State of New Mexico
Oil Conservation Division

Incident ID	nAPP2104155952
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?	<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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2104155952
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Mitch Killough Title: Environmental Specialist

Signature: Date: 4/26/2021

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

OCD Only

Received by: Jennifer Nobui Date: 6/30/21

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2104155952
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Application ID	

Remediation Plan

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

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

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

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Mitch Killough Title: Environmental Specialist

Signature: [signature] Date: 4/26/2021

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

OCD Only

Received by: Jennifer Nobui Date: 1/6/2022

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

Signature: Jennifer Nobui Date: 1/6/2022

WSP USA
848 East 2nd Ave
Durango, Colorado 81301
970 385 1096

April 26, 2021

District III
New Mexico Oil Conservation Division
1000 Rio Brazos
Aztec, New Mexico 87410

Re: Remediation Work Plan
Sandrock Water Gathering
Incident Number nAPP2104155952
San Juan County, New Mexico

To Whom it May Concern:

WSP USA Inc. (WSP), on behalf of Hilcorp Energy Company (Hilcorp), presents the following Remediation Work Plan detailing site investigation activities completed to date and proposed actions to address impacted soil resulting from a release of produced water from the Sandrock Water Gathering Produced Water Pipeline (Site). The Site is located in Unit O, Section 22, Township 31 North, Range 13 West, in San Juan County, New Mexico (Figure 1).

RELEASE BACKGROUND

On January 26, 2021, corrosion in a produced water pipeline caused a failure and release of approximately 20 barrels (bbls) of produced water. The release occurred off location on private land and flowed approximately 300 feet south and covered approximately 15,315 square feet.

Hilcorp reported the release to the New Mexico Oil Conservation Division (NMOCD) by submitting a Release Notification and Corrective Action Form C-141 (Form C-141) on February 10, 2021. The release was assigned Incident Number nAPP2104155952.

SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be less than 50 feet below ground surface (bgs) based on the nearest groundwater well data. The nearest groundwater well with depth to water data is New Mexico Office of the State Engineer (NMOSE) permitted well SJ-03351, located approximately 0.46 miles south of the Site. The well has a depth to groundwater of approximately 20 feet bgs and a total depth of approximately 42 feet bgs. The groundwater well is approximately 16 feet lower in elevation than the Site. The referenced well record is included in Attachment 2.

The closest continuously flowing water or significant watercourse to the Site is the Helton Ditch, an irrigation canal located approximately 130 feet west of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is

not located within an area underlain by unstable geology (low potential karst designation area by the Bureau of Land Management (BLM). The Site receptors are identified on Figure 1.

CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 100 mg/kg
- TPH: 100 mg/kg
- Chloride: 600 mg/kg

Additionally, the top four feet of reclaimed surface in the affected pasture must be comprised of non-waste containing, uncontaminated earthen material exhibiting chloride concentrations below 600 mg/kg, which was applied per NMAC 19.15.29.13.D (1). In Procedures for Implementation of the Spill Rule (Guidelines), NMOCD further interprets uncontaminated to include TPH concentrations below 100 mg/kg.

SITE DELINEATION ACTIVITIES

On April 7, 2021, WSP inspected the Site to evaluate the release extent and collect subsurface soil samples utilizing visual observations and information from Hilcorp personnel. WSP personnel advanced eleven boreholes (BH01 through BH11) via hollow-stem auger within the release extent to confirm the presence or absence of impact to soil. Boreholes BH01 and BH06 were located within the release extent to characterize source material and obtain vertical delineation; the remaining boreholes were located just outside the release extent to document lateral delineation.

Soil samples for boreholes BH01 through BH11 were collected at depths ranging from approximately 0-2 feet to 5 feet bgs. Two discrete soil samples, the highest field screening result and the terminus, were collected from each borehole based on field screening results for volatile aromatic hydrocarbons and chloride. WSP personnel collected 22 samples from 11 locations within the release extent. The release extent and soil sample locations were mapped using a handheld Global Positioning System (GPS) unit and are depicted on Figure 2.

Soil samples were screened for volatile aromatic hydrocarbons and chloride using a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Each soil sample was placed directly into pre-cleaned glass jars, labeled with location, date, time, sampler,

and method of analysis, and immediately placed on ice. The samples were transported to Hall Analytical Laboratories (Hall) in Albuquerque, New Mexico, at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures for analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-ORO by EPA Method 8015M/D, and chloride by EPA Method 300.0.

Laboratory analytical results indicated benzene, BTEX, and TPH were below laboratory detection limits in soil samples collected from boreholes BH01 and BH06. Samples collected from borehole BH01 and borehole BH06 exhibited elevated chloride concentrations. Since no BTEX or TPH impacts were observed in samples collected at the release source or the impacted area around BH06, additional samples collected from the release path were only analyzed for chloride.

SOIL ANALYTICAL RESULTS

Delineation soil samples from boreholes BH01 at 0-2', BH06 at 0'-2' and 4'-5', and BH08 at 0'-2' and 4'-5' exceeded the most stringent Table 1 Closure Criteria for chloride. Chloride concentrations in samples from all other borings are compliant with the assigned Table 1 Closure Criteria. Analytical results are summarized on Table 1 and laboratory analytical reports are included in Attachment 3.

PROPOSED REMEDIATION WORK PLAN

Chloride impacted soil associated with the Sandrock Waterline release appears to be generally restricted to the top five feet of the subsurface within the release footprint. Based on delineation soil sampling results from BH01, BH06, and BH08, soil in the release footprint and near BH08 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 to excavate to remove remaining chloride impacted soil.

