REVIEWED
By Nelson Velez at 2:31 pm, Sep 06, 2022

1. OCD approves the proposed SVE pilot test. Provide date & time of implementation by October 6, 2022.
2. Submit follow up report of SVE pilot test.
3. Submit proposed remediation plan with SVE pilot test report 45 days after field work is completed. Include SVE system design, O & M requirements, & schedule of execution.

June 15, 2021

New Mexico Energy, Minerals and Natural Resources Department
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

Subject: **Site Characterization Report and Remediation Work Plan**
San Juan 32-9 Unit 41A
San Juan County, New Mexico
NMOCD Incident Number: nAPP2108949980

To Whom it May Concern:

On behalf of Hilcorp Energy Company (Hilcorp), WSP USA Inc. (WSP) has prepared this *Site Characterization Report and Remediation Work Plan* for the San Juan 32-9 Unit 41A natural gas production well (Site) located in San Juan County, New Mexico (Figure 1). WSP conducted soil-delineation activities to investigate petroleum-hydrocarbon impact discovered by Hilcorp during tank gauging on March 17, 2021. A release of approximately 15 barrels (bbls) occurred due to corrosion of an aboveground storage tank (AST). After discovery of the release, Hilcorp submitted a *Release Notification Form C-141* to the New Mexico Oil Conservation Division (NMOCD) on March 30, 2021. NMOCD has assigned Incident Number nAPP2108949980 to the Site.

SITE CHARACTERIZATION

The Site is located on Bureau of Land Management (BLM) surface in Unit P of Section 31, Township 32 North, Range 9 West, San Juan County, New Mexico (Figure 1). The Site is approximately 4 miles east of Cedar Hill, New Mexico, west of San Juan County Road 2770. The Site is operated by Hilcorp and produces gas from the Mesa Verde and Pictured Cliffs Formations. As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were assessed in accordance with 19.15.29.11 of the New Mexico Administrative Code (NMAC). This information is further discussed below.

GEOLOGY AND HYDROGEOLOGY

Based on United States Geological Survey (USGS) geologic mapping, the Site is located within the Tertiary San Jose Formation. In the report titled "Hydrogeology and Water Resources of San Juan Basin, New Mexico" (Stone, Lyford, Frenzel, Mizell, & Padgett, 1983), the San Jose Formation is characterized by various lithologies including course-grained arkose, mudstones, and lenses of claystone, siltstone, and poorly consolidated sandstone. This formation ranges in thickness from 200 to 2,700 feet. The San Jose Formation is the youngest Tertiary bedrock unit in the San Juan Basin and is underlain by the Nacimiento Formation.

SITE CHARACTERIZATION

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

Borings at the Site indicate groundwater is not present at depths up to 25 feet below ground surface (bgs). However, an unnamed dry wash is located 128 feet to the east of the Site that is considered a "significant watercourse" as defined in 19.15.17.7 NMAC (Figure 2). There are no springs or fresh-water wells located within 500 feet of the Site. However, the Hidden Springs freshwater spring is located approximately 700 feet south of the Site (Figure 3). The nearest groundwater well is a livestock well (SJ 03131) located approximately 3 miles northeast of the Site. Depth-to-water information from this well indicates that groundwater is approximately 580 bgs.

The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland (Figure 2). Surface land use surrounding the Site consists primarily of oil and gas development and livestock grazing. No occupied permanent

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residence or structures, including schools, hospitals, institutions, and/or churches, are located within 300 feet of the Site. The Site is not within the area of a subsurface mine or unstable area and is not within the 100-year floodplain.

SITE CLOSURE CRITERIA

WSP has characterized the Site according to *Table 1, Closure Criteria for Soils Impacted by a Release* of 19.15.29.12 NMAC. Due to the Site's proximity to a significant watercourse, the following NMOCD Table 1 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.

SITE INVESTIGATION ACTIVITIES

After the discovery of the release, Hilcorp retained WSP to conduct a site investigation in an attempt to delineate the vertical and lateral extent of petroleum-hydrocarbon impacted soil. On May 19 and 20, 2021, WSP conducted soil delineation activities at the Site using a 75 Central Mining Equipment (CME) hollow-stem auger drilling rig. Boring locations were recorded using a handheld Global Positing System (GPS) unit. Soil lithology was logged by a WSP geologist and described based on the Unified Soil Classification System (USCS) as specified in American Society for Testing and Materials (ASTM) D2488. Soil also was inspected for visual staining and the presence or absence of odor. The soil was characterized by visually inspecting the soil samples and field screening the soil headspace using a photoionization detector (PID) to monitor for the presence of organic vapors. Drilling and sampling equipment were decontaminated prior to use and between each boring. Figure 4 presents the delineation boring locations. In total, five borings were advanced at the Site to depths of 25 feet bgs. Delineation activities and results are further described below.

SOIL BORING RESULTS

In general, light brown, medium to coarse-grained sand and silty sand were encountered between the ground surface to depths ranging from 9 to 14 feet bgs. The sand/silty sand was underlain by light brown, coarse sandstone to total depths of 25 feet bgs. Groundwater and/or saturated soils were not encountered in any of the borings during drilling. Boring logs are attached as Attachment 1.

SOIL SAMPLING ACTIVITIES AND RESULTS

Boring BH01 was located near the release point at the Site. To gain better vertical resolution of the impacts to soil, samples were collected for laboratory analysis in this boring at 5-foot intervals. Soil samples from the remaining borings were collected for laboratory analysis based on the following criteria: one soil sample was collected for laboratory analysis from the most impacted soil interval based on field screening results; and one additional sample was collected for analysis near the terminus of each borehole. Soil samples were submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of BTEX by United States Environmental Protection Agency (EPA) method 8021, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), TPH-motor oil range organics (MRO) by EPA Method 8015, and chloride by EPA method 300.0.

Laboratory analytical results indicate that soil collected from borings BH01 and BH03 contained concentrations of total TPH that exceeded the NMOCD Table 1 Closure Criteria of 100 mg/kg. All other samples collected during the site investigation were either detected below the Table 1 Closure Criteria or were below laboratory detection limits for the listed parameters. The soil analytical results, as compared to the NMOCD Closure Criteria, are summarized in Table 1 and presented on Figure 4. The laboratory analytical reports are included as Attachment 2.

