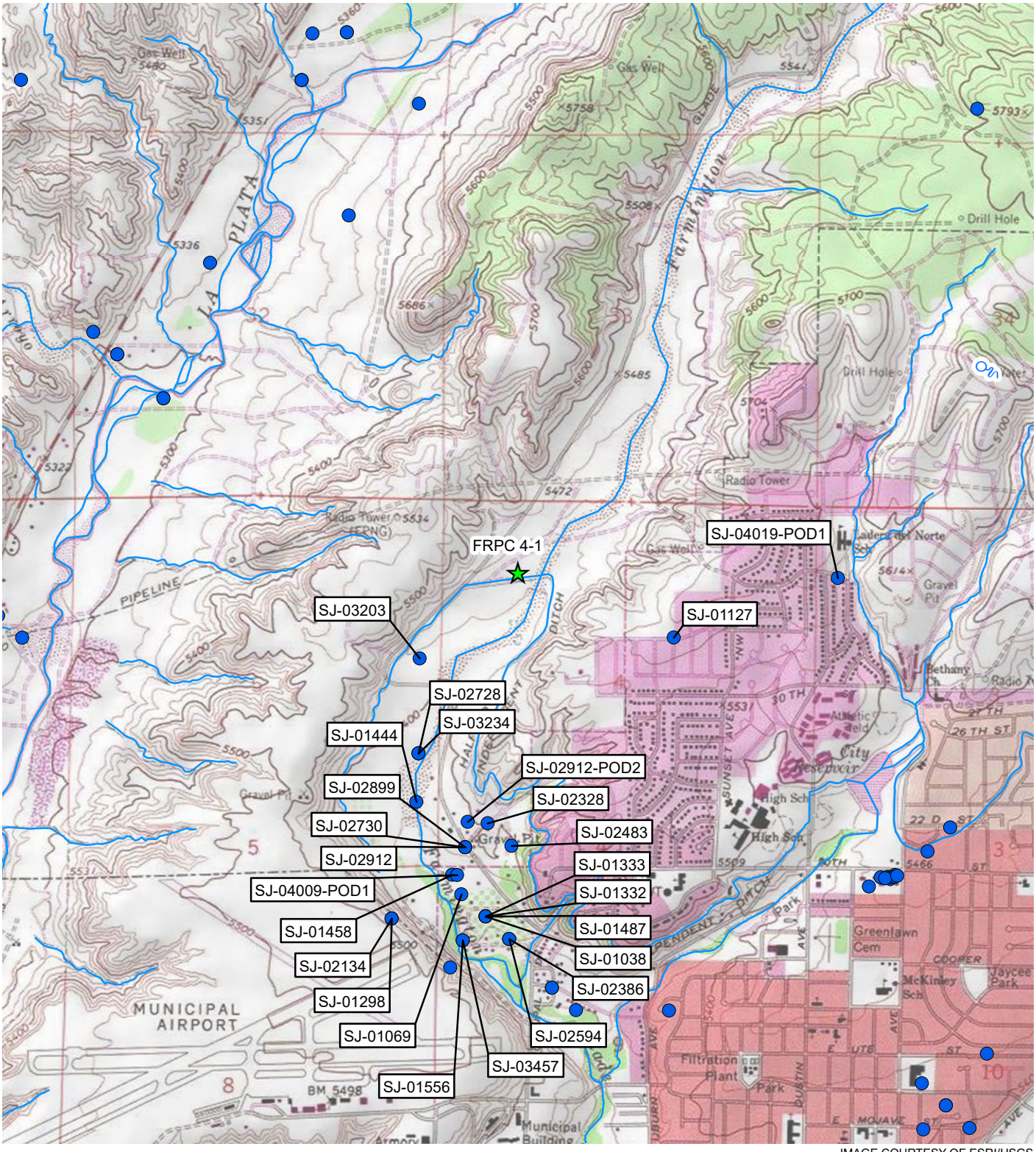


IMAGE COURTESY OF ESRI/USGS

LEGEND

- SITE LOCATION
- WATER WELL
- SPRING/SEEP
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE

0 2,000 4,000

Feet

N

FIGURE 2
RECEPTOR MAP
FRPC 4-1
UNIT D SEC 4-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820013_FRPC 4-1\017820013_FIG02_RECEPTOR_MAP.mxd

IMAGE COURTESY OF ESRI

LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT - 2' DEEP
- EXCAVATION EXTENT - 4' DEEP
- EXCAVATION EXTENT - 8' DEEP

0 40 80

Feet

N

FIGURE 3
HILCORP SOIL SAMPLE LOCATIONS
FRPC 4-1
UNIT D SEC 4-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820013_FRPC 4-1\017820013_FIG03_SITE_2020.mxd

