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

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

Incident ID	nAPP2200560379
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Mitch Killough	Contact Telephone 713-757-5247
Contact email mkillough@hilcorp.com	Incident # nAPP2200560379
Contact mailing address 1111 Travis Street, Houston, Texas 77002	

Location of Release Source

Latitude 36.878617 Longitude -108.180276

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Sandrock North Water Line (*located approx. 1,090 ft northwest of the Payne 3E wellsite)*	Site Type 4-inch Produced Water Line
Date Release Discovered 12/21/2021 @ 15:30 pm (MT)	API# 30-045-25953 *(nearby Payne 3E wellsite)*

Unit Letter	Section	Township	Range	County
D	26	31N	13W	San Juan

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 1.56	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A 4-inch produced water line froze and ruptured due to cold weather in the area, which allowed for spilled fluid to migrate outside of the pipeline ROW horizontally 570 ft to the west and 160 ft to the north. The spilled fluids that flowed to the west did enter an unnamed, ephemeral water feature that was dry at the time of the incident. However, the fluids did not enter any continuous flowing water features. The fluids that flowed to the north followed an existing lease road and terminated on the west side of the road. Immediately upon discovery, Hilcorp operators isolated nearby wells. The source of the release was shut-in and the line will not be returned to service until all necessary repairs have been addressed. OCD will be notified 48 hours prior to closure sampling.

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Per 19.15.29.7.A, a major release includes an unauthorized release of a volume that may with reasonable probability reach a watercourse. During this event, the spilled fluids migrated outside of the pipeline ROW and flowed into an unnamed, ephemeral water feature. However, it should be noted that the water feature was dry at the time of the release.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
On December 22, 2021 at 14:32 pm (MT), Cory Smith (NMOCD), Ryan Joyner (BLM-FFO), and Abiodun Adeloye (BLM-FFO) were notified via email.

Initial Response

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

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: __Mitch Killough_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: 1/05/2022_____

email: ___mkillough@hilcorp.com_____ Telephone: ____713-757-5247_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2200560379
District RP	
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Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	~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	nAPP2200560379
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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: 2/11/2022_____

email: ___mkillough@hilcorp.com_____ Telephone: ____713-757-5247_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2200560379
District RP	
Facility ID	
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: _____ _____ Date: 2/11/2022_____

email: ___mkillough@hilcorp.com_____ Telephone: ____713-757-5247_____

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2200560379
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: __Mitch Killough_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: 7/6/2022_____

email: ___mkillough@hilcorp.com_____ Telephone: ____713-757-5247_____

OCD Only

Received by: _____ Date**:** _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Nelson Velez Date**:** 09/12/2022

Printed Name: Nelson Velez Title: Environmental Specialist – Adv

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Friday, February 11, 2022 3:51 PM
To: Hyde, Stuart <Stuart.Hyde@wsp.com>
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 81037

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

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAPP2200560379,
with the following conditions:

- None

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Nelson Velez
Environmental Specialist - Advanced
505-469-6146
Nelson.Velez@state.nm.us

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

-LAEmHhHzdJzBITWfa4Hgs7pbKI

Memorandum

To: Nelson Velez, New Mexico Oil Conservation Division (NMOCD)

From: Mitch Killough, Hilcorp Energy Company (Hilcorp)

Date: July 6, 2022

Subject: Closure Report - Sandrock North Water Line – Incident No. nAPP2200560379

Hilcorp Energy Company (Hilcorp) has prepared this Closure Report for the Sandrock North Water Line (Site) located on United States Bureau of Land Management (BLM) surface in San Juan County, New Mexico. A release of produced water was discovered by Hilcorp personnel on December 21, 2021 originating from a 4-inch produced water line. Based on initial assessments conducted by Hilcorp, the pipeline froze and ruptured due to cold weather in the area, which allowed the released fluids to migrate outside of the pipeline ROW horizontally to the west. Immediately upon discovery, Hilcorp operators isolated nearby wells and removed all possible pooled fluids from the ground surface. The unrecovered fluids soaked into the surface soils. Because the release impacted a nearby ephemeral wash, Hilcorp submitted immediate notice to the New Mexico Oil Conservation Division (NMOCD) and BLM. Hilcorp also submitted a Form C-141 Release Notification to the NMOCD on January 5, 2022. The NMOCD has assigned Incident Number nAPP2200560379 to the Site.