Hilcorp will remove impacted soil from the release extent in the area shown on Figure 3 until confirmation samples meet Table 1 closure criteria. Following removal of impacted soil, Hilcorp requests to collect 5-point composite soil samples at a frequency of every 500 square feet from the sidewalls and floor of the excavation to confirm the lateral extent and vertical extent of chloride impacts have been removed. Final confirmation samples will document full delineation of the release in the areas of BH06 and BH08.

If you have any questions or comments, please do not hesitate to contact Mr. Devin Hencmann at (970) 385-1096.

Sincerely,

WSP USA Inc.

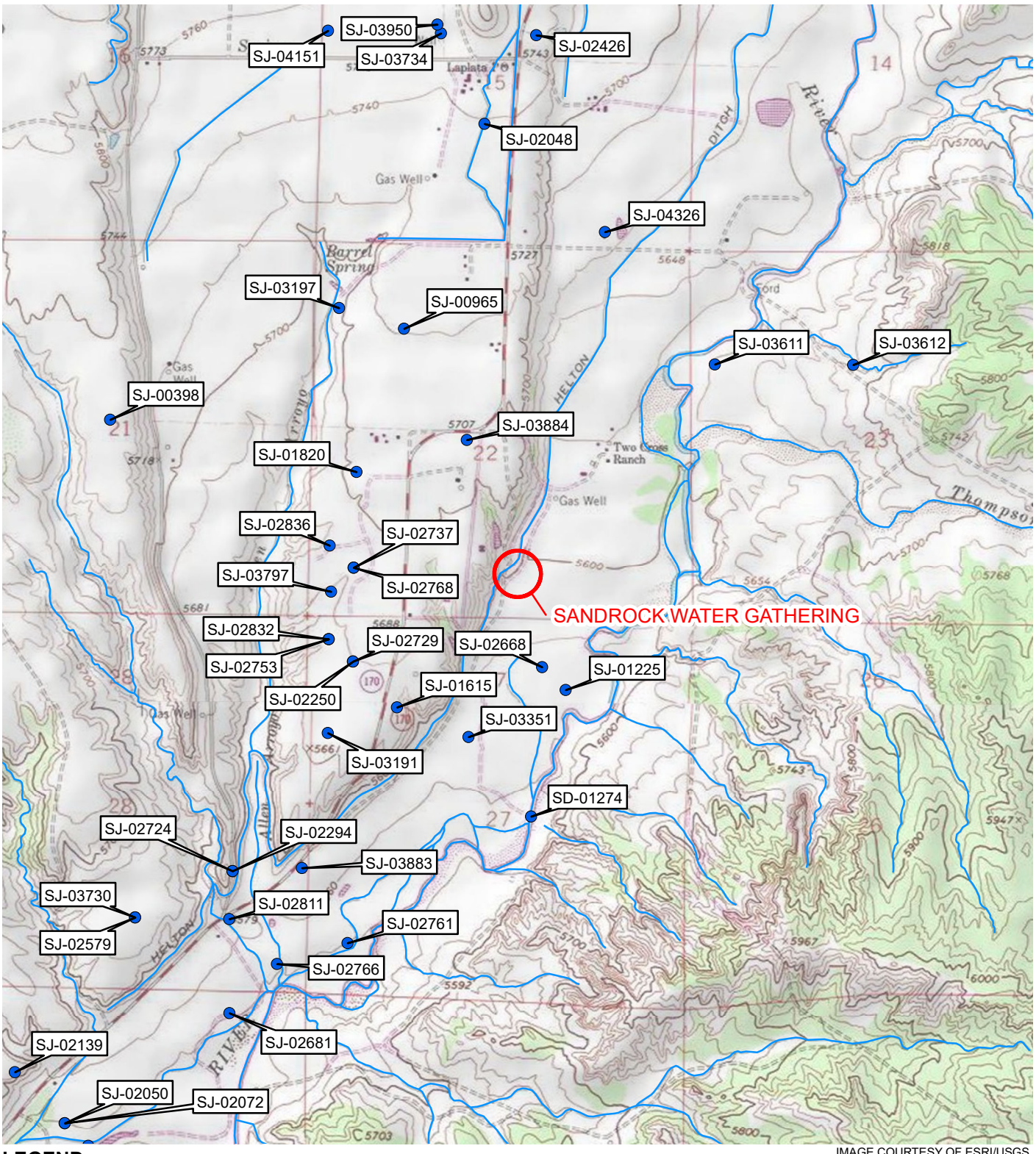
Devin Hencmann
Senior Consultant, Geologist

Ashley L. Ager, P.G.
Managing Director, Geologist

Attachments:

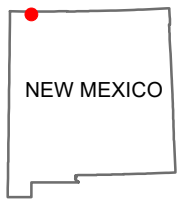
Figure 1	Site Location and Receptor Map
Figure 2	Site Map
Figure 3	Soil Analytical Results Map - Chloride
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	Lithologic/Sampling Log
Attachment 3	Laboratory Analytical Reports

FIGURES



LEGEND

- WATER WELL
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE
- LAKE/POND
- SITE LOCATION