CONCLUSIONS

Petroleum-hydrocarbon impacted soil was assessed by WSP during the May 2021 Site investigation. Figure 4 presents soil sample results, in which all outer lateral points are compliant with the NMOCD Table 1 Closure Criteria, except to the north at borehole BH03, and the total vertical depth of impact in all borehole locations has been determined. Elevated TPH concentrations were observed in BH01, nearest the AST at a depth range of 5 to 15 feet bgs. One sample collected from BH03 at a depth of 5 to 10 feet bgs contained TPH at a concentration of 110 mg/kg, just above the NMOCD Table 1 Closure Criteria of 100 mg/kg. Although this sample exceeds the applicable closure criteria, because concentrations greatly diminish from BH01 to BH03, it is believed that impacts do not extend significantly further than BH03 in this area. Based on these results, impacted soil appears to be limited in areal extent to locations near the on-Site AST and to depths up to approximately 15 feet bgs. Contaminants are present in both the shallow sand/silty sand soil and the upper 3 feet of the course-grained sandstone present at the Site.

REMEDIATION WORK PLAN

Based on the depths of soil impacts, site lithology, and proximity to process equipment, WSP recommends remediation by soil-vapor extraction (SVE). SVE technology remediates petroleum-hydrocarbon impacts in situ by applying a vacuum to wells drilled into the impacted area. The applied vacuum initiates air flow from the subsurface and into the SVE wells. The subsurface air flow enhances petroleum-hydrocarbon volatilization and the vapors are pulled out by a blower/vacuum pump on the surface. The removed petroleum hydrocarbons are typically emitted directly into the atmosphere unless air permitting thresholds or sensitive receptors require air treatment with petroleum hydrocarbon removal. SVE wells are drilled into the subsurface and screened to provide air flow evenly throughout the impacted interval. When determining the number of wells and screen intervals, heterogeneities in the geology are considered to prevent air being pulled only through the most permeable zones. The SVE pilot test proposed for the Site is further discussed below.

PROPOSED SVE SYSTEM PILOT TEST

Prior to developing the full SVE-system design, WSP recommends conducting a pilot test to evaluate the effectiveness of the remedial technology to achieve site remediation goals. SVE pilot testing will be conducted to evaluate the flow rate and applied vacuum required to influence the subsurface and cause volatilization of the petroleum hydrocarbons entrained in the soil, as well as to determine specific site design radius-of-influence (ROI). The pilot testing program will be determined based on previously observed geologic conditions, surface conditions, current locations of petroleum hydrocarbon impacts, and other relevant factors.

During delineation activities in May 2021, one SVE well was installed in boring BH01 screened from 6 to 16 feet bgs. To complete the pilot test, two additional SVE wells will be installed at the Site within the impacted zone, with soil samples collected during drilling at 5-foot intervals and submitted for laboratory analysis of TPH and BTEX. The SVE well installed in boring BH01 will be used as the “extraction” well during the test, with the two additional SVE wells installed around BH01 at distances of 15 to 35 feet away (used as “observation” wells for the test). One of these observation wells will be placed to the north/northwest of boring BH03 in order to further delineate TPH impacts in this area. An additional delineation boring will also be advanced to the east/northeast of BH03 during this work to fully delineate impacts in this area.

To prevent air from being pulled into the SVE wells from the ground surface, screened intervals will be placed at depths of at least 5 feet bgs. A vacuum truck will be used to apply a negative pressure to the extraction well, with responses measured in the observation wells. A manifold designed and built by WSP will be used to control the vacuum being applied and collect measurements at the extraction well. The following list summarizes the steps involved in the SVE pilot test:

1. Measure the distances from the extraction well to each observation well.
2. Collect background VOCs measurements using a PID at the extraction and observation wells.
3. Connect the vacuum truck to the extraction well via a flexible hose and manifold. Slowly open the valve and monitor the vacuum and flow.
4. Apply a vacuum ranging from approximately 10 inches of water column (wc) to 100 inches wc at the extraction well.
5. Collect at least two rounds of stabilized measurements per vacuum/flow rate. Measure the vacuum and the PID headspace at the observation wells. Collect readings 15 minutes apart.
6. Close the valve to eliminate the vacuum pressure and collect stabilization readings from each observation well.
7. Collect air samples from the extraction well in laboratory-prepared containers and delivered under chain-of-custody protocol to Hall for analysis of BTEX and total volatile petroleum hydrocarbons (TVPH).

Once the pilot test is completed, WSP will prepare a pilot-test report and supplemental remediation plan that includes the proposed SVE system design, operation and maintenance requirements, and a proposed schedule for implementation.

REFERENCES

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

WSP appreciates the opportunity to provide this report to you. If you have any questions or comments regarding this report, do not hesitate to contact Devin Hencmann at (970) 385-1096 or at devin.hencmann@wsp.com, or Mitch Killough at (713) 757-5247 or at mkillough@hilcorp.com.

Kind regards,

Devin Hencmann
Senior Geologist

Ashley Ager, M.S., P.G.
Managing Director, Geologist

Enclosed:

Figure 1: Site Location Map
Figure 2: Proximity to Watercourse, Lakebed, Sinkhole, or Playa Lake
Figure 3: Site Receptor Map
Figure 4: Soil Analytical Results

Table 1: Soil Analytical Results

Attachment 1: Boring Logs
Attachment 2: Analytical Laboratory Reports

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2108949980
District RP	
Facility ID	
Application ID	

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?	>100 (ft bgs)
Did this release impact groundwater or surface water? groundwater	☐ 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.