Following an initial field assessment by WSP USA Inc. (WSP) personnel on January 27, 2022, WSP and Hilcorp proposed to mechanically remove impacted soil at the site and collect closure soil samples. In the ponding area, 5-point composite samples would be collected at a frequency of one sample per 200 square feet. Because of the narrow and shallow nature of the release in the flow areas of the two-track road and ephemeral wash, WSP and Hilcorp proposed to collect one 5-point composite sample every 100 linear feet along the path of the release (this equated to a total of five composite samples). Although NMOCD provided approval for this sampling variance on February 11, 2022, Hilcorp did not receive approval from the BLM until March 24, 2022. A further explanation of the approved sampling variance, including a site characterization assessment, can be found in WSP's *Remediation and Sampling Work Plan* (dated February 10, 2022).

Following agency approval, Hilcorp remediated the Site via dig/haul on May 13, 2022 and a final event on June 3, 2022. During the initial event, this involved using a backhoe to remove the upper 3-6 inches of soil in the ponding area and a roustabout crew to manually remove (i.e. use of shovels) the upper 3 inches of soil along the ephemeral wash. On the final event, a backhoe was used to remove an additional 6 inches of soil at sample points S-1 and S-2 only.

Closure sampling events occurred on May 17, 2022 and June 3, 2022 in accordance with NMAC 19.15.29.12.D. However, no representation from BLM or NMOCD was present at the time of the scheduled sampling events. Hilcorp proceeded with the closure sampling events as scheduled. A total of thirteen (13) 5-point composite samples were collected from the release area between both events, including one (1) grab background sample. Following the re-sampling of sample points S-1 and S-2 on June 3, 2022, all laboratory analytical indicated that remediated soils were below the applicable clean up action levels. No further remediation actions are needed.

Enclosures: Hall Lab Reports (dated May 25, 2022, June 8, 2022)
Table 1 – Soil Analytical Results
Photo Log – Closure Soil Samples
Scaled Closure Sampling Plats
Remediation and Sampling Work Plan (provided by WSP; dated February 10, 2022)
BLM/NMOCD Correspondence

Hilcorp Energy Company
1111 Travis Street, Houston, Texas 77002
T 713.209.2400 F 713.289.2750

TABLE 1

SOIL ANALYTICAL RESULTS
NORTH SANDROCK WATER LINE
HILCORP ENERGY COMPANY - L48 WEST

Soil Sample Identification	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chlorides (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	GRO+DRO (mg/kg)	TPH (mg/kg)
BG-1 0-6"	5/17/2022	<0.025	<0.050	<0.050	<0.099	<0.224	<60	<5.0	<8.5	<43	<13.5	<56.5
S-1 3"	5/17/2022	<0.024	<0.048	<0.048	<0.095	<0.215	240	<4.8	16	160	<20.8	**<180.8**
S-2 3"	5/17/2022	<0.025	<0.049	<0.049	<0.098	<0.221	**710**	<4.9	<9.1	140	<14.0	**<154.0**
S-3 3"	5/17/2022	<0.024	<0.048	<0.048	<0.096	<0.216	210	<4.8	<9.5	<47	<14.3	<61.3
S-4 3"	5/17/2022	<0.025	<0.050	<0.050	<0.10	<0.225	140	<5.0	<10	<50	<15.0	<65.0
S-5 6"	5/17/2022	<0.023	<0.047	<0.047	<0.094	<0.211	230	<4.7	<9.7	<49	<14.4	<63.4
S-6 6"	5/17/2022	<0.024	<0.048	<0.048	<0.096	<0.216	250	<4.8	<9.6	<48	<14.4	<62.4
S-7 3"	5/17/2022	<0.023	<0.047	<0.047	<0.094	<0.211	540	<4.7	<8.7	<43	<13.4	<56.4
S-8 3"	5/17/2022	<0.024	<0.047	<0.047	<0.094	<0.212	150	<4.7	<9.6	<48	<14.3	<62.3
S-9 3"	5/17/2022	<0.024	<0.048	<0.048	<0.097	<0.217	160	<4.8	<8.9	<44	<13.7	<57.7
S-10 3"	5/17/2022	<0.025	<0.050	<0.050	<0.099	<0.224	180	<5.0	<9.1	<45	<14.1	<59.1
S-11 3"	5/17/2022	<0.025	<0.050	<0.050	<0.10	<0.225	<60	<5.0	<9.4	<47	<14.4	<61.4
S-1 9"	6/3/2022	<0.024	<0.049	<0.049	<0.097	<0.219	270	<4.9	<14	<46	<18.9	<64.9
S-2 9"	6/3/2022	<0.023	<0.047	<0.047	<0.094	<0.211	190	<4.7	<14	<48	<18.7	<66.7
Table 1 Closure Criteria, 19.15.29.12 NMAC		**10**	**NE**	**NE**	**NE**	**50**	**600**	**NE**	**NE**	**NE**	**NE**	**100**