0 2,000 4,000
Feet

N

FIGURE 1
SITE LOCATION MAP
SANDROCK WATER GATHERING
SWSE SEC 22 T31N R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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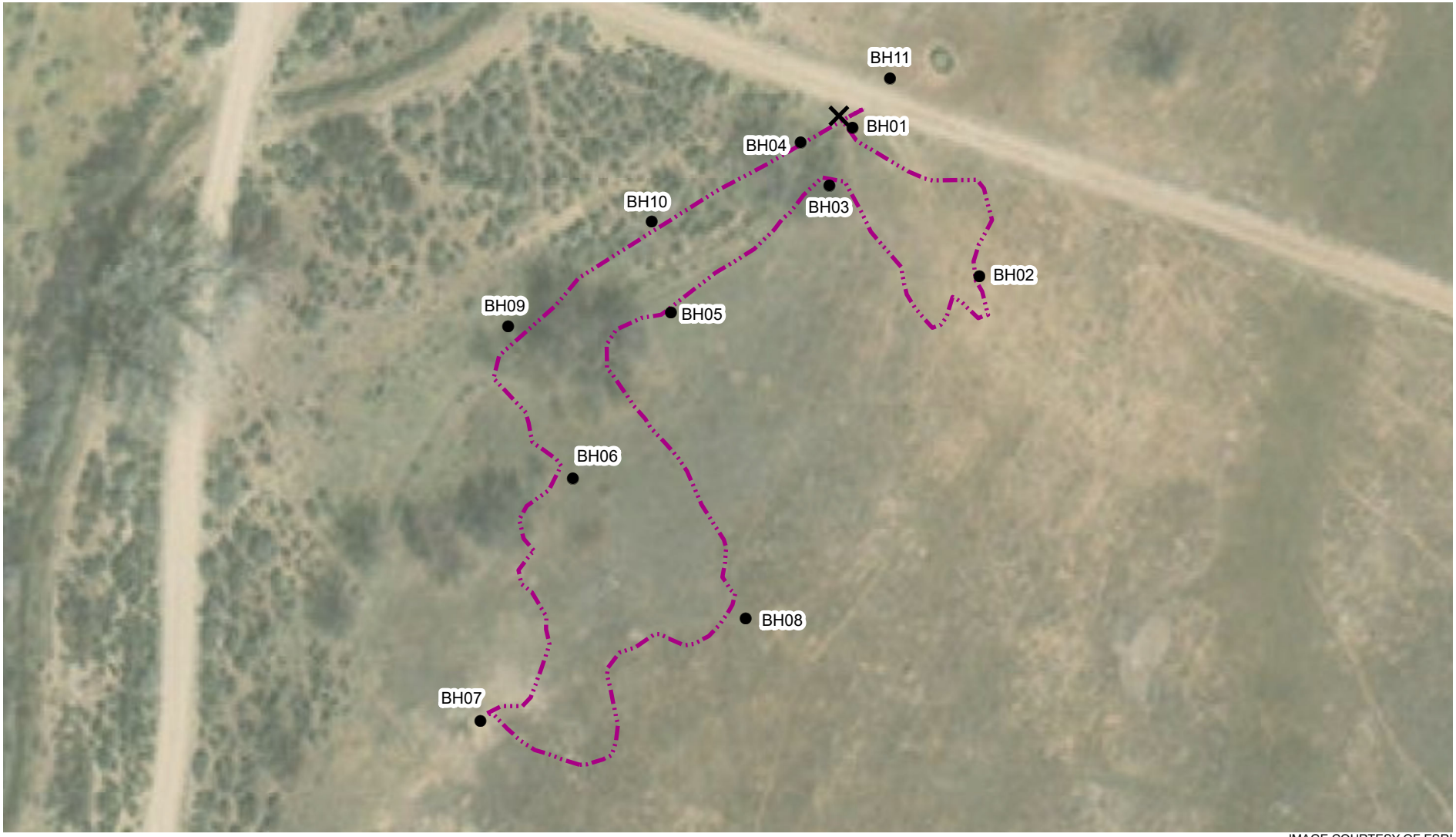