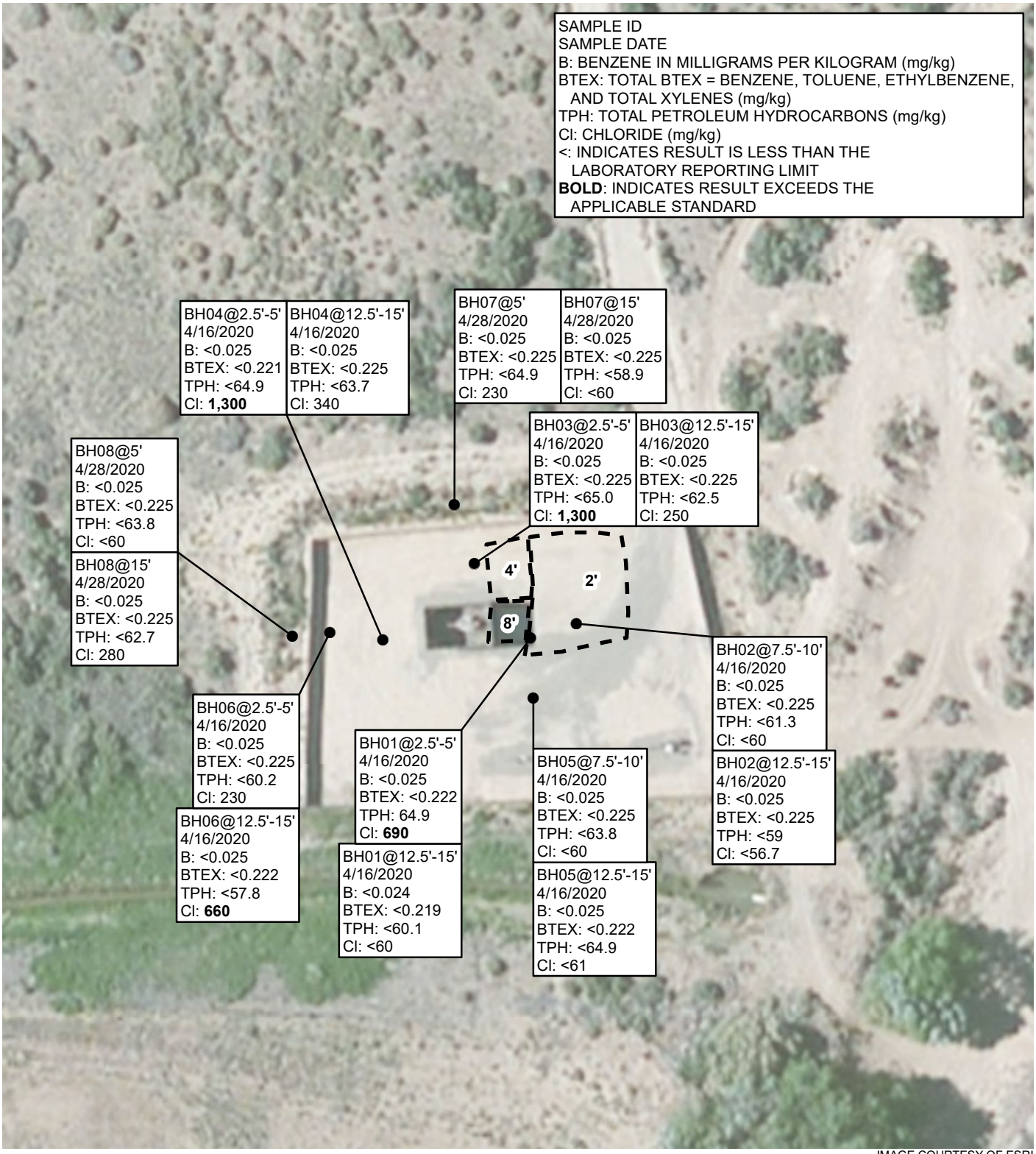


IMAGE COURTESY OF ESRI

LEGEND

- SOIL BORING
- EXISTING EXCAVATION EXTENT

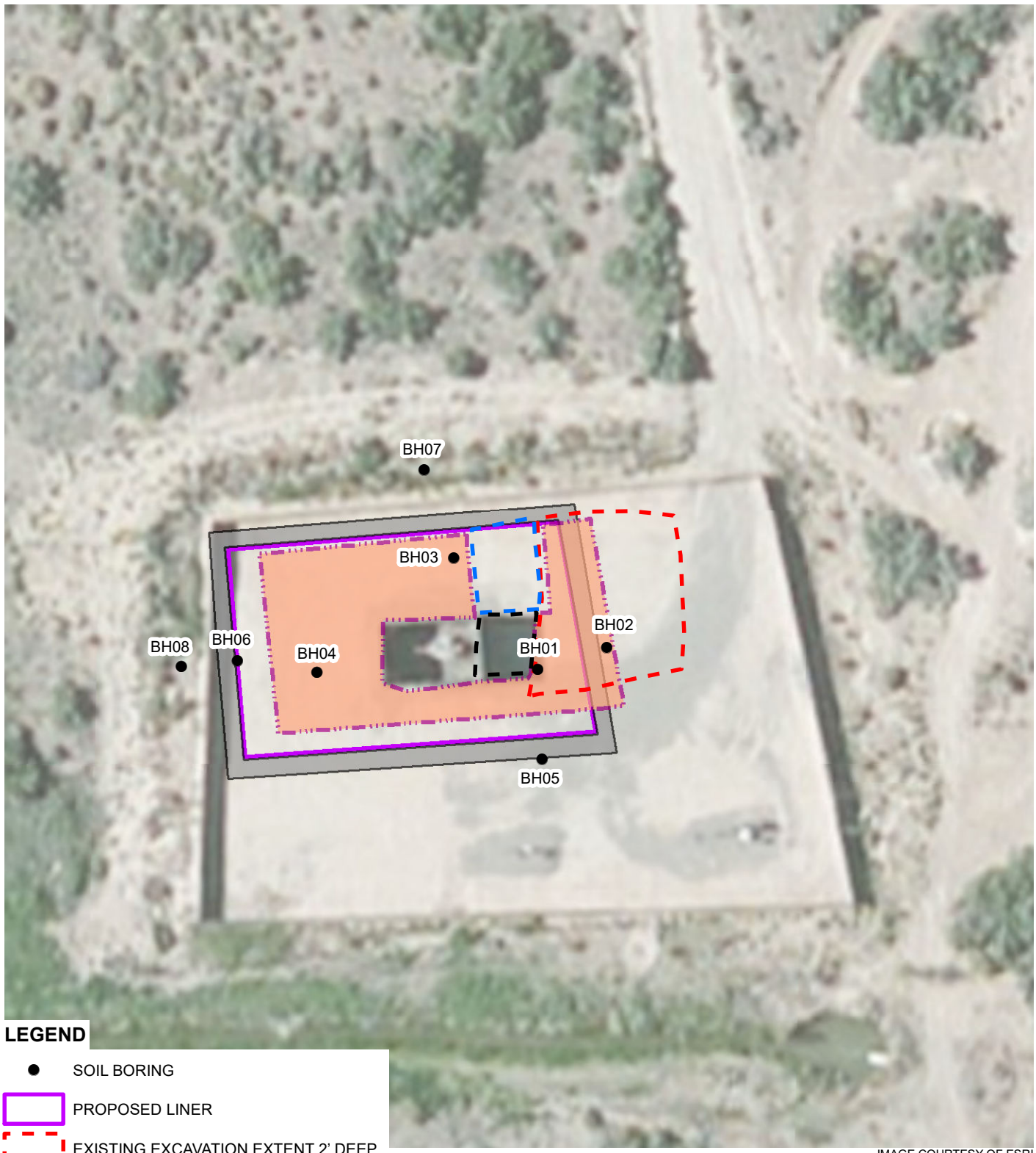
0 60 120

Feet

N

FIGURE 4
SOIL ANALYTICAL RESULTS
FRPC 4-1
UNIT D SEC 4-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820013_FRPC 4-1\017820013_FIG04_SOIL_ANALYTICAL_2020.mxd



LEGEND

- SOIL BORING
- PROPOSED LINER
- EXISTING EXCAVATION EXTENT 2' DEEP
- EXISTING EXCAVATION EXTENT 4' DEEP
- EXISTING EXCAVATION EXTENT 8' DEEP
- ADDITIONAL EXCAVATION EXTENT 4' DEEP
- ADDITIONAL TRENCH EXCAVATION TO BE EXCAVATED TO TERMINAL DEPTH OF IMPACT. LINER WILL BE INSTALLED VERTICLALY WITHIN THESE TRENCHES.

IMAGE COURTESY OF ESRI

0 40 80
Feet

N

FIGURE 5
PROPOSED EXCAVATION AND LINER INSTALLATION
FRPC 4-1
UNIT D SEC 4-T29N-R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017820013_FRPC 4-1\017820013_FIG05_PROP_EXC_LINER_2020.mxd

TABLES

Table 1

Soil Analytical Results (Hilcorp Samples)
FRPC 4-1
San Juan County, New Mexico (a)

Soil Sample Identification	Sample Date	Field Headspace (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chlorides (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
AH #1 (9')	2/18/2020							2060				
AH #2 (9')	2/18/2020							2750				
AH #3 (9')	2/18/2020							2720				
AH #4 (9')	2/18/2020							1930				
AH #2 (8 1/2'D 15' TD)	2/25/2020							1290				
AH #3 (8 1/2' D 15' TD)	2/25/2020							1070				
AH #4C (5'9"D 12'3" TD)	2/25/2020							1220				
AH #5 (2' D 5' TD)	2/25/2020							817				
AH #5 (7' D 10' TD)	2/25/2020							1100				
AH #5 (8 1/2' D 11 1/2' TD)	2/25/2020							1010				
AH #6 (5' D 5' TD)	2/25/2020							54				
AH #6 (10' D 10' TD)	2/25/2020							48				
AH #6 (14' TD)	2/25/2020							74				
AH #7 (5' D 5' TD)	2/25/2020							563				
AH #7 (10' D 10' TD)	2/25/2020							1000				
AH #7 (12'6" TD)	2/25/2020							1100				
AH #8 (3' D 5' TD)	2/25/2020							622				
AH #8 (8' D 10' TD)	2/25/2020							748				
AH #8 (12' D 14' TD)	2/25/2020							570				
NMOCD Standards		**NE**	**10**	**NE**	**NE**	**NE**	**50**	**600**	**NE**	**NE**	**NE**	**100**

a

< - indicates result is less than the stated laboratory reporting limit

BOLD - indicates value exceeds stated NMOCD standard

BTEX - benzene, toluene, ethylbenzene, total xylenes

DRO - diesel range organics

GRO - gasoline range organics

mg/kg - milligrams per kilogram

MRO - motor oil range organics

NE - Not Established

NMOCD - New Mexico Oil Conservation Division

ppm - parts per million

TPH - total petroleum hydrocarbons

Table 2

Soil Analytical Results (WSP Samples)
FRPC 4-1
San Juan County, New Mexico (a)