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2108949980
District RP	
Facility ID	
Application ID	

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: Mitch Killough Title: Environmental Specialist

Signature: Date: 6/15/2021

email: mkillough@hilcorp.com Telephone: 713-757-5247

OCD Only

Received by: Date: _____

FIGURES

IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
SAN JUAN 32-9 #41A
LOT 20 SEC 31-T32N-R9W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

wsp

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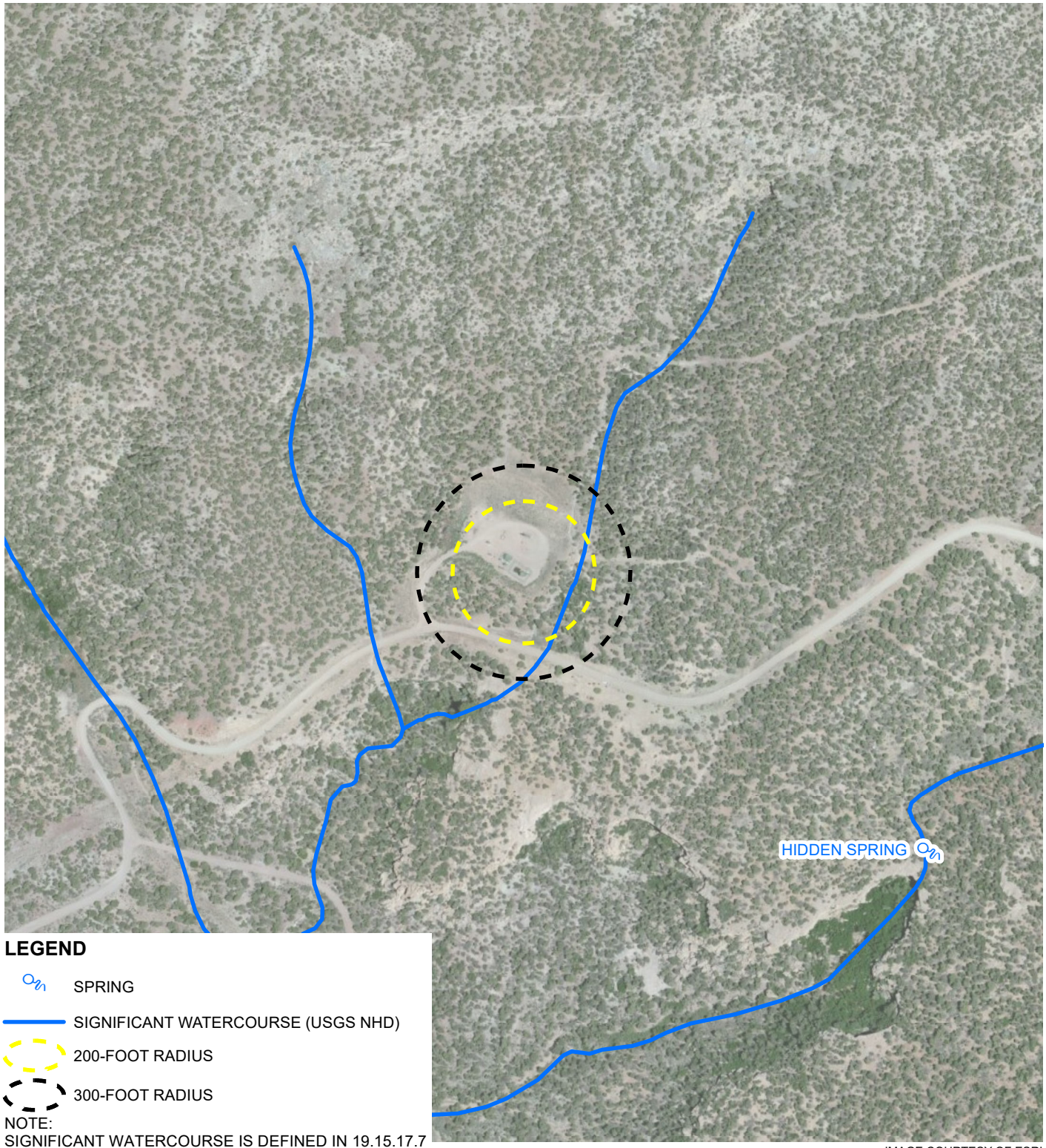


LEGEND

SPRING

SIGNIFICANT WATERCOURSE (USGS NHD)

200-FOOT RADIUS

300-FOOT RADIUS

NOTE:
SIGNIFICANT WATERCOURSE IS DEFINED IN 19.15.17.7 NMAC AS A WATERCOURSE WITH DEFINED BED AND BANK EITHER NAMED OR IDENTIFIED BY A DASHED BLUE LINE ON A USGS 7.5 MINUTE QUADRANGLE MAP OR THE NEXT LOWER TRIBUTARY WITH A DEFINED BED AND BANK OF SUCH WATERCOURSE.

THERE ARE NO SINKHOLES, LAKEBEDS OR PLAYA LAKES WITHIN THE BOUNDARIES OF THIS MAP USING MAPPED DATA FROM THE USFS NWI AND USGS.

NHD: NATIONAL HYDROGRAPHY DATASET
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NM OSE: NEW MEXICO OFFICE OF THE STATE ENGINEER
USGS: UNITED STATES GEOLOGICAL SURVEY