IMAGE COURTESY OF ESRI

LEGEND

- RELEASE LOCATION
- SOIL BORING
- SPILL RELEASE EXTENT

0 60 120

Feet

N

FIGURE 2
SITE MAP
SANDROCK WATER GATHERING
SWSE SEC 22 T31N R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

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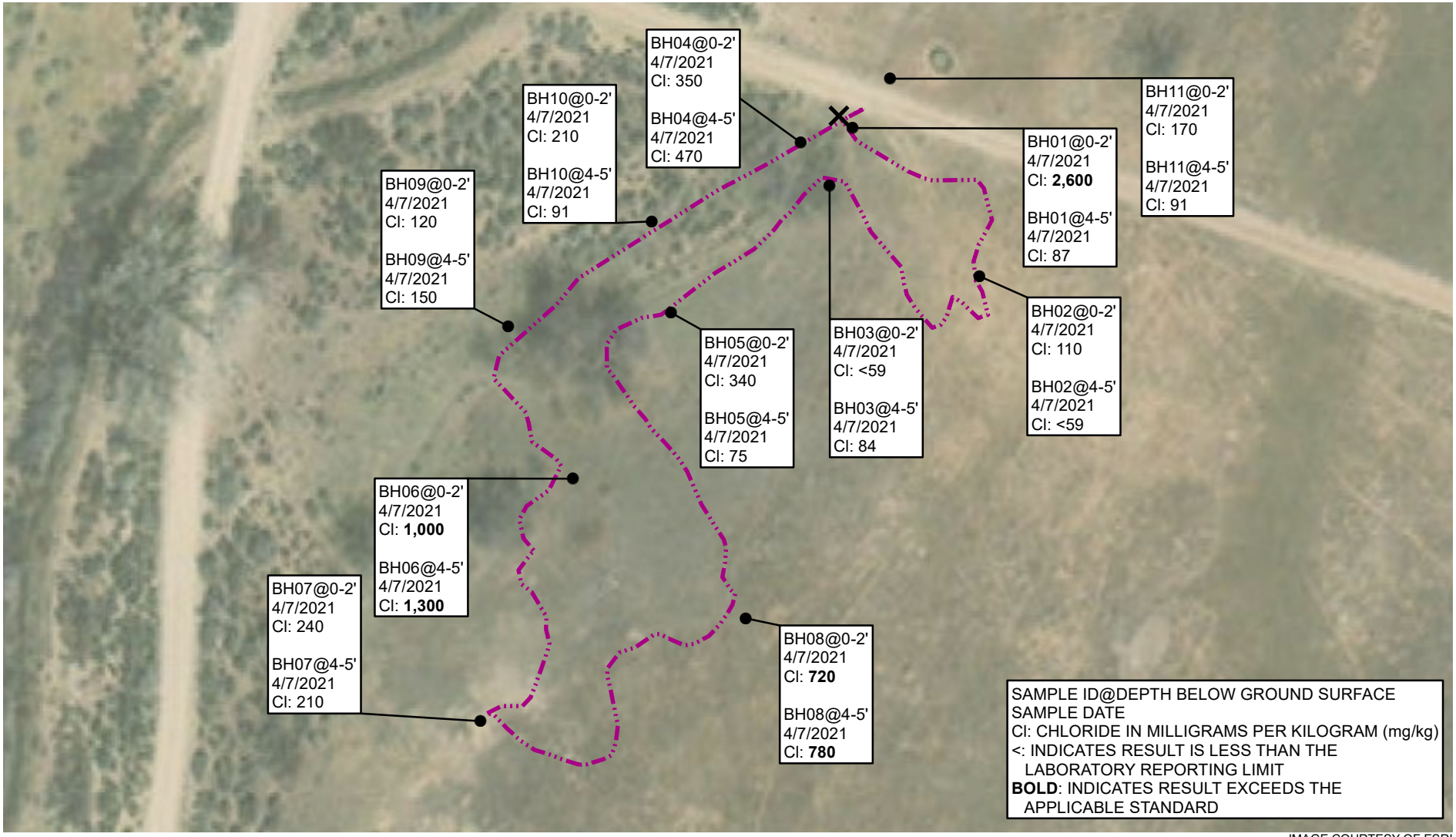


IMAGE COURTESY OF ESRI

LEGEND

- RELEASE LOCATION
- SOIL BORING
- SPILL RELEASE EXTENT

0 60 120
Feet

N

FIGURE 3
SOIL ANALYTICAL RESULTS - CHLORIDE
SANDROCK WATER GATHERING
SWSE SEC 22 T31N R13W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

P:\Hilcorp\GIS\MXD\017821020_SANDROCK WATER GATHERING\017821020_SANDROCK_FIG03_CHLORIDE_APRIL_2021.mxd

TABLES

TABLE 1

SOIL ANALYTICAL RESULTS
SANDROCK WATER GATHERING
SAN JUAN COUNTY, NEW MEXICO (a)

Soil Sample Identification	Sample Date	PID Reading (ppm)	Chloride 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 Table 1 Closure Criteria													
BH01 0-2'	4/7/2021	5.6	636	<0.023	<0.046	<0.046	<0.092	<0.207	**2,600**	<4.6	<9.8	<49	<63.4
BH01 4-5'	4/7/2021	3.2	152	<0.024	<0.048	<0.048	<0.097	<0.217	87	<4.8	<9.7	<49	<63.5
BH02 0-2'	4/7/2021	0.3	<124	NA	NA	NA	NA	NA	110	NA	NA	NA	NA
BH02 4-5'	4/7/2021	0.0	<124	NA	NA	NA	NA	NA	<59	NA	NA	NA	NA
BH03 0-2'	4/7/2021	24.7	<124	NA	NA	NA	NA	NA	<59	NA	NA	NA	NA
BH03 4-5'	4/7/2021	24.7	<124	NA	NA	NA	NA	NA	84	NA	NA	NA	NA
BH04 0-2'	4/7/2021	6.6	<124	NA	NA	NA	NA	NA	350	NA	NA	NA	NA
BH04 4-5'	4/7/2021	6.6	<124	NA	NA	NA	NA	NA	470	NA	NA	NA	NA
BH05 0-2'	4/7/2021	4.7	<124	NA	NA	NA	NA	NA	340	NA	NA	NA	NA
BH05 4-5'	4/7/2021	2.8	<124	NA	NA	NA	NA	NA	75	NA	NA	NA	NA
BH06 0-2'	4/7/2021	3.6	580	<0.024	<0.049	<0.049	<0.098	<0.220	**1,000**	<4.9	<9.2	<46	<60.1
BH06 4-5'	4/7/2021	3.1	<124	<0.024	<0.048	<0.048	<0.096	<0.216	**1,300**	<4.8	<9.6	<48	<62.4
BH07 0-2'	4/7/2021	1.7	152	NA	NA	NA	NA	NA	240	NA	NA	NA	NA
BH07 4-5'	4/7/2021	0.8	<124	NA	NA	NA	NA	NA	210	NA	NA	NA	NA
BH08 0-2'	4/7/2021	3.9	<124	NA	NA	NA	NA	NA	**720**	NA	NA	NA	NA
BH08 4-5'	4/7/2021	2.4	<124	NA	NA	NA	NA	NA	**780**	NA	NA	NA	NA
BH09 0-2'	4/7/2021	6.9	152	NA	NA	NA	NA	NA	120	NA	NA	NA	NA
BH09 4-5'	4/7/2021	4.7	<124	NA	NA	NA	NA	NA	150	NA	NA	NA	NA
BH10 0-2'	4/7/2021	8.7	180	NA	NA	NA	NA	NA	210	NA	NA	NA	NA
BH10 4-5'	4/7/2021	5.1	<124	NA	NA	NA	NA	NA	91	NA	NA	NA	NA
BH11 0-2'	4/7/2021	0.2	<124	NA	NA	NA	NA	NA	170	NA	NA	NA	NA
BH11 4-5'	4/7/2021	0.1	<124	NA	NA	NA	NA	NA	91	NA	NA	NA	NA
NMOCD Closure Criteria		NE		**10**	NE	NE	NE	**50**	**600**	NE	NE	NE	**100**