Soil Sample Identification	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH (mg/kg)
BH01 @ 2.5'-5'	4/16/2020	<0.025	<0.049	<0.049	<0.099	<0.222	**690**	<4.9	<10	<50	<64.9
BH01 @ 12.5'-15'	4/16/2020	<0.024	<0.049	<0.049	<0.097	<0.219	<60	<4.9	<9.2	<46	<60.1
BH02 @ 7.5'-10'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	<60	<5.0	<9.3	<47	<61.3
BH02 @ 12.5'-15'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	<59	<5.0	<8.7	<43	<56.7
BH03 @ 2.5'-5'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	**1,300**	<5.0	<10	<50	<65.0
BH03 @ 12.5'-15'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	250	<5.0	<9.5	<48	<62.5
BH04 @ 2.5'-5'	4/16/2020	<0.025	<0.049	<0.049	<0.098	<0.221	**1,300**	<4.9	<10	<50	<64.9
BH04 @ 12.5'-15'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	340	<5.0	<9.7	<49	<63.7
BH05 @ 7.5'-10'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	<60	<5.0	<9.8	<49	<63.8
BH05 @ 12.5'-15'	4/16/2020	<0.025	<0.049	<0.049	<0.099	<0.222	<61	<4.9	<10	<50	<64.9
BH06 @ 2.5'-5'	4/16/2020	<0.025	<0.050	<0.050	<0.10	<0.225	230	<5.0	<9.2	<46	<60.2
BH06 @ 12.5'-15'	4/16/2020	<0.025	<0.049	<0.049	<0.098	<0.221	**660**	<4.9	<8.9	<44	<57.8
BH07 @ 5'	4/28/2020	<0.025	<0.050	<0.050	<0.10	<0.225	230	<5.0	<9.9	<50	<64.9
BH07 @ 15'	4/28/2020	<0.025	<0.050	<0.050	<0.10	<0.225	<60	<5.0	<8.9	<45	<58.9
BH08 @ 5'	4/28/2020	<0.025	<0.050	<0.050	<0.10	<0.225	<60	<5.0	<9.8	<49	<63.8
BH08 @ 15'	4/28/2020	<0.025	<0.050	<0.050	<0.10	<0.225	280	<5.0	<9.7	<48	<62.7
NMOCD Closure Criteria		**10**	**NE**	**NE**	**NE**	**50**	**600**	**NE**	**NE**	**NE**	**100**

a/

< - indicates result is less than the stated laboratory reporting limit

BOLD - indicates value exceeds stated NMOCD standard

BTEX - benzene, toluene, ethylbenzene, and total xylenes analyzed by US EPA Method 8021B

DRO - diesel range organics analyzed by US EPA Method 8015D

GRO - gasoline range organics analyzed by US EPA Method 8015D

mg/kg - milligrams per kilogram

MRO - motor oil range organics analyzed by US EPA method 8015D

NA - not analyzed

NE - not established

NMOCD - New Mexico Oil Conservation Division

TPH - total petroleum hydrocarbon (sum of GRO, DRO, and MRO)

ENCLOSURE A – NMOCD EXTENSION REQUEST APPROVAL

Adams, Josh

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Sent: Tuesday, December 1, 2020 2:18 PM
To: Jennifer Deal
Cc: Adams, Josh; Hernandez, Emily, EMNRD
Subject: RE: FRPC 4-1 Extension Request

Jennifer,

OCD has reviewed HEC Request for an extension for the FRPC 4-1 (incident # nCS1929541151) and has approved it with the following condition of approval.

- HEC will submit an alternative remediation plan or remove the impacted soil associated with the release from the site no later than January 4, 2021.

Please include a copy of this approval in HEC report submitted on January 4, 2021 as a hard copy will not be sent to you.

Thank you,

Cory Smith • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Jennifer Deal <jdeal@hilcorp.com>
Sent: Monday, November 30, 2020 8:36 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Adams, Josh <Josh.Adams@wsp.com>
Subject: [EXT] FRPC 4-1 Extension Request

Mr. Cory Smith,

Hilcorp submitted a Remediation Work Plan for the FRPC 4-1 (incident # nCS1929541151) on May 1, 2020 but it was denied by the NMOCD on October 25, 2020 with a new deadline to submit an updated work plan by December 1, 2020. Hilcorp responded to the denial on October 28, 2020 and requested the NMOCD to reconsider the decision. The NMOCD responded on 11/20/2020 and stated that they would not reconsider the denial and required an update remediation work plan to be submitted by December 1, 2020. Due to the upcoming holidays, key decision making personnel being unavailable, and the current COVID-19 restrictions, Hilcorp is requesting an extension to December 1, 2020 date for reporting required by the NMOCD. Hilcorp requests an extension until January 31, 2021. Hilcorp will provide an updated remediation work plan by that date.

Thank you,

Jennifer Deal
Environmental Specialist
Hilcorp Energy – L48 West
jdeal@hilcorp.com