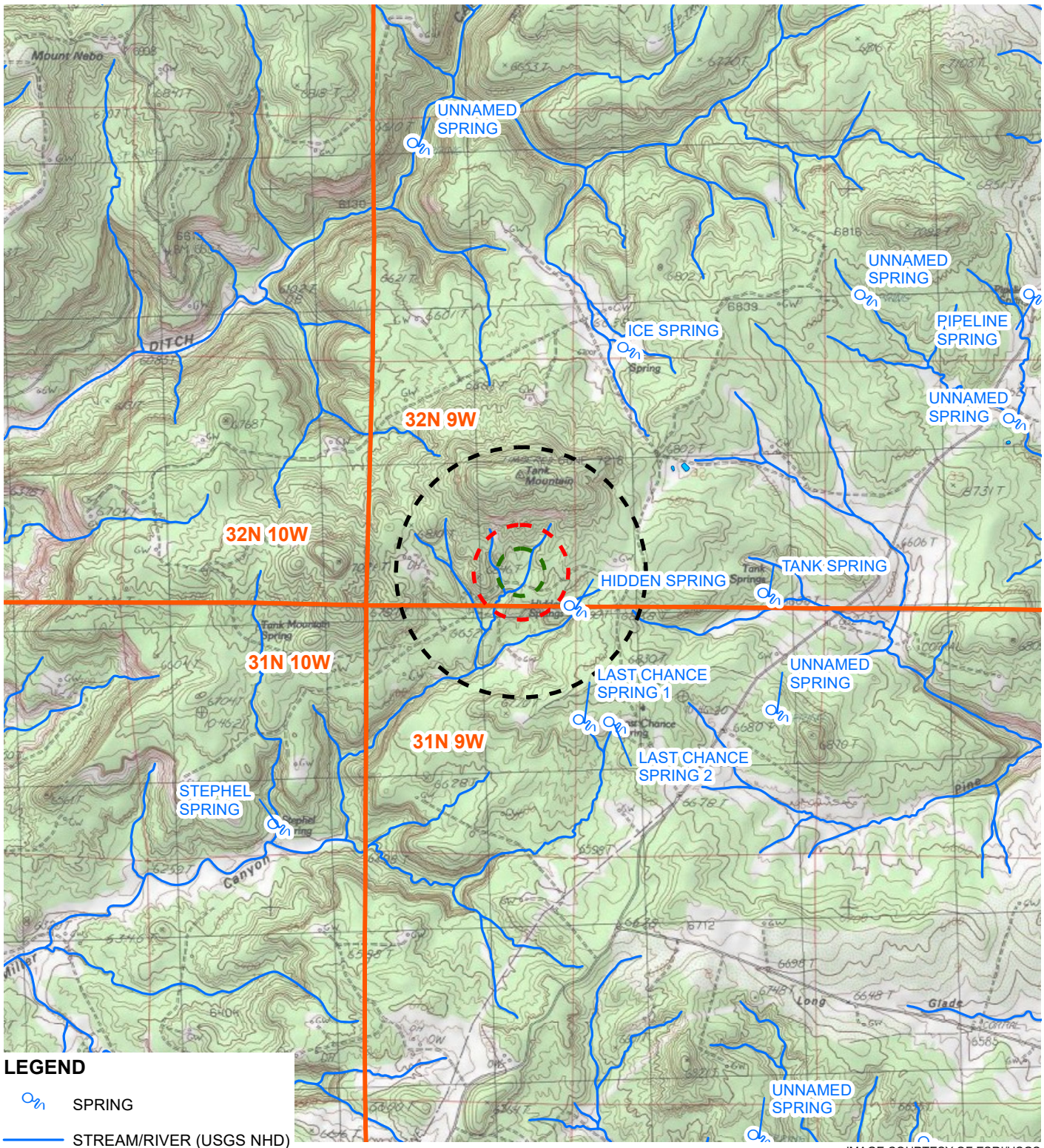
IMAGE COURTESY OF ESRI

0 400 800
Feet

N

FIGURE 2
PROXIMITY TO WATERCOURSE, LAKEBED, SINKHOLE, OR PLAYA LAKE
SAN JUAN 32-9 #41A
LOT 20 SEC 31-T32N-R9W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017821021_SAN JUAN 32-9 #41A\TE017821021_FIG03_SJ32-9_41A_WATERCOURSE PROX_2021.mxd



LEGEND

- SPRING
- STREAM/RIVER (USGS NHD)
- HALF-MILE RADIUS
- 1,000-FOOT RADIUS
- 500-FOOT RADIUS
- LAKE/POND
- TOWNSHIP AND RANGE

NOTE: NO USGS OR NMOSE WELLS IN AREA PER NWIS.

NM OSE: NEW MEXICO OFFICE OF THE STATE ENGINEER

IMAGE COURTESY OF ESRI/USGS

0 3,000 6,000

Feet

N

FIGURE 3
SITE RECEPTOR MAP
SAN JUAN 32-9 #41A
LOT 20 SEC 31-T32N-R9W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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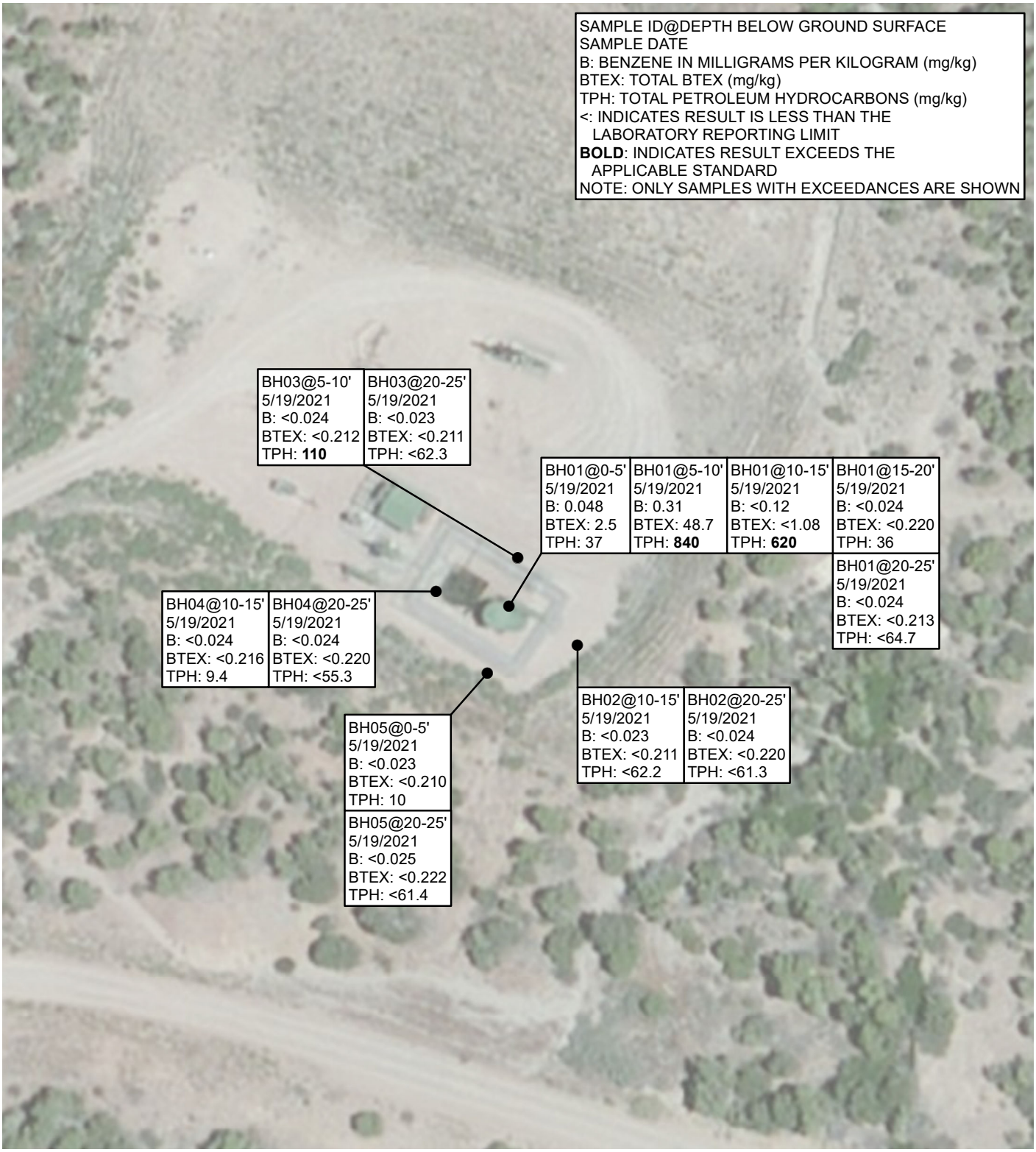