a/

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
PID - photo-ionization detector
ppm - parts per million
TPH - total petroleum hydrocarbon (sum of GRO, DRO, and MRO)
< - indicates result is less than the stated laboratory reporting limit
Bold - indicates value exceeds stated NMOCD Closure Criteria

ATTACHMENT 1: REFERENCED WELL RECORD

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	SJ 03351	2	4	1	27	31N	13W	215381	4085619*

Driller License:	1479	**Driller Company:**	THREE 3-D DRILLING		
Driller Name:	DEE GILES				
Drill Start Date:	05/23/2003	**Drill Finish Date:**	05/23/2003	**Plug Date:**	
Log File Date:	05/27/2003	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	30 GPM
Casing Size:	6.63	**Depth Well:**	42 feet	**Depth Water:**	20 feet

Water Bearing Stratifications:	Top	Bottom	Description
	30	37	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	28	40

***UTM location was derived from PLSS - see Help**

ATTACHMENT 2: LITHOLOGIC/SAMPLING LOG

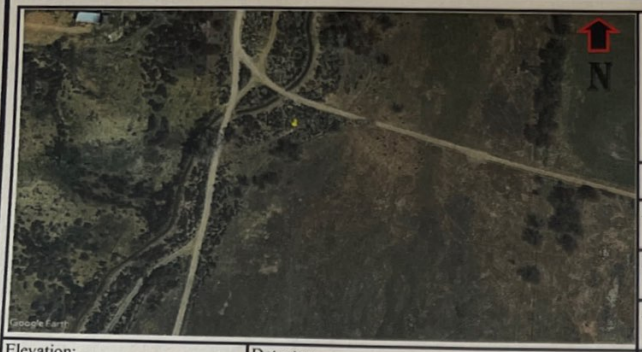
WSP USA INC

848 East 2nd Avenue
Durango, CO 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH01	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 9'	Depth to Water: 6.5

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	m	5.6	N	BH01 0-2'	0 1 2	1		SM	moist, loose, red brown, silty sand no stain/odor Cl⁻ = 4.2 636	
	m	4.1	N		3 4	2		SM	SAA Cl⁻ = 3.2 392	
	m	3.2		BH01 4-5'	5 6	3		SM	SAA Cl⁻ = 1.8 152	
	w	2.2			7 8	4		SC	wet, cohesive, sand, some clay Dark brown GW @ 6.5' Cl⁻ 1.2 <174	
		2.1			9 10 11 12 13 14 15	5		SC	~~tw~~ SAA Cl⁻ 0.4 <175	



WSP USA INC

848 East 2nd Avenue
Durango, CO 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH02	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Drilling Method: Hollow Stem	Sampling Method: Continuous
Seal: Bentonite	Grout: Bentonite
Casing Type: Schedule 40 PVC — Diameter: 2" — Length: NA	Hole Diameter: 6" — Depth to Liquid: NA
Screen Type: Schedule 40 PVC — Slot: 0.010" — Diameter: 2" — Length: NA	Total Depth: 8' — Depth to Water: 6'
Elevation: 6,000 — Detector: PID	
Gravel Pack: 10-20 Silica Sand	

Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion
	m	0.3	N	BH01 0-2	0 1 2	1		SM	moist dark brown, silty sand few clay, w/organics Cl⁻ = 1.0 < 124	
	m	0.0	N		3 4	2		SM	SAA Cl⁻ = 0.8 < 124	
	m	0.0	N	BH01 4-5	5 6	3		SM	moist, dark brown, silty sand little clay Cl⁻ = 0.6 < 124	
	Vm	0.0	N		7 8	4		SC	Gw @ 6'-6.5' wet Dark brown clayey sand	
					9 10 11 12 13 14 15					

WSP USA INC

848 East 2nd Avenue
Durango, CO 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH03	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length:
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length:
Total Depth: 5'	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
	m	24.7	N		0					
					1	1		SM	moist dark brown silty sand Cl⁻ = 0.8 < 124	
					2					
					3	2		SM	moist, red brown silty sand Cl⁻ = 0.8 < 124	
					4					
					5	3		SC	moist, brown, silty sand, few clay Cl⁻ 0.6 < 124	
					6					
					7					
					8					
					9					
					10					
					11					
					12					
					13					
					14					
					15					

WSP USA INC

848 East 2nd Avenue

Durango, CO 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH04	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 5'	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
	M	6.6	N		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 2 3		SM SM SC	moist, red brown silty sand Cl⁻ = 0.4 <124 SAA Cl⁻ = 0.4 <124 moist brown, sand, some silt and clay cohesive Cl⁻ = 0.4 <124	