382 Road 3100
Aztec, NM 87410
Office: (505) 324-5128
Cell: (505) 801-6517

ENCLOSURE B – LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

April 27, 2020

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

RE: FRPC 4 1 OrderNo.: 2004812

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 18 sample(s) on 4/17/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01@2.5-5'
Project: FRPC 4 1
Collection Date: 4/16/2020 9:50:00 AM
Lab ID: 2004812-001 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/20/2020 4:44:30 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/20/2020 4:44:30 PM
Surr: DNOP	94.6	55.1-146		%Rec	1	4/20/2020 4:44:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	690	60		mg/Kg	20	4/20/2020 12:03:50 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 6:24:11 PM
Toluene	ND	0.049		mg/Kg	1	4/21/2020 6:24:11 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/21/2020 6:24:11 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/21/2020 6:24:11 PM
Surr: 1,2-Dichloroethane-d4	90.5	70-130		%Rec	1	4/21/2020 6:24:11 PM
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	4/21/2020 6:24:11 PM
Surr: Dibromofluoromethane	93.5	70-130		%Rec	1	4/21/2020 6:24:11 PM
Surr: Toluene-d8	102	70-130		%Rec	1	4/21/2020 6:24:11 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/21/2020 6:24:11 PM
Surr: BFB	96.4	70-130		%Rec	1	4/21/2020 6:24:11 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 9:54:00 AM
Lab ID: 2004812-002 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/20/2020 5:08:56 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/20/2020 5:08:56 PM
Surr: DNOP	93.8	55.1-146		%Rec	1	4/20/2020 5:08:56 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/20/2020 12:41:04 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	4/21/2020 6:53:18 PM
Toluene	ND	0.049		mg/Kg	1	4/21/2020 6:53:18 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/21/2020 6:53:18 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/21/2020 6:53:18 PM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	4/21/2020 6:53:18 PM
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1	4/21/2020 6:53:18 PM
Surr: Dibromofluoromethane	92.7	70-130		%Rec	1	4/21/2020 6:53:18 PM
Surr: Toluene-d8	99.5	70-130		%Rec	1	4/21/2020 6:53:18 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/21/2020 6:53:18 PM
Surr: BFB	96.8	70-130		%Rec	1	4/21/2020 6:53:18 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02@7.5-10'
Project: FRPC 4 1
Collection Date: 4/16/2020 10:35:00 AM
Lab ID: 2004812-004 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/20/2020 5:33:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/20/2020 5:33:34 PM
Surr: DNOP	96.3	55.1-146		%Rec	1	4/20/2020 5:33:34 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/20/2020 12:53:29 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 7:23:07 PM
Toluene	ND	0.050		mg/Kg	1	4/21/2020 7:23:07 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 7:23:07 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 7:23:07 PM
Surr: 1,2-Dichloroethane-d4	91.7	70-130		%Rec	1	4/21/2020 7:23:07 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	4/21/2020 7:23:07 PM
Surr: Dibromofluoromethane	93.5	70-130		%Rec	1	4/21/2020 7:23:07 PM
Surr: Toluene-d8	101	70-130		%Rec	1	4/21/2020 7:23:07 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 7:23:07 PM
Surr: BFB	97.1	70-130		%Rec	1	4/21/2020 7:23:07 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 10:40:00 AM
Lab ID: 2004812-005 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	4/20/2020 5:58:17 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	4/20/2020 5:58:17 PM
Surr: DNOP	86.6	55.1-146		%Rec	1	4/20/2020 5:58:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	59		mg/Kg	20	4/20/2020 1:05:53 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 7:52:14 PM
Toluene	ND	0.050		mg/Kg	1	4/21/2020 7:52:14 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 7:52:14 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 7:52:14 PM
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%Rec	1	4/21/2020 7:52:14 PM
Surr: 4-Bromofluorobenzene	95.6	70-130		%Rec	1	4/21/2020 7:52:14 PM
Surr: Dibromofluoromethane	92.7	70-130		%Rec	1	4/21/2020 7:52:14 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	4/21/2020 7:52:14 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 7:52:14 PM
Surr: BFB	95.7	70-130		%Rec	1	4/21/2020 7:52:14 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03@2.5-5'
Project: FRPC 4 1
Collection Date: 4/16/2020 11:30:00 AM
Lab ID: 2004812-007 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/20/2020 6:23:06 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/20/2020 6:23:06 PM
Surr: DNOP	87.5	55.1-146		%Rec	1	4/20/2020 6:23:06 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1300	60		mg/Kg	20	4/20/2020 1:18:18 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 8:21:43 PM
Toluene	ND	0.050		mg/Kg	1	4/21/2020 8:21:43 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 8:21:43 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 8:21:43 PM
Surr: 1,2-Dichloroethane-d4	92.7	70-130		%Rec	1	4/21/2020 8:21:43 PM
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	4/21/2020 8:21:43 PM
Surr: Dibromofluoromethane	95.5	70-130		%Rec	1	4/21/2020 8:21:43 PM
Surr: Toluene-d8	97.1	70-130		%Rec	1	4/21/2020 8:21:43 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 8:21:43 PM
Surr: BFB	93.2	70-130		%Rec	1	4/21/2020 8:21:43 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 11:32:00 AM
Lab ID: 2004812-009 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	4/20/2020 6:47:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/20/2020 6:47:54 PM
Surr: DNOP	87.6	55.1-146		%Rec	1	4/20/2020 6:47:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	250	60		mg/Kg	20	4/20/2020 1:30:42 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 8:51:06 PM
Toluene	ND	0.050		mg/Kg	1	4/21/2020 8:51:06 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 8:51:06 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 8:51:06 PM
Surr: 1,2-Dichloroethane-d4	89.4	70-130		%Rec	1	4/21/2020 8:51:06 PM
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	4/21/2020 8:51:06 PM
Surr: Dibromofluoromethane	91.7	70-130		%Rec	1	4/21/2020 8:51:06 PM
Surr: Toluene-d8	100	70-130		%Rec	1	4/21/2020 8:51:06 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 8:51:06 PM
Surr: BFB	96.1	70-130		%Rec	1	4/21/2020 8:51:06 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04@2.5-5'
Project: FRPC 4 1
Collection Date: 4/16/2020 12:20:00 PM
Lab ID: 2004812-010 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/22/2020 10:51:22 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/22/2020 10:51:22 AM
Surr: DNOP	99.0	55.1-146		%Rec	1	4/22/2020 10:51:22 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2020 10:52:34 AM
Surr: BFB	102	66.6-105		%Rec	1	4/25/2020 10:52:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/25/2020 10:52:34 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2020 10:52:34 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2020 10:52:34 AM
Xylenes, Total	ND	0.098		mg/Kg	1	4/25/2020 10:52:34 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/25/2020 10:52:34 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1300	60		mg/Kg	20	4/22/2020 5:13:01 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 12:23:00 PM
Lab ID: 2004812-011 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/22/2020 11:15:32 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/22/2020 11:15:32 AM
Surr: DNOP	103	55.1-146		%Rec	1	4/22/2020 11:15:32 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/25/2020 12:03:08 PM
Surr: BFB	102	66.6-105		%Rec	1	4/25/2020 12:03:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/25/2020 12:03:08 PM
Toluene	ND	0.050		mg/Kg	1	4/25/2020 12:03:08 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/25/2020 12:03:08 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/25/2020 12:03:08 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	4/25/2020 12:03:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	340	60		mg/Kg	20	4/22/2020 6:14:45 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05@7.5-10'
Project: FRPC 4 1
Collection Date: 4/16/2020 1:10:00 PM
Lab ID: 2004812-013 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/20/2020 7:12:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/20/2020 7:12:33 PM
Surr: DNOP	87.5	55.1-146		%Rec	1	4/20/2020 7:12:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/20/2020 10:52:52 PM
Surr: BFB	102	66.6-105		%Rec	1	4/20/2020 10:52:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/20/2020 10:52:52 PM
Toluene	ND	0.050		mg/Kg	1	4/20/2020 10:52:52 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/20/2020 10:52:52 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/20/2020 10:52:52 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/20/2020 10:52:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/20/2020 2:07:57 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 1:12:00 PM
Lab ID: 2004812-014 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/20/2020 7:37:06 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/20/2020 7:37:06 PM
Surr: DNOP	91.6	55.1-146		%Rec	1	4/20/2020 7:37:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/21/2020 12:04:03 AM
Surr: BFB	103	66.6-105		%Rec	1	4/21/2020 12:04:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 12:04:03 AM
Toluene	ND	0.049		mg/Kg	1	4/21/2020 12:04:03 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/21/2020 12:04:03 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/21/2020 12:04:03 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/21/2020 12:04:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	61		mg/Kg	20	4/20/2020 2:20:21 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06@2.5-5'
Project: FRPC 4 1
Collection Date: 4/16/2020 1:55:00 PM
Lab ID: 2004812-016 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/20/2020 8:01:41 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/20/2020 8:01:41 PM
Surr: DNOP	88.0	55.1-146		%Rec	1	4/20/2020 8:01:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/21/2020 1:15:18 AM
Surr: BFB	103	66.6-105		%Rec	1	4/21/2020 1:15:18 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 1:15:18 AM
Toluene	ND	0.050		mg/Kg	1	4/21/2020 1:15:18 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/21/2020 1:15:18 AM
Xylenes, Total	ND	0.10		mg/Kg	1	4/21/2020 1:15:18 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/21/2020 1:15:18 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	230	61		mg/Kg	20	4/20/2020 2:32:45 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004812**
Date Reported: **4/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06@12.5-15'
Project: FRPC 4 1
Collection Date: 4/16/2020 1:57:00 PM
Lab ID: 2004812-017 **Matrix:** SOIL **Received Date:** 4/17/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	4/20/2020 8:26:09 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	4/20/2020 8:26:09 PM
Surr: DNOP	91.9	55.1-146		%Rec	1	4/20/2020 8:26:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/21/2020 1:39:13 AM
Surr: BFB	104	66.6-105		%Rec	1	4/21/2020 1:39:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/21/2020 1:39:13 AM
Toluene	ND	0.049		mg/Kg	1	4/21/2020 1:39:13 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/21/2020 1:39:13 AM
Xylenes, Total	ND	0.098		mg/Kg	1	4/21/2020 1:39:13 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/21/2020 1:39:13 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	660	60		mg/Kg	20	4/22/2020 6:27:05 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **MB-51956** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **51956** RunNo: **68287**
Prep Date: **4/20/2020** Analysis Date: **4/20/2020** SeqNo: **2362478** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-51956** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **51956** RunNo: **68287**
Prep Date: **4/20/2020** Analysis Date: **4/20/2020** SeqNo: **2362479** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.6	90	110			

Sample ID: **MB-52033** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52033** RunNo: **68324**
Prep Date: **4/22/2020** Analysis Date: **4/22/2020** SeqNo: **2364906** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52033** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52033** RunNo: **68324**
Prep Date: **4/22/2020** Analysis Date: **4/22/2020** SeqNo: **2364907** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.2	90	110			

Sample ID: **MB-52033** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52033** RunNo: **68356**
Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2365666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52033** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52033** RunNo: **68356**
Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2365667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **MB-51938**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **51938**	RunNo: **68249**							
Prep Date: **4/19/2020**	Analysis Date: **4/20/2020**	SeqNo: **2362082**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.4	55.1	146			

Sample ID: **LCS-51938**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **51938**	RunNo: **68249**							
Prep Date: **4/19/2020**	Analysis Date: **4/20/2020**	SeqNo: **2362083**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.5	70	130			
Surr: DNOP	4.1		5.000		82.9	55.1	146			