LEGEND

● SOIL BORING

0 60 120

Feet

N

FIGURE 4
SOIL ANALYTICAL RESULTS
SAN JUAN 32-9 #41A
LOT 20 SEC 31-T32N-R9W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017821021_SAN JUAN 32-9 #41A\017821021_FIG02_SOIL ANALYTICAL RESULTS_MAY_2021.mxd

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS

SAN JUAN 32-9 #41A
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Soil Sample Identification	Sample Date	PID Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (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)
NMOCD Clorusre Criteria		NE	**10**	NE	NE	NE	**50**	600	NE	NE	NE	**100**
BH01 @ 0'-5'	5/19/2021	2,381	0.048	0.34	0.11	2.0	2.5	<61	25	12	<46	37
BH01 @ 5'-10'	5/19/2021	2403	0.31	7.7	2.7	38	48.7	<60	490	240	110	**840**
BH01 @ 10'-15'	5/19/2021	1018	<0.12	<0.24	<0.24	<0.48	<1.08	<60	200	420	<45	**620**
BH01 @ 15'-20'	5/19/2021	169.3	<0.024	<0.049	<0.049	<0.098	<0.220	<60	15	21	<47	36
BH01 @ 20'-25'	5/19/2021	60.3	<0.024	<0.047	<0.047	<0.095	<0.213	<60	<4.7	<10	<50	<64.7
BH02 @ 10'-15'	5/19/2021	5.8	<0.023	<0.047	<0.047	<0.094	<0.211	<60	<4.7	<9.5	<48	<62.2
BH02 @ 20'-25'	5/19/2021	4.5	<0.024	<0.049	<0.049	<0.098	<0.220	<60	<4.9	<9.4	<47	<61.3
BH03 @ 5'-10'	5/19/2021	18.4	<0.024	<0.047	<0.047	<0.094	<0.212	<60	<4.7	110	<49	**110**
BH03 @ 20'-25'	5/19/2021	3.8	<0.023	<0.047	<0.047	<0.094	<0.211	<60	<4.7	<9.6	<48	<62.3
BH04 @ 10'-15'	5/19/2021	15.1	<0.024	<0.048	<0.048	<0.096	<0.216	<59	<4.8	9.4	<46	9.4
BH04 @ 20'-25'	5/19/2021	4.3	<0.024	<0.049	<0.049	<0.098	<0.220	<60	<4.9	<8.4	<42	<55.3
BH05 @ 0'-5'	5/20/2021	40.7	<0.023	<0.047	<0.047	<0.093	<0.210	140	<4.7	10	<48	10
BH05 @ 20'-25'	5/20/2021	5.2	<0.025	<0.049	<0.049	<0.099	<0.222	<60	<4.9	<9.5	<47	<61.4

Notes:
PID - Photoionization detector
ppm - part per million
mg/kg - milligrams per kilogram
BTEX - benzene, toluene, ethylbenzene, and total xylenes analyzed by US EPA method 8021B
GRO - gasoline range organics analyzed by US EPA method 8015D
DRO - Diesel Range Organics analyzed by US EPA method 8015D
MRO - motor oil range organics analyzed by US EPA method 8015D
TPH - total petroleum hydrocarbons (sum of GRO, DRO and MRO)
NMOCD - New Mexico Oil Conservation Division
NE - not established
Bold - indicates value exceeds stated NMOCD closure criteria
< - indicates value is less than the stated laboratory reporting limit

ATTACHMENT 1 – BORING LOGS

N

Advancing Opportunity

848 E. 2nd Ave

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH01	Project: SJ 32-9 #41A
Date: 5/19/21	Project Number: 017820016
Logged By: Eric Carroll	Drilled By: MO-TE Drilling
Elevation:	Detector: PID
Drilling Method: Hollow Stem/Air Rotary	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: ~~NA~~ 10'
Hole Diameter:	Depth to Liquid: NA
Screen Type: Schedule 40 PVC Slot: 0.010"	Diameter: 2" Length: ~~NA~~ 10'
Total Depth: 25'	Depth to Water: NA

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	DRY	2381	N		0				Loose, Sand & gravel, road base backfill strong HC odor	
					1					
					2					
	moist	1403	N		3				moist, med. Sand, ~~Some~~ few clay/silt poorly sorted cohesive	
					4					
					5					
	moist	2403	Y		6				Loose, moist, coarse sand, HC odor & stain, with gravel and cobbles	
					7					
					8				- - - - End of Staining @ ~8.25' - - - -	
	moist	136	N		9				Loose, moist, coarse sand, some fines no stain, slight odor	
					10					
					11					
	moist	1018	Y		12				Loose, black HC Stain, coarse Sand, (wtrd ss)	
					13					
					14					
	DRY	401	N		15				Dense, dry, lt ~~red~~ brown, ss fine to med grain few coarse gravel clasts	