NOTES:

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

Bold - indicates value exceeds the applicable NMOCD closure criteria

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

NE - not established

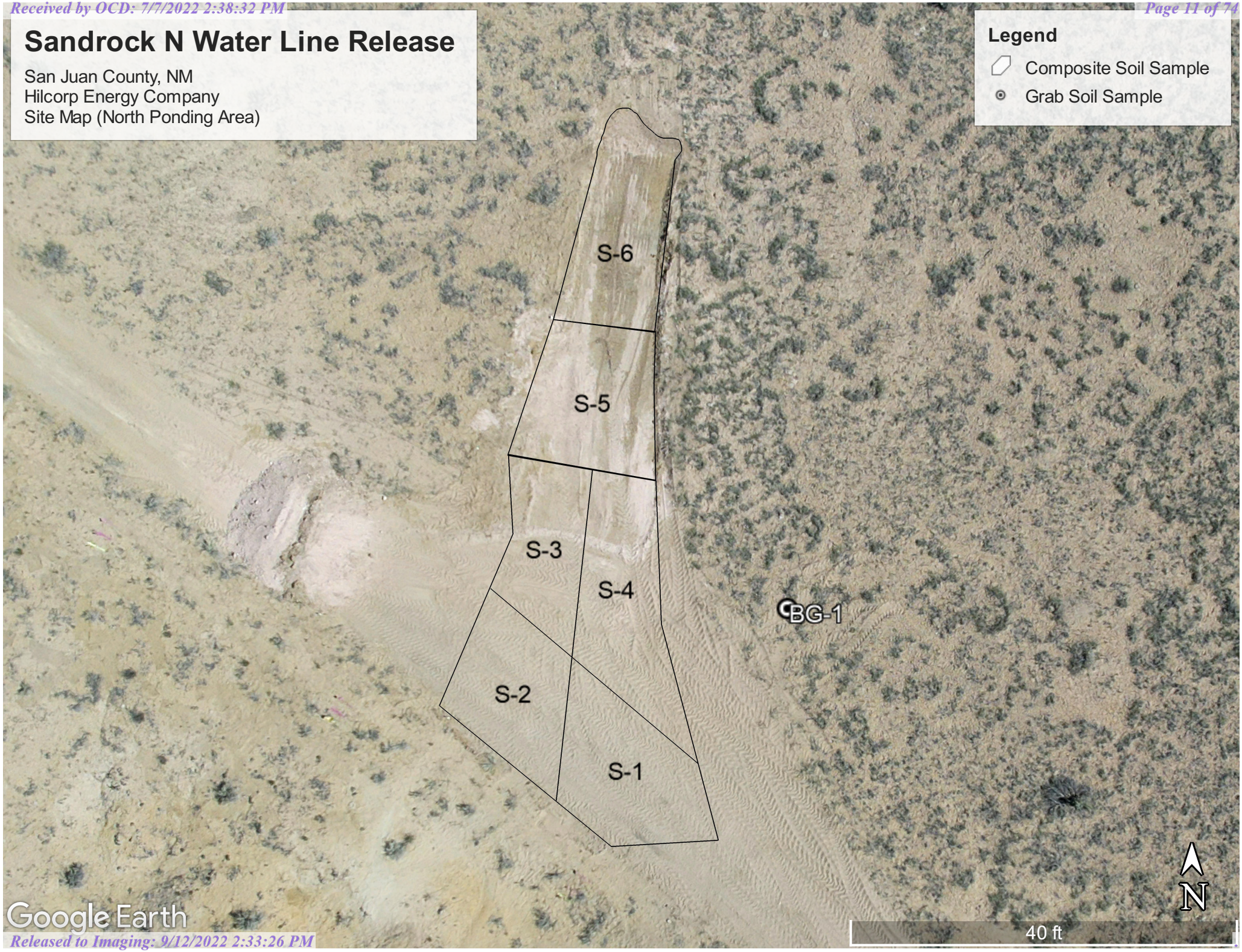
NMOCD - New Mexico Oil Conservation Division