Sample ID: **LCS-52010**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52010**	RunNo: **68326**							
Prep Date: **4/22/2020**	Analysis Date: **4/22/2020**	SeqNo: **2364065**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.0	70	130			
Surr: DNOP	3.4		5.000		67.8	55.1	146			

Sample ID: **MB-52010**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52010**	RunNo: **68326**							
Prep Date: **4/22/2020**	Analysis Date: **4/22/2020**	SeqNo: **2364069**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	7.8		10.00		77.9	55.1	146			

Sample ID: **LCS-52025**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52025**	RunNo: **68357**							
Prep Date: **4/22/2020**	Analysis Date: **4/23/2020**	SeqNo: **2366142**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.3		5.000		125	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **MB-52025** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52025** RunNo: **68357**
Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2366143** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		129	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **mb-51914**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2361707** 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	1000		1000		104	66.6	105			

Sample ID: **lcs-51914**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/20/2020**	SeqNo: **2361708** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.6	80	120			
Surr: BFB	1100		1000		110	66.6	105			S

Sample ID: **2004812-014ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH05@12.5-15'**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2361711** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.8	80	120			
Surr: BFB	1100		1000		109	66.6	105			S

Sample ID: **2004812-014amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH05@12.5-15'**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2361712** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	24.90	0	83.4	80	120	0.878	20	
Surr: BFB	1100		996.0		112	66.6	105	0	0	S

Sample ID: **MB-52005**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **52005**	RunNo: **68422**
Prep Date: **4/21/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367346** 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	1000		1000		104	66.6	105			

Sample ID: **lcs-52005**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52005**	RunNo: **68422**
Prep Date: **4/21/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367347** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**

27-Apr-20

Client: HILCORP ENERGY

Project: FRPC 4 1

Sample ID: **lcs-52005**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52005**	RunNo: **68422**
Prep Date: **4/21/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367347** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.3	80	120			
Surr: BFB	1100		1000		113	66.6	105			S

Sample ID: **2004812-011ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH04@12.5-15'**	Batch ID: **52005**	RunNo: **68422**
Prep Date: **4/21/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367350** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.70	0	92.9	80	120			
Surr: BFB	1100		988.1		115	66.6	105			S

Sample ID: **2004812-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH04@12.5-15'**	Batch ID: **52005**	RunNo: **68422**
Prep Date: **4/21/2020**	Analysis Date: **4/25/2020**	SeqNo: **2367351** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	24.22	0	90.5	80	120	4.62	20	
Surr: BFB	1100		969.0		114	66.6	105	0	0	S

Sample ID: **mb-52018**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **52018**	RunNo: **68422**
Prep Date: **4/22/2020**	Analysis Date: **4/26/2020**	SeqNo: **2367394** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		102	66.6	105			

Sample ID: **lcs-52018**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **52018**	RunNo: **68422**
Prep Date: **4/22/2020**	Analysis Date: **4/26/2020**	SeqNo: **2367395** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		114	66.6	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**

27-Apr-20

Client: HILCORP ENERGY

Project: FRPC 4 1

Sample ID: **mb-51914**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2361753** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID: **LCS-51914**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/20/2020**	SeqNo: **2361754** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	1.000	0	84.4	80	120			
Toluene	0.88	0.050	1.000	0	88.1	80	120			
Ethylbenzene	0.89	0.050	1.000	0	89.1	80	120			
Xylenes, Total	2.7	0.10	3.000	0	89.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **2004812-013ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH05@7.5-10'**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/20/2020**	SeqNo: **2361756** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9775	0	87.4	78.5	119			
Toluene	0.88	0.049	0.9775	0	90.0	75.7	123			
Ethylbenzene	0.89	0.049	0.9775	0	91.4	74.3	126			
Xylenes, Total	2.7	0.098	2.933	0	92.7	72.9	130			
Surr: 4-Bromofluorobenzene	1.0		0.9775		102	80	120			

Sample ID: **2004812-013amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH05@7.5-10'**	Batch ID: **51914**	RunNo: **68276**
Prep Date: **4/17/2020**	Analysis Date: **4/20/2020**	SeqNo: **2361757** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	0.9930	0	87.0	78.5	119	1.11	20	
Toluene	0.90	0.050	0.9930	0	90.9	75.7	123	2.57	20	
Ethylbenzene	0.92	0.050	0.9930	0	92.3	74.3	126	2.64	20	
Xylenes, Total	2.8	0.099	2.979	0	94.1	72.9	130	3.09	20	
Surr: 4-Bromofluorobenzene	1.0		0.9930		102	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **MB-52005** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **52005** RunNo: **68422**
Prep Date: **4/21/2020** Analysis Date: **4/25/2020** SeqNo: **2367425** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID: **LCS-52005** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **52005** RunNo: **68422**
Prep Date: **4/21/2020** Analysis Date: **4/25/2020** SeqNo: **2367429** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.025	1.000	0	82.4	80	120			
Toluene	0.84	0.050	1.000	0	84.4	80	120			
Ethylbenzene	0.86	0.050	1.000	0	86.3	80	120			
Xylenes, Total	2.6	0.10	3.000	0	86.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID: **2004812-010ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH04@2.5-5'** Batch ID: **52005** RunNo: **68422**
Prep Date: **4/21/2020** Analysis Date: **4/25/2020** SeqNo: **2367440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.78	0.024	0.9775	0	79.7	78.5	119			
Toluene	0.81	0.049	0.9775	0	83.3	75.7	123			
Ethylbenzene	0.84	0.049	0.9775	0	86.1	74.3	126			
Xylenes, Total	2.5	0.098	2.933	0	86.4	72.9	130			
Surr: 4-Bromofluorobenzene	1.0		0.9775		103	80	120			

Sample ID: **2004812-010amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH04@2.5-5'** Batch ID: **52005** RunNo: **68422**
Prep Date: **4/21/2020** Analysis Date: **4/25/2020** SeqNo: **2367441** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.77	0.024	0.9533	0	80.8	78.5	119	1.11	20	
Toluene	0.81	0.048	0.9533	0	84.8	75.7	123	0.808	20	
Ethylbenzene	0.84	0.048	0.9533	0	88.0	74.3	126	0.292	20	
Xylenes, Total	2.5	0.095	2.860	0	88.1	72.9	130	0.546	20	
Surr: 4-Bromofluorobenzene	0.99		0.9533		104	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **mb-52018** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **52018** RunNo: **68422**
Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367486** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **LCS-52018** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **52018** RunNo: **68422**
Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367487** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**
27-Apr-20

Client: HILCORP ENERGY
Project: FRPC 4 1

Sample ID: **lcs-51909** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.5	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	108	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.4	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.7	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		90.3	70	130			
Surr: Toluene-d8	0.49		0.5000		98.6	70	130			

Sample ID: **mb-51909** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **51909** RunNo: **68321**
Prep Date: **4/17/2020** Analysis Date: **4/21/2020** SeqNo: **2363815** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.2	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.1	70	130			
Surr: Toluene-d8	0.49		0.5000		97.2	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004812**

27-Apr-20

Client: HILCORP ENERGY

Project: FRPC 4 1

Sample ID: **lcs-51909**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51909**	RunNo: **68321**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2363971** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.2	70	130			
Surr: BFB	490		500.0		98.3	70	130			

Sample ID: **mb-51909**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **51909**	RunNo: **68321**
Prep Date: **4/17/2020**	Analysis Date: **4/21/2020**	SeqNo: **2363973** 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	480		500.0		95.9	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 Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **HILCORP ENERGY FAR** Work Order Number: **2004812** RcptNo: **1**

Received By: **Juan Rojas** **4/17/2020 8:00:00 AM** Juan Rojas

Completed By: **Desiree Dominguez** **4/17/2020 8:07:19 AM** DD

Reviewed By: JR 4/17/20

Chain of Custody

1. Is Chain of Custody sufficiently 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: JR 4/17/20

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	3.4	Good	Yes			

Chain-of-Custody Record

Client: Jennifer Deal / Hilcorp

Mailing Address: 382 RD 3100 Aztec, NM 87413

Phone #:

email or Fax#: jdeal@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush 3-DAY