WSP USA INC

848 East 2nd Avenue
Durango, CO 81301

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH05	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 5'	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
	m	4.7	N	BH05 0-2	0 1	1		SM	moist, red brown, silty sand Cl⁻ 0.4 ≤124	
	m	3.1	N		2 3	2		SM	SAA Cl⁻ 0.4 ≤124	
	m	2.8	N	BH05 4-5	4 5 6	3		SC	moist brown, sand, some silt & clay cohesive Cl⁻ 0.2 ≤124	
					7 8 9 10 11 12 13 14 15					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH06	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Drilling Method: Hollow Stem	Sampling Method: Continuous
Seal: Bentonite	Grout: Bentonite
Elevation: 6,000	Detector: PID
Gravel Pack: 10-20 Silica Sand	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Hole Diameter: 6"	Depth to Liquid: NA
Total Depth: 5'	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
	m	3.6	N	BH06 0-2	0	1		SM	moist, red brown, silty sand	
					1				Cl⁻ = 4.0 580	
					2					
	m	3.4	N		3	2			SAA	
					4				Cl⁻ = 2.8 312	
	m	3.1	N	BH06 4-5	5	3			moist, brown, sand, some clay & silt, cohesive	
					6				Cl⁻ = 1.4 < 124	
					7					
					8					
					9					
					10					
					11					
					12					
					13					
					14					
					15					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH07	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000 / Detector: PID	Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite	Grout: Bentonite
Casing Type: Schedule 40 PVC	Diameter: 2" / Length: NA	Hole Diameter: 6" / Depth to Liquid: NA
Screen Type: Schedule 40 PVC / Slot: 0.010"	Diameter: 2" / Length: NA	Total Depth: 5' / 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
	m	1.7	N	BH07 0-2	0 1 2	1			moist, red brown, silty sand Cl⁻ = 1.8 152	
	m	1.1	N		3 4	2			SAA = Cl⁻ = 1.6 124	
	m	0.8	N	BH07 4-5	5 6	3			moist, brown, sand, some clay & silt, cohesive Cl⁻ = 0.8 < 124	
					7 8 9 10 11 12 13 14 15					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH08	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000 / Detector: PID	Drilling Method: Hollow Stem / Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite / Grout: Bentonite
Casing Type: Schedule 40 PVC	Diameter: 2" / Length: NA / Hole Diameter: 6" / Depth to Liquid: NA
Screen Type: Schedule 40 PVC / Slot: 0.010"	Diameter: 2" / Length: NA / Total Depth: 5' / 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
	m	3.9	N	BH08 0-2	0–2	1			moist, red brown, silty sand Cl⁻ = 1.6 124	
	m	2.7	N		2–4	2			SAA Cl⁻ = 1.2 < 124	
	m	2.4	N	BH08 4-5	4–6	3			moist, brown, cohesive, sand some clay & silt Cl⁻ = 0.6 < 124	

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH09	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 6"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 5'	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
	m	6.9	N	BH09 0-2	0 1 2	1			moist, red brown, loose sand Cl⁻ = 1.8 152	
	m	4.9	N		3 4	2			moist, red brown, loose, sand Cl⁻ = 1.4 <124	
	m	4.7	N	BH09 4-5	5 6	3			moist, brown, cohesive, sand some clay & silt Cl⁻ = 0.8 <124	
					7 8 9 10 11 12 13 14 15					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH10		Project: Sandrock Water Gathering	
Date: 4/7/2021		Project Number:	
Logged By: Eric Carroll		Drilled By: Hilcorp	
Elevation: 6,000	Detector: PID	Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand		Seal: Bentonite	Grout: Bentonite
Casing Type: Schedule 40 PVC		Diameter: 2" Length: NA	Hole Diameter: 6" / Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010"	Diameter: 2" Length: NA	Total Depth: 5' / 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
	m	8.7	N	BH10 0-2	0 1 2	1		SM	moist, red brown, loose, Silty Sand Cl⁻ = 2.0 180	
	m	7.6	N		3 4	2		SM	SAA Cl⁻ = 1.6 124	
	m	5.11	N	BH10 4-5	5 6	3		SC	moist, brown, cohesive, sand some silt & clay Cl⁻ = 0.8 < 124	
					7 8 9 10 11 12 13 14 15					

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: BH11	Project: Sandrock Water Gathering
Date: 4/7/2021	Project Number:
Logged By: Eric Carroll	Drilled By: Hilcorp
Elevation: 6,000	Detector: PID
Drilling Method: Hollow Stem	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand	Seal: Bentonite
Grout: Bentonite	
Casing Type: Schedule 40 PVC	Diameter: 2" Length: NA
Hole Diameter: 6'	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010" Diameter: 2" Length: NA
Total Depth: 5'	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
	m	0.2	N		0	1			moist, red brown, loose, sand	
					1				$Cl^- = 0.2$ <124	
					2				SAA	
	m	0.1	N		3	2			$Cl^- = 0.2$ <124	
					4				SAA	
	m	0.1	N		5	3			$Cl^- = 0.2$ <124	
					6					
					7					
					8					
					9					
					10					
					11					
					12					
					13					
					14					
					15					