LTE Advancing Opportunity

Boring/Well #	BH01
Project:	Howell M#1
Project #	017820016
Date	5/19/21

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	DRY	169.3	N		15–16				Dry, dense, fine-med grain SS with coarse clasts	Screen 16'-6'
	DRY	63.2	N		17–19				Dry dense, coarse grain SS well cemented	
	DRY	60.3	N		20–22				SAA	
	DRY	48.7	N		23–24				SAA	
					25–37					

N

Advancing Opportunity

848 E. 2nd Ave

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH02	Project: SJ 32-9 #41A
Date: 5/19/21	Project Number: 017820016
Logged By: Eric Carroll	Drilled By: MO-TE Drilling
Elevation:	Detector: PID
Drilling Method: Hollow Stem/Air Rotary	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth:	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
	Moist	4.2	N		0 1 2				Firm, dry, fine sand, some fines no S/O	
	moist	4.3	N		3 4 5				SAA no S/O	
	moist	0.8	N		6 7 8				SAA no S/O	
	DRY	0.7	N		9 10 11 12				Dense, yellow brown, fine grain SS no S/O	
	DRY	5.8	N		13 14 15				SAA no S/O	

Advancing Opportunity

Boring/Well #	BH02
Project:	Howell M#1
Project #	017820016
Date	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
					16				Dense, yellow brown, coarse SS well cemented	
	DRY	4.7	N		17					
					18					
					19					
					20					
					21					
	DRY	4.5	N		22				Dense, lt brown, coarse SS well cemented	
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					

N

Advancing Opportunity

848 E. 2nd Ave

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH03	Project: SJ 32-9 #41A
Date: 5/19/21	Project Number: 017820016
Logged By: Eric Carroll	Drilled By: MO-TE Drilling
Elevation:	Detector: PID
Drilling Method: Hollow Stem/Air Rotary	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth:	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	1.8	N		0				Loose, lt brown, Sand & gravel some fines	
					1					
					2					
	moist	6.2	N		3				Firm, dark red brown, clayey Sand	
					4					
					5					
	moist	18.4	N		6				~~Black~~ Dark brown firm, Sandy clay, little gravel Organic swampy odor	
					7					
					8					
					9					
					10				Sandstone	
					11					
					12				Dense, yellow brown, medium grain Sandstone w/ clasts well cemented	
	DRY	7.4	N		13					
					14					
					15					

1

LT Advancing Opportunity

Boring/Well #	BH03
Project:	~~Howell M#1~~
Project #	017820016
Date	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
	DRY	7.0	N		16				Dense, brown, coarse Sandstone w/ clasts no S/G	
					17					
					18					
					19					
					20					
					21					
	DRY	3.8	N		22				SAA no S/G	
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					

N

Advancing Opportunity

848 E. 2nd Ave

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH04	Project: SJ 32-9 #41A
Date: 5/19/21	Project Number: 017820016
Logged By: Eric Carroll	Drilled By: MO-TE Drilling
Elevation:	Detector: PID
Drilling Method: Hollow Stem/Air Rotary	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth:	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
					0				Dry loose, sand & gravel	
	moist	8.5	N		1					
					2					
					3				moist, brown, sand, some clay no S/O	
					4					
					5					
					6				moist, firm, dark brown, sandy clay, organic swampy odor	
	moist	0.7	N		7					
					8					
					9					
					10					
					11					
					12					
					13				moist, loose, fine sand, few silt, and gravel/cobbles	
	moist	15.1	N		14				Sandstone @ 13'	
					15					

Advancing Opportunity

Boring/Well #	BH64
Project:	Howell M#1
Project #	017820016
Date	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
	DRY	5.7	N		16				DRY, Dense, ~~co~~ medium grain Sandstone w/clasts well cemented	
					17					
					18					
					19					
					20					
	DRY	4.3	N		21				SAA NO S/O	
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					

N

Advancing Opportunity

848 E. 2nd Ave

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH05	Project: SJ 32-9 #41A
Date: 5/20/21	Project Number: 017820016
Logged By: Eric Carroll	Drilled By: MO-TE Drilling
Elevation:	Detector: PID
Drilling Method: Hollow Stem/Air Rotary	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter:	Depth to Liquid:
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth:	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
					0				Dry, loose, Sand & gravel	
	moist	40.7 ~~16.7~~	N		1				no S/O	
					2				moist, med dense, medium sand	
					3				some fines no S/O	
					4					
					5					
					6				SAA	
	moist	2.3	N		7					
					8					
					9					
					10				moist, med dense, fine sand,	
					11				little fines no S/O	
					12					
					13				moist, med dense, coarse sand	
	moist	14.3	N		14				no S/O	
					15				Sandstone @ 14'	

Advancing Opportunity

Boring/Well #	BH05
Project:	Howell M#1
Project #	017820016
Date	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
					15					
	DRY	5.6	N		16				Dry, Dense, yellow brown SS w/ clasts well cemented	
					17					
					18					
					19					
					20					
					21					
					22					
	DRY	5.2	N		23				SAA no S/O	
					24					
					25					
					26					
					27					
					28					
					29					
					30					
					31					
					32					
					33					
					34					
					35					
					36					
					37					

ATTACHMENT 2 – 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: clients.hallenvironmental.com