Project Name: FRPC 4-1

Project #:

Project Manager: Devin Hencmann

Sampler: Josh Adams

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.4-0=3.4

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. 2004812	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4-16-20	0950	soil	BH01@2.5-5'	(1) 4oz	cool	-001	X	X					X			
	0954		BH01@12.5-15'			-002										
	0955		BH01@17.5-20'(HOLD)			-003										
	1035		BH02@7.5-10'			-004										
	1040		BH02@12.5-15'			-005										
	1045		BH02@17.5-20'(HOLD)			-006										
	1130		BH03@2.5-5'			-007										
	1134		BH03@17.5-20'(HOLD)			-008										
	1132		BH03@12.5-15			-009										
	1220		BH04@2.5-5'(HOLD)			-010										
	1223		BH04@12.5-15'(HOLD)			-011										
	1225		BH04@17.5-20'(HOLD)			-012										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4-16-20	1458				4/16/20	1458
4/16/20	1747			courier	4/17/20	8:00

Remarks: * Note: HOLD is marked in Sample Name

cc: jadams@henv.com
dhencmann@henv.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: Jennifer Deal
Hilcorp
Mailing Address: 382 CR 4100
Aztec, NM 87413
Phone #:
email or Fax#: jdeal@hilcorp.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☒ Rush 3-Day
Project Name: FRPC 4-1
Project #:
Project Manager: Devin Hencmann
Sampler: Josh Adams
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 3.4-0=3.4

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004812	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4-16-20	1310	soil	BH05@7.5'-10'	(1) 4oz	cool	-013	X	X								
	1312		BH05@12.5-15'			-014										
	1314		BH05@17.5-20'(HOLD)			-015										
	1355		BH06@2.5-5'			-016										
	1357		BH06@12.5-15'			-017										
	1359		BH06@17.5-20'(HOLD)			-018										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4-16-20	1458				4/16/20	1458
4/16/20	1747	Christine Walker		Courier	4/17/20	8:00

Remarks:
cc: jadams@hilcorp.com
dhencmann@hilcorp.com
* See HOLD in Sample Name

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.

Analytical Report
Lab Order **2004B74**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH08@5'
Project: FRPC 4 1 **Collection Date:** 4/28/2020 12:35:00 PM
Lab ID: 2004B74-001 **Matrix:** MEOH (SOIL) **Received Date:** 4/29/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/29/2020 10:23:58 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/29/2020 10:23:58 AM
Surr: DNOP	95.3	55.1-146		%Rec	1	4/29/2020 10:23:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/29/2020 9:09:14 AM
Surr: BFB	99.4	66.6-105		%Rec	1	4/29/2020 9:09:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 9:09:14 AM
Toluene	ND	0.050		mg/Kg	1	4/29/2020 9:09:14 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/29/2020 9:09:14 AM
Xylenes, Total	ND	0.10		mg/Kg	1	4/29/2020 9:09:14 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/29/2020 9:09:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/29/2020 11:00:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B74**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH08@15'
Project: FRPC 4 1 **Collection Date:** 4/28/2020 1:00:00 PM
Lab ID: 2004B74-002 **Matrix:** MEOH (SOIL) **Received Date:** 4/29/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/29/2020 10:48:01 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/29/2020 10:48:01 AM
Surr: DNOP	95.8	55.1-146		%Rec	1	4/29/2020 10:48:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/29/2020 9:32:49 AM
Surr: BFB	99.2	66.6-105		%Rec	1	4/29/2020 9:32:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 9:32:49 AM
Toluene	ND	0.050		mg/Kg	1	4/29/2020 9:32:49 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/29/2020 9:32:49 AM
Xylenes, Total	ND	0.10		mg/Kg	1	4/29/2020 9:32:49 AM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/29/2020 9:32:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	280	60		mg/Kg	20	4/29/2020 11:00:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B74**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH07@5'
Project: FRPC 4 1 **Collection Date:** 4/28/2020 1:30:00 PM
Lab ID: 2004B74-003 **Matrix:** MEOH (SOIL) **Received Date:** 4/29/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/29/2020 11:11:59 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/29/2020 11:11:59 AM
Surr: DNOP	96.2	55.1-146		%Rec	1	4/29/2020 11:11:59 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/29/2020 9:56:35 AM
Surr: BFB	100	66.6-105		%Rec	1	4/29/2020 9:56:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 9:56:35 AM
Toluene	ND	0.050		mg/Kg	1	4/29/2020 9:56:35 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/29/2020 9:56:35 AM
Xylenes, Total	ND	0.10		mg/Kg	1	4/29/2020 9:56:35 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/29/2020 9:56:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	230	59		mg/Kg	20	4/29/2020 11:00:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2004B74**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH07@15'
Project: FRPC 4 1 **Collection Date:** 4/28/2020 1:50:00 PM
Lab ID: 2004B74-004 **Matrix:** MEOH (SOIL) **Received Date:** 4/29/2020 8:00:00 AM

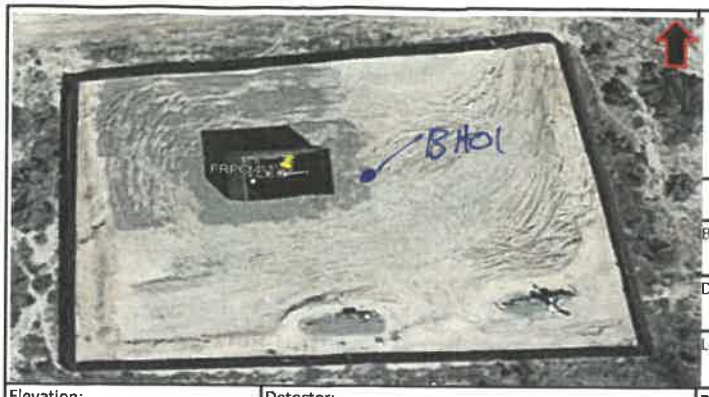
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	4/29/2020 11:36:06 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/29/2020 11:36:06 AM
Surr: DNOP	96.4	55.1-146		%Rec	1	4/29/2020 11:36:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/29/2020 10:20:14 AM
Surr: BFB	99.0	66.6-105		%Rec	1	4/29/2020 10:20:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 10:20:14 AM
Toluene	ND	0.050		mg/Kg	1	4/29/2020 10:20:14 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/29/2020 10:20:14 AM
Xylenes, Total	ND	0.10		mg/Kg	1	4/29/2020 10:20:14 AM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/29/2020 10:20:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/29/2020 11:00:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

ENCLOSURE C – LTE BORELOGS



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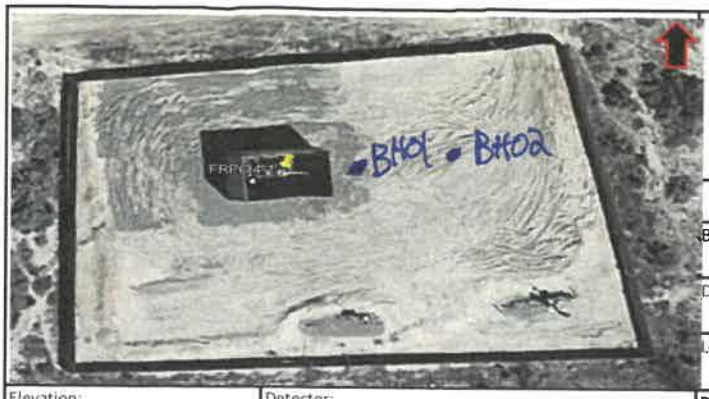
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH01	Project: FRPC 4-21
Date: 4-16-20	Project Number:
Logged By: JA	Drilled By: Mo-Te
Elevation:	Detector: PID/Quantab
Drilling Method: hollow-stem	Sampling Method: continuos
Gravel Pack: ~~10-20 Silica Sand~~	Seal: ~~Hydrated Bentonite Chips~~ NA
Grout: ~~Bentonite-Cement Slurry~~ NA	
Casing Type: ~~Schedule 40 PVC~~ NA	Diameter: 2" Length:
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~ Slot: 0.010"	Diameter: 2" Length:
Total Depth: 20'	Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ ~~Chloride ppm~~	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
									NR (0-2.5')	
		NR			0 1 2			~~Sandy~~	light brown poorly graded sand w/ silt low cohesion low plasticity	
568	Dry	0.0	NO	BH01 @ 2.5' 0950	3 4 5	0-5		SW-SM		
		NR			6 7				NR	
568	Dry	0.3	NO		8 9 10	5-10		SW-SM ML	SAA brow silt w/sand	
~~568~~		NR			11 12				NR	
428	Dry	3.5	NO	BH01 @ 12.5-15 0955	13 14 15	10-15		SW-SM	light brown poorly graded sand w/ silt	