ATTACHMENT 3: LABORATORY ANALYTICAL RESULTS

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

April 16, 2021

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

RE: Sandrock Water Gathering OrderNo.: 2104441

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 22 sample(s) on 4/9/2021 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 8:30:00 AM
Lab ID: 2104441-001 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/10/2021 10:20:58 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/10/2021 10:20:58 PM
Surr: DNOP	103	70-130		%Rec	1	4/10/2021 10:20:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/10/2021 8:09:00 PM
Surr: BFB	96.6	70-130		%Rec	1	4/10/2021 8:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	4/10/2021 8:09:00 PM
Toluene	ND	0.046		mg/Kg	1	4/10/2021 8:09:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	4/10/2021 8:09:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	4/10/2021 8:09:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	4/10/2021 8:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	2600	150		mg/Kg	50	4/15/2021 4:30:44 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH01 4-5'
Project: Sandrock Water Gathering **Collection Date:** 4/7/2021 8:45:00 AM
Lab ID: 2104441-002 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/10/2021 10:31:03 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/10/2021 10:31:03 PM
Surr: DNOP	113	70-130		%Rec	1	4/10/2021 10:31:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/10/2021 8:29:00 PM
Surr: BFB	96.5	70-130		%Rec	1	4/10/2021 8:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/10/2021 8:29:00 PM
Toluene	ND	0.048		mg/Kg	1	4/10/2021 8:29:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/10/2021 8:29:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/10/2021 8:29:00 PM
Surr: 4-Bromofluorobenzene	85.3	70-130		%Rec	1	4/10/2021 8:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	87	60		mg/Kg	20	4/14/2021 7:48:37 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 9:15:00 AM
Lab ID: 2104441-003 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	110	60		mg/Kg	20	4/14/2021 8:01:01 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 9:30:00 AM
Lab ID: 2104441-004 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	4/14/2021 8:13:26 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 9:45:00 AM
Lab ID: 2104441-005 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	4/14/2021 8:25:50 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:00:00 AM
Lab ID: 2104441-006 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	84	60		mg/Kg	20	4/15/2021 5:07:58 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:10:00 AM
Lab ID: 2104441-007 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	350	59		mg/Kg	20	4/15/2021 5:20:23 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:15:00 AM
Lab ID: 2104441-008 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	470	61		mg/Kg	20	4/15/2021 5:57:35 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:30:00 AM
Lab ID: 2104441-009 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	340	60		mg/Kg	20	4/15/2021 6:34:49 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:40:00 AM
Lab ID: 2104441-010 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	75	60		mg/Kg	20	4/15/2021 6:47:13 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 10:55:00 AM
Lab ID: 2104441-011 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/10/2021 10:41:05 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/10/2021 10:41:05 PM
Surr: DNOP	104	70-130		%Rec	1	4/10/2021 10:41:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/10/2021 8:49:00 PM
Surr: BFB	99.5	70-130		%Rec	1	4/10/2021 8:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/10/2021 8:49:00 PM
Toluene	ND	0.049		mg/Kg	1	4/10/2021 8:49:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/10/2021 8:49:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/10/2021 8:49:00 PM
Surr: 4-Bromofluorobenzene	87.5	70-130		%Rec	1	4/10/2021 8:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	1000	60		mg/Kg	20	4/15/2021 6:59:37 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:00:00 AM
Lab ID: 2104441-012 **Matrix:** SOIL
Received Date: 4/9/2021 8:50:00 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	4/10/2021 10:51:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/10/2021 10:51:06 PM
Surr: DNOP	117	70-130		%Rec	1	4/10/2021 10:51:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/10/2021 9:09:00 PM
Surr: BFB	101	70-130		%Rec	1	4/10/2021 9:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/10/2021 9:09:00 PM
Toluene	ND	0.048		mg/Kg	1	4/10/2021 9:09:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/10/2021 9:09:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/10/2021 9:09:00 PM
Surr: 4-Bromofluorobenzene	89.2	70-130		%Rec	1	4/10/2021 9:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	1300	59		mg/Kg	20	4/15/2021 7:12:02 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:15:00 AM
Lab ID: 2104441-013 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	240	60		mg/Kg	20	4/15/2021 7:24:26 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:20:00 AM
Lab ID: 2104441-014 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	210	60		mg/Kg	20	4/14/2021 9:07:39 AM

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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH08 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:30:00 AM
Lab ID: 2104441-015 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	720	60		mg/Kg	20	4/14/2021 9:22:52 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH08 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:40:00 AM
Lab ID: 2104441-016 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	780	60		mg/Kg	20	4/14/2021 10:42:45 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH09 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 11:55:00 AM
Lab ID: 2104441-017 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	120	60		mg/Kg	20	4/14/2021 11:19:57 AM

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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH09 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 12:10:00 PM
Lab ID: 2104441-018 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	150	61		mg/Kg	20	4/14/2021 11:32:21 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH10 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 12:20:00 PM
Lab ID: 2104441-019 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	210	60		mg/Kg	20	4/14/2021 11:44:46 AM

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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH10 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 12:30:00 PM
Lab ID: 2104441-020 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	91	60		mg/Kg	20	4/14/2021 11:57:11 AM

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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH11 0-2'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 12:40:00 PM
Lab ID: 2104441-021 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	170	60		mg/Kg	20	4/14/2021 12:09:35 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 **2104441**
Date Reported: **4/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH11 4-5'
Project: Sandrock Water Gathering
Collection Date: 4/7/2021 12:45:00 PM
Lab ID: 2104441-022 **Matrix:** SOIL **Received Date:** 4/9/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	91	60		mg/Kg	20	4/14/2021 12:22:00 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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#: **2104441**
16-Apr-21