ppm - parts per million

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

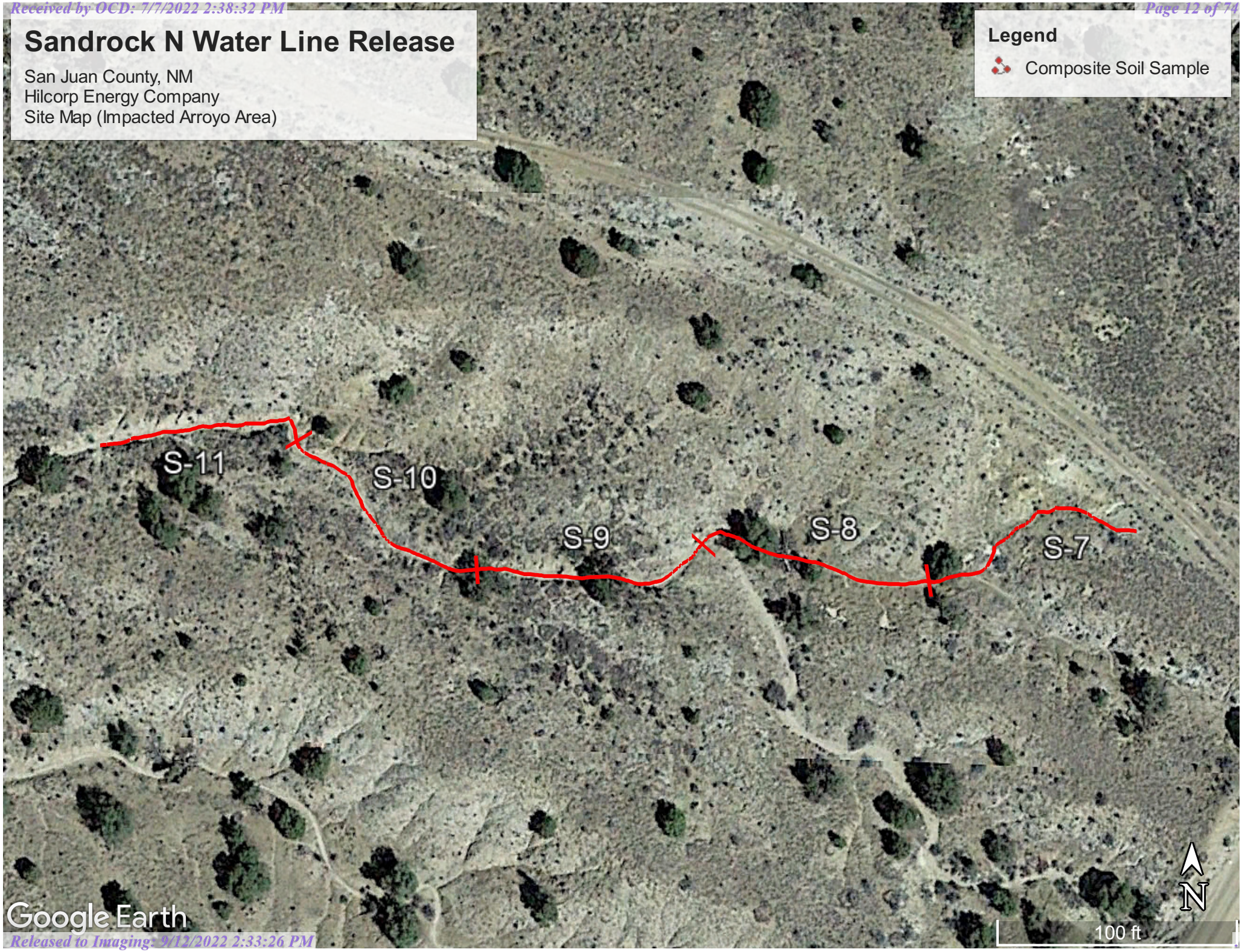
Sandrock N Water Line Release

San Juan County, NM
Hilcorp