Boring/Well #	BH01
Project:	FRPC 4-1
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16				NR	
					17	15-20				
<120 ppm	Dry	0.7	NO	BH01 @ 17.5-20 0956	18			SP	Poorly graded sand	
					19					
					20					
					21				TDe 20'	
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH02	Project: FRPC 4-1
Date: 4-16-20	Project Number:
Logged By: JA	Drilled By: MO-TE
Elevation:	Detector: PID/Quantab
Drilling Method: hollow stem	Sampling Method: continuous
Gravel Pack: ~~10-20 Silica Sand~~ NA	Seal: ~~Hydrated Bentonite Chips~~ NA
Grout: NA ~~Bentonite-Cement Slurry~~	
Casing Type: ~~Schedule 40 PVC~~ NA	Diameter: 2" Length:
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~ NA	Slot: ~~0.010"~~ Diameter: 2" Length:
Total Depth: 20'	Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ Chlordie ppm	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			0 1 2				NR	
<128	Dry	0.7	NO		3 4 5			SP-SM	poorly graded sand w/ silt	
		NR			6 7				NR	
<128	Dry	0.0	NO	BH02 C 7.5-10' 1035	8 9 10			ML	SAA silt w/ sand high cohesion high plas.	
		NR			11 12				NR	
<128	Dry	0.0	NO	BH02 C 12.5-15' 1040	13 14 15			SP-SM	poorly graded sand w/ silt some gravel	

Boring/Well #	BH02
Project:	
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			15				NR	
					16					
					17	1520				
<128	Dry	0.0	NO	BH02 @ 17.5-20' 1045	18			SP	poorly graded sand	
					19					
					20					
					21				TDC 20'	
					22					
					23					
					24					
					25					
					26					
					27					
					28					
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					32					
					33					
					34					
					35					
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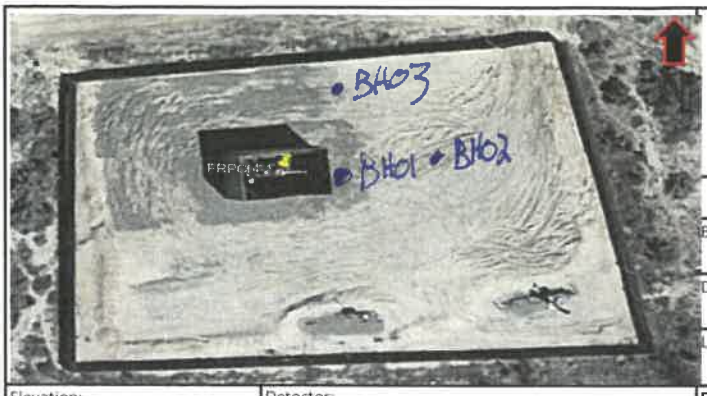
					37					



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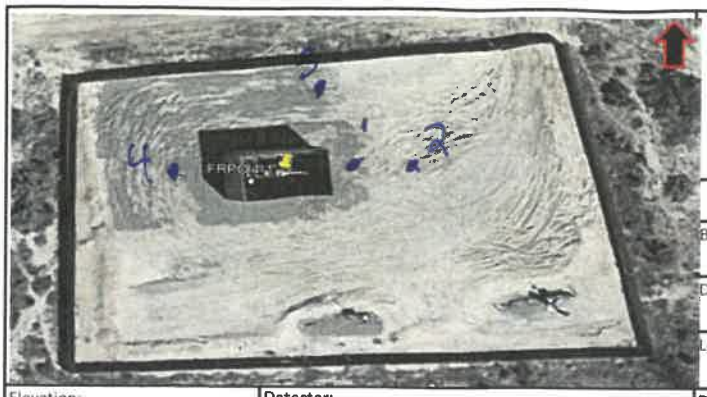
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH03	Project: FRPC 4-1
Date: 4-16-20	Project Number:
Logged By: JA	Drilled By: Mo-T
Elevation:	Detector: PID/Quantab
Drilling Method: hollow stem	Sampling Method: continuous
Gravel Pack: ~~10-20 Silica Sand~~ NA	Seal: ~~Hydrated Bentonite Chips~~ NA
Grout: ~~Bentonite Cement Slurry~~ NA	
Casing Type: ~~Schedule 40 PVC~~ NA	Diameter: 2" Length:
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: ~~Schedule 40 PVC~~ NA	Slot: 0.010" Diameter: 2" Length:
Total Depth: 20'	Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ Chloride ppm	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			0 1 2				NR	
288	Dry	0.1	NO	BH03 @ 2.5-5 1130	3 4 5	0-5		SM	brown silty sand med cohesion, med plas	
		NR			6 7				NR	
128	M	16.8	NO		8 9 10	5-10		SM	SAA, brown and grey some black organics more fines	
		NR			11 12				NR	
128	Dry	0.5	NO	BH03 @ 12.5-15 1132	13 14 15	10-15		SP	poorly graded sand, some gravel	

Boring/Well #	B103
Project:	FRPC 9-1
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			15		X		NR	
					16					
					17					
152	Dry	0.3	NO		18			SP	SAA	
					19					
					20					
					21				TDe20'	
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH04	Project: FRPC 4-1
Date: 4-16-20	Project Number:
Logged By: JM	Drilled By: Mo-Te
Elevation:	Detector: PID/Quantab
Drilling Method: Hollowstem	Sampling Method: continuous
Gravel Pack: 10-20 Silica Sand	Seal: ~~NA~~ Hydrated Bentonite Chips
Grout: ~~NA~~ Bentonite-Cement Slurry	
Casing Type: Schedule 40 PVC ~~NA~~	Diameter: 2" Length:
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 20	Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ Chloride ppm	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			0 1 2				NR	
516	Dry M	0.0	NO	BH04 @ 2.5-5' 1220	3 4 5	0-5		SM ML	brown Silty sand / brown silt with sand high cohesion high plas	
		NR			6 7	5-10			NR	
216	Dry	0.3	NO	BH04 @ 7.5-10' 1210	8 9 10			SP	brown poorly graded sand	
		NR			11 12	10-15			NR	
516	Dry	0.0	NO	BH04 @ 12.5-15' 1223	13 14 15			SP	SAA, some gravel	

Boring/Well #	BH04
Project:	FRFC 4-1
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15				NR	
					16					
					17					
L126	DRY	0.2	NO	BH04 @ 17.5-20' 1225	18			SP	SAA	
					19					
					20					
					21				TDC20'	
					22					
					23					
					24					
					25					
					26					
					27					
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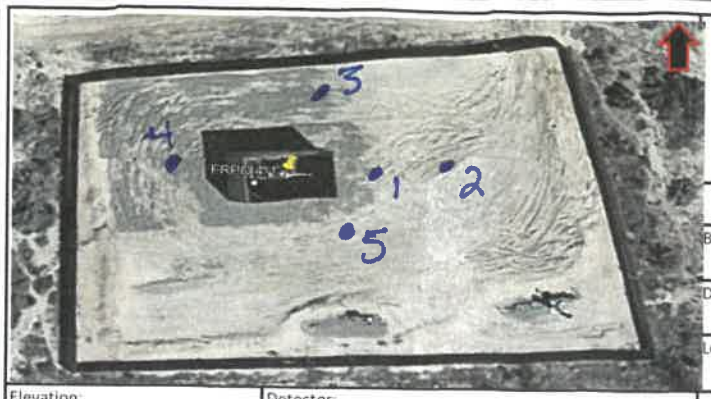
					35					
					36					
					37					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH05	Project: FRPC 4-1
Date: 4-16-22	Project Number:
Logged By: JA	Drilled By: MO-TE
Elevation:	Detector: PID/Quantab
Drilling Method: hollowstem	Sampling Method: continuous
Gravel Pack: 10-20 Silica Sand	Seal: ~~Hydrated Bentonite Chips~~ NA
Casing Type: Schedule 40 PVC NA	Diameter: 2" Length:
Screen Type: Schedule 40 PVC Slot: 0.010"	Diameter: 2" Length:

Grout: ~~Bentonite-Cement Slurry~~ NA

Hole Diameter: 6" Depth to Liquid: NA

Total Depth: 20' Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ ~~Chloride ppm~~	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			0 1 2				NR	
1128	DRY	0.0	NO		3 4 5	0-5		SM	brown silty sand med cohesion, med plasticity	
		NR			6 7				NR	
1128	Dry	0.0	NO	BH05 @ 7.5-10' 1310	8 9 10			SP	brown poorly graded sand	
		NR			11 12	10-15			NR	
1124	Dry	0.1	NO	BH05 @ 12.5-15 1315	13 14 15			SP	SAA, some gravel	

Boring/Well #	BH05
Project:	FRP 4-1
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NP			15		X		NR	
					16					
					17					
					18	15-20				
<LOQ	DRY	0.0	NO	BH05 @ 17.5-20 1314	19			SP	SAA	
					20					
					21				TD @ 20'	
					22					
					23					
					24					
					25					
					26					
					27					
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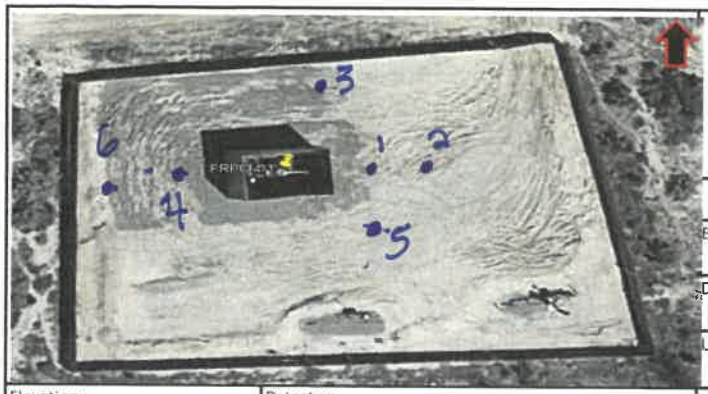
					35					
					36					
					37					



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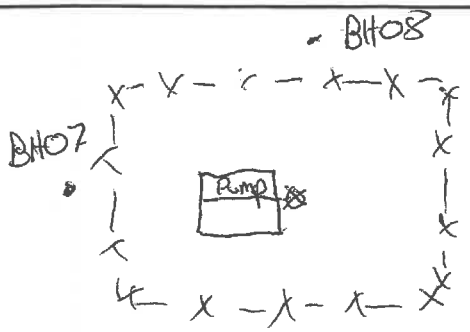
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH06	Project: FRPC 4-1
Date: 4-16-20	Project Number:
Logged By: JA	Drilled By: Mo-TE
Elevation:	Detector: PID/Quantab
Drilling Method: hollow stem	Sampling Method: continuous
Gravel Pack: 10-20 Silica Sand	Seal: ~~Hydrated Bentonite Chips~~ NA
Casing Type: Schedule 40 PVC	Diameter: 2" Length:	Grout: ~~Bentonite Cement Slurry~~ NA
Screen Type: Schedule 40 PVC	Slot: ~~0.010"~~ Diameter: 2" Length:	Hole Diameter: 6" Depth to Liquid: NA
		Total Depth: 20' Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ ~~Chloride ppm~~	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			0 1 2		X		NR	
152	Dry	0.0	NO	BH06 C 2.5-5' 1355	3 4 5	0-5		SM	brown silty sand, med cohesion med plas	
		NR			6 7	5-10	X		NR	
2124	Dry	0.0	NO		8 9 10	10-15		SP-SM	brown poorly graded sand w/ silt	
		NR			11 12		X			
1120	Dry	0.0	NO	BH06 C 12.5-15' 1357	13 14 15			SP	poorly graded sand	

Boring/Well #	BH06
Project:	FRPC 4-1
Project #	
Date	4-16-20

Qtab (ppm)	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
		NR			15 16 17	15-20	X		NR	
<124	Dry	0.0	NO	BH06 @ 17.5-20' 1359	18 19 20			SP	SAA, some gravel	
					21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37				TDe 20'	



Advancing Opportunity
848 E. 2nd Ave
Durango, Colorado 81301

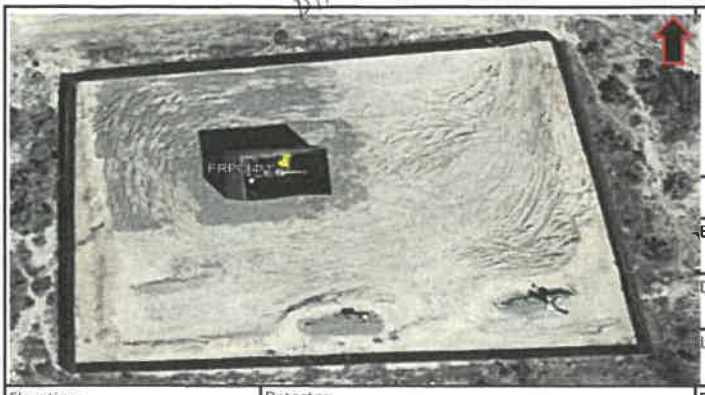
BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH07	Project: FRC 4-1
Date: 4-28-20	Project Number:
Logged By: JA	Drilled By: JA
Elevation:	Detector: PID/QTab
Drilling Method: hand auger	Sampling Method: hand auger
Gravel Pack: 10-20 Silica Sand	Seal: NA
Grout: NA	
Casing Type: Schedule 40 PVC NA	Diameter: 2" Length:
Hole Diameter: 8"	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" NA
Diameter: 2" Length:	Total Depth: 15'
Depth to Water:	

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	dry	0.0	NO		0 1 2			SM	brown silty sand, med cohesion, med plasticity	
	dry	0.1	NO	BH07 @ 5' 1330	3 4 5			SM	SAA Cl = ~~116ppm~~ 184ppm	
	dry	0.0	NO		6 7			SM	SAA	
	dry	0.0	NO		8 9			SM		
	dry	0.0	NO		10 11 12			SP-SM	poorly graded sand w/ silt Cl(@10') = <124ppm SAA	
	dry	0.0	NO	BH07 @ 15' 1350	13 14 15			SP	poorly graded sand, some gravel Cl(@15') = <124ppm	

TD@15'

BH08



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH08	Project: FRPC 4-1
Date: 4-28-20	Project Number:
Logged By: JA	Drilled By: JA
Elevation:	Detector: PID/Quantab
Drilling Method: hand auger	Sampling Method: hand auger
Gravel Pack: 10-20 Silica Sand	Seal: ~~Hydrated Bentonite Chips~~ NA
Grout: ~~Bentonite Cement Slurry~~ NA	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 8"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 15'	Depth to Water: NA

Qtab (ppm)	Moisture Content	Vapor (ppm)	HC Staining?/ Chlordie ppm	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
NS	dry	0.0	NO		0 1 2			SM	Brown silty sand, low cohesion low plasticity	
<124 ppm	dry	0.0	NO	BH08 @ 5' 1235	3 4 5			SP-SM	light brown poorly graded sand w/ silt	
NS	dry	0.1	NO		6 7			SP-SM	SAA	
<124	dry	0.0	NO		8 9 10			SP-SM	SAA	
NS	dry	0.0	NO		11 12			SP	brown silty sand	
186	dry	0.0	NO		13 14 15			SP-SM	poorly graded sand w/ silt some gravel	

TD @ 15'

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 13717

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
HILCORP ENERGY COMPANY	1111 Travis Street	Houston, TX77002	372171	13717	C-141

OCD Reviewer	Condition
chensley	None