Client: HILCORP ENERGY
Project: Sandrock Water Gathering

Sample ID: **MB-59397**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **59397**	RunNo: **76658**							
Prep Date: **4/14/2021**	Analysis Date: **4/14/2021**	SeqNo: **2717209**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-59397**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **59397**	RunNo: **76658**							
Prep Date: **4/14/2021**	Analysis Date: **4/14/2021**	SeqNo: **2717210**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.2	90	110			

Sample ID: **MB-59387**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **59387**	RunNo: **76658**							
Prep Date: **4/13/2021**	Analysis Date: **4/14/2021**	SeqNo: **2717239**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-59387**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **59387**	RunNo: **76658**							
Prep Date: **4/13/2021**	Analysis Date: **4/14/2021**	SeqNo: **2717240**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Sample ID: **MB-59409**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **59409**	RunNo: **76704**							
Prep Date: **4/14/2021**	Analysis Date: **4/15/2021**	SeqNo: **2718612**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-59409**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **59409**	RunNo: **76704**							
Prep Date: **4/14/2021**	Analysis Date: **4/15/2021**	SeqNo: **2718613**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.0	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#: **2104441**
16-Apr-21

Client: HILCORP ENERGY
Project: Sandrock Water Gathering

Sample ID: **MB-59328**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **59328**	RunNo: **76589**
Prep Date: **4/9/2021**	Analysis Date: **4/10/2021**	SeqNo: **2713883** 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	9.3		10.00		92.9	70	130			

Sample ID: **LCS-59328**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **59328**	RunNo: **76589**
Prep Date: **4/9/2021**	Analysis Date: **4/10/2021**	SeqNo: **2713886** 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	92.7	68.9	141			
Surr: DNOP	5.0		5.000		101	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#: **2104441**
16-Apr-21

Client: HILCORP ENERGY
Project: Sandrock Water Gathering

Sample ID: **lcs-59327** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **59327** RunNo: **76606**
Prep Date: **4/9/2021** Analysis Date: **4/10/2021** SeqNo: **2714255** 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	100	78.6	131			
Surr: BFB	1200		1000		117	70	130			

Sample ID: **mb-59327** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **59327** RunNo: **76606**
Prep Date: **4/9/2021** Analysis Date: **4/10/2021** SeqNo: **2714256** 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	960		1000		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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2104441**
16-Apr-21

Client: HILCORP ENERGY
Project: Sandrock Water Gathering

Sample ID: **lcs-59327**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **59327**	RunNo: **76606**							
Prep Date: **4/9/2021**	Analysis Date: **4/10/2021**	SeqNo: **2714279**	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	93.6	80	120			
Toluene	0.93	0.050	1.000	0	92.9	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.3	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.3	80	120			
Surr: 4-Bromofluorobenzene	0.89		1.000		88.7	70	130			

Sample ID: **mb-59327**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **59327**	RunNo: **76606**							
Prep Date: **4/9/2021**	Analysis Date: **4/10/2021**	SeqNo: **2714280**	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	0.88		1.000		88.2	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

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: 2104441 RcptNo: 1

Received By: Cheyenne Cason 4/9/2021 8:50:00 AM

Completed By: Desiree Dominguez 4/9/2021 9:21:05 AM DD

Reviewed By: SPA 4.9.21

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 ☑ JO

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: 4/9/21 (<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	4.2	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☑ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Sandrock Water Gathering

Project #:

Project Manager: Danny Burns - WSP

Sampler: Eric Carroll
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp (including CF): 4.3-0.1=4.2 (°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. 2104441	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
4/7	8:30	Soil	BH01 0'-2'	1 4oz	Cool	-001	X	X									X
	8:45		BH01 4'-5'			-002	X	X									X
	9:15		BH02 0'-2'			-003											X
	9:30		BH02 4'-5'			-004											X
	9:45		BH03 0'-2'			-005											X
	10:00		BH03 4'-5'			-006											X
	10:10		BH04 0-2'			-007											X
	10:15		BH04 4'-5'			-008											X
	10:30		BH05 0-2'			-009											X
	10:40		BH05 4'-5'			-010											X
	10:55		BH06 0-2'			-011	X	X									X
	11:06		BH06 4'-5'			-012	X	X									X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/8	1400				4/8/21	1420
4/8/21	1811			Courier	4/9/21	0850

Remarks:
Please Hold BH02 - BH05 for BTEX & TPH

cc: 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.

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☒ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Sandrock Water Gathering

Project #:

Project Manager: Danny Burns - WSP

Sampler: Eric Carroll

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.3 - ~~0.2~~ 0.1 = 4.2 (°C)

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

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4/7	1115	Soil	BH07 0-2'	1 4oz	Cool	-013											X
	1120		BH07 4'-5'			-014											X
	1130		BH08 0-2'			-015											X
	1140		BH08 4'-5'			-016											X
	1155		BH09 0-2'			-017											X
	1210		BH09 4'-5'			-018											X
	1220		BH10 0-2'			-019											X
	1230		BH10 4'-5'			-020											X
	1240		BH11 0-2'			-021											X
	1245		BH11 4'-5'			-022											X

Analysis Request

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Remarks: Please hold for BTEX & TPH

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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 34529

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 34529
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
csmith	If Hilcorp elects to collect a background sample pursuant to 19.15.29.12.D(1)NMAC Hilcorp must get pre approval of the background sample location prior to collection.	1/6/2022
csmith	OCD denies HEC request for alternative sampling size of 500 square feet per 5 point composite sample. However, OCD approves 400 square feet per 5 point composite sample.	1/6/2022
jnobui	HEC needs to submit a closure report pursuant to 19.15.29.12.E NMAC no later than April 8, 2022.	1/6/2022