May 28, 2021

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

RE: SJ 32 9 41A OrderNo.: 2105881

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/20/2021 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 0-5'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 10:30:00 AM
Lab ID: 2105881-001 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	9.1		mg/Kg	1	5/21/2021 4:54:32 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/21/2021 4:54:32 PM
Surr: DNOP	112	70-130		%Rec	1	5/21/2021 4:54:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	25	4.7		mg/Kg	1	5/24/2021 10:39:48 AM
Surr: BFB	195	70-130	S	%Rec	1	5/24/2021 10:39:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.048	0.023		mg/Kg	1	5/24/2021 10:39:48 AM
Toluene	0.34	0.047		mg/Kg	1	5/24/2021 10:39:48 AM
Ethylbenzene	0.11	0.047		mg/Kg	1	5/24/2021 10:39:48 AM
Xylenes, Total	2.0	0.093		mg/Kg	1	5/24/2021 10:39:48 AM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	5/24/2021 10:39:48 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	61		mg/Kg	20	5/21/2021 2:25:23 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 5-10'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 10:40:00 AM
Lab ID: 2105881-002 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	240	9.4		mg/Kg	1	5/21/2021 9:54:14 PM
Motor Oil Range Organics (MRO)	110	47		mg/Kg	1	5/21/2021 9:54:14 PM
Surr: DNOP	84.4	70-130		%Rec	1	5/21/2021 9:54:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	490	24		mg/Kg	5	5/22/2021 7:14:36 AM
Surr: BFB	442	70-130	S	%Rec	5	5/22/2021 7:14:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.31	0.12		mg/Kg	5	5/22/2021 7:14:36 AM
Toluene	7.7	0.24		mg/Kg	5	5/22/2021 7:14:36 AM
Ethylbenzene	2.7	0.24		mg/Kg	5	5/22/2021 7:14:36 AM
Xylenes, Total	38	0.49		mg/Kg	5	5/22/2021 7:14:36 AM
Surr: 4-Bromofluorobenzene	122	70-130		%Rec	5	5/22/2021 7:14:36 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/21/2021 3:02:35 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 10-15'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 10:45:00 AM
Lab ID: 2105881-003 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	420	9.0		mg/Kg	1	5/21/2021 5:04:12 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/21/2021 5:04:12 PM
Surr: DNOP	122	70-130		%Rec	1	5/21/2021 5:04:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	200	24		mg/Kg	5	5/22/2021 7:38:17 AM
Surr: BFB	372	70-130	S	%Rec	5	5/22/2021 7:38:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	5/22/2021 7:38:17 AM
Toluene	ND	0.24		mg/Kg	5	5/22/2021 7:38:17 AM
Ethylbenzene	ND	0.24		mg/Kg	5	5/22/2021 7:38:17 AM
Xylenes, Total	ND	0.48		mg/Kg	5	5/22/2021 7:38:17 AM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	5	5/22/2021 7:38:17 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/21/2021 3:15:00 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 15-20'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 11:00:00 AM
Lab ID: 2105881-004 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	21	9.4		mg/Kg	1	5/21/2021 5:13:55 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/21/2021 5:13:55 PM
Surr: DNOP	120	70-130		%Rec	1	5/21/2021 5:13:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	15	4.9		mg/Kg	1	5/22/2021 8:01:59 AM
Surr: BFB	198	70-130	S	%Rec	1	5/22/2021 8:01:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 8:01:59 AM
Toluene	ND	0.049		mg/Kg	1	5/22/2021 8:01:59 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/22/2021 8:01:59 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/22/2021 8:01:59 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	5/22/2021 8:01:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/21/2021 3:27:24 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 20-25'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 11:30:00 AM
Lab ID: 2105881-005 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/21/2021 5:23:35 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/21/2021 5:23:35 PM
Surr: DNOP	134	70-130	S	%Rec	1	5/21/2021 5:23:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/22/2021 9:13:06 AM
Surr: BFB	88.8	70-130		%Rec	1	5/22/2021 9:13:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 9:13:06 AM
Toluene	ND	0.047		mg/Kg	1	5/22/2021 9:13:06 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/22/2021 9:13:06 AM
Xylenes, Total	ND	0.095		mg/Kg	1	5/22/2021 9:13:06 AM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	5/22/2021 9:13:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 2:50:01 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 10-15'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 12:30:00 PM
Lab ID: 2105881-006 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/21/2021 5:33:18 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/21/2021 5:33:18 PM
Surr: DNOP	126	70-130		%Rec	1	5/21/2021 5:33:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/22/2021 9:36:49 AM
Surr: BFB	88.1	70-130		%Rec	1	5/22/2021 9:36:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	5/22/2021 9:36:49 AM
Toluene	ND	0.047		mg/Kg	1	5/22/2021 9:36:49 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/22/2021 9:36:49 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/22/2021 9:36:49 AM
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	5/22/2021 9:36:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 3:02:25 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 20-25'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 1:10:00 PM
Lab ID: 2105881-007 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/21/2021 5:43:01 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/21/2021 5:43:01 PM
Surr: DNOP	128	70-130		%Rec	1	5/21/2021 5:43:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/22/2021 10:00:36 AM
Surr: BFB	88.9	70-130		%Rec	1	5/22/2021 10:00:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 10:00:36 AM
Toluene	ND	0.049		mg/Kg	1	5/22/2021 10:00:36 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/22/2021 10:00:36 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/22/2021 10:00:36 AM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	5/22/2021 10:00:36 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 3:14:50 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 5-10'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 2:30:00 PM
Lab ID: 2105881-008 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	110	9.8		mg/Kg	1	5/21/2021 5:52:49 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2021 5:52:49 PM
Surr: DNOP	120	70-130		%Rec	1	5/21/2021 5:52:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/22/2021 10:24:26 AM
Surr: BFB	92.5	70-130		%Rec	1	5/22/2021 10:24:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 10:24:26 AM
Toluene	ND	0.047		mg/Kg	1	5/22/2021 10:24:26 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/22/2021 10:24:26 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/22/2021 10:24:26 AM
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	5/22/2021 10:24:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 3:27:14 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 20-25'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 2:50:00 PM
Lab ID: 2105881-009 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/21/2021 6:02:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/21/2021 6:02:38 PM
Surr: DNOP	121	70-130		%Rec	1	5/21/2021 6:02:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/22/2021 10:48:16 AM
Surr: BFB	89.5	70-130		%Rec	1	5/22/2021 10:48:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	5/22/2021 10:48:16 AM
Toluene	ND	0.047		mg/Kg	1	5/22/2021 10:48:16 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/22/2021 10:48:16 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/22/2021 10:48:16 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	5/22/2021 10:48:16 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 3:39:39 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 10-15'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 3:30:00 PM
Lab ID: 2105881-010 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	9.4	9.1		mg/Kg	1	5/21/2021 6:12:30 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/21/2021 6:12:30 PM
Surr: DNOP	121	70-130		%Rec	1	5/21/2021 6:12:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/22/2021 11:12:02 AM
Surr: BFB	88.6	70-130		%Rec	1	5/22/2021 11:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 11:12:02 AM
Toluene	ND	0.048		mg/Kg	1	5/22/2021 11:12:02 AM
Ethylbenzene	ND	0.048		mg/Kg	1	5/22/2021 11:12:02 AM
Xylenes, Total	ND	0.096		mg/Kg	1	5/22/2021 11:12:02 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	5/22/2021 11:12:02 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	5/24/2021 3:52:03 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 **2105881**
Date Reported: **5/28/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 20-25'
Project: SJ 32 9 41A
Collection Date: 5/19/2021 4:00:00 PM
Lab ID: 2105881-011 **Matrix:** SOIL **Received Date:** 5/20/2021 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	5/21/2021 6:22:23 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	5/21/2021 6:22:23 PM
Surr: DNOP	104	70-130		%Rec	1	5/21/2021 6:22:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/22/2021 11:35:51 AM
Surr: BFB	89.5	70-130		%Rec	1	5/22/2021 11:35:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/22/2021 11:35:51 AM
Toluene	ND	0.049		mg/Kg	1	5/22/2021 11:35:51 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/22/2021 11:35:51 AM
Xylenes, Total	ND	0.098		mg/Kg	1	5/22/2021 11:35:51 AM
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	1	5/22/2021 11:35:51 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	5/24/2021 4:04:28 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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#: **2105881**

28-May-21

Client: HILCORP ENERGY

Project: SJ 32 9 41A

Sample ID: **MB-60175**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **60175**	RunNo: **77560**							
Prep Date: **5/21/2021**	Analysis Date: **5/21/2021**	SeqNo: **2753340**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-60175**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **60175**	RunNo: **77560**							
Prep Date: **5/21/2021**	Analysis Date: **5/21/2021**	SeqNo: **2753341**	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			

Sample ID: **MB-60211**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **60211**	RunNo: **77619**							
Prep Date: **5/24/2021**	Analysis Date: **5/24/2021**	SeqNo: **2755203**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-60211**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **60211**	RunNo: **77619**							
Prep Date: **5/24/2021**	Analysis Date: **5/24/2021**	SeqNo: **2755204**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	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#: **2105881**
28-May-21

Client: HILCORP ENERGY
Project: SJ 32 9 41A

Sample ID: **MB-60165**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **60165**	RunNo: **77563**							
Prep Date: **5/20/2021**	Analysis Date: **5/21/2021**	SeqNo: **2753501**	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	14		10.00		138	70	130			S

Sample ID: **LCS-60165**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **60165**	RunNo: **77604**							
Prep Date: **5/20/2021**	Analysis Date: **5/22/2021**	SeqNo: **2754505**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	118	68.9	141			
Surr: DNOP	5.9		5.000		118	70	130			

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#: **2105881**
28-May-21

Client: HILCORP ENERGY
Project: SJ 32 9 41A

Sample ID: **mb-60161**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **60161**	RunNo: **77587**							
Prep Date: **5/20/2021**	Analysis Date: **5/22/2021**	SeqNo: **2753650**	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	890		1000		88.7	70	130			

Sample ID: **lcs-60161**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **60161**	RunNo: **77587**							
Prep Date: **5/20/2021**	Analysis Date: **5/22/2021**	SeqNo: **2753651**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.4	78.6	131			
Surr: BFB	970		1000		97.3	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#: **2105881**

28-May-21

Client: HILCORP ENERGY

Project: SJ 32 9 41A

Sample ID: **mb-60161**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **60161**	RunNo: **77587**
Prep Date: **5/20/2021**	Analysis Date: **5/22/2021**	SeqNo: **2753713** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.5	70	130			

Sample ID: **LCS-60161**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **60161**	RunNo: **77587**
Prep Date: **5/20/2021**	Analysis Date: **5/22/2021**	SeqNo: **2753714** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.1	80	120			
Toluene	0.98	0.050	1.000	0	98.2	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.7	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	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: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2105881** RcptNo: **1**

Received By: **Juan Rojas** **5/20/2021 7:20:00 AM**

Completed By: **Sean Livingston** **5/20/2021 8:39:00 AM**

Reviewed By: JR 5/20/21

Chain of Custody

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

Log In

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

10

# of preserved bottles checked for pH: 5.20.21 (<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

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

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good				

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address:

Phone #:

email or Fax#: mkillough@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name:
~~SJ 32-9~~ SJ 32-9 #41A

Project #:

Project Manager:
Danny Burns - WSP

Sampler: Eric Carroll

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.1+0.1=1.2 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2105881	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)	Chloride
5/19	1030	Soil	BH01 0-5'	1 4oz	Cool	001	X	X									X
	1040		BH01 5-10'			002											
	1045		BH01 10-15'			003											
	1100		BH01 15-20'			004											
	1130		BH01 20-25'			005											
	1230		BH02 10-15'			006											
	1310		BH02 20-25			007											
	1430		BH03 5-10'			008											
	1450		BH03 20-25'			009											
	1530		BH04 10-15'			010											
	1600		BH04 20-25'			011											

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/19	1710	Eric Carroll	Chris Walker		5/19/21	1710
5/19/21	1830	Chris Walker		courier	5/20/21	7:20

Remarks:
Please cc: Daniel.Burns@wsp.com
Eric.Carroll@wsp.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.

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 32191

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 32191
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. OCD approves the proposed SVE pilot test. Provide date & time of implementation by October 6, 2022. 2. Submit follow up report of SVE pilot test. 3. Submit proposed remediation plan with SVE pilot test report 45 days after field work is completed. Include SVE system design, O & M requirements, & schedule of execution.	9/6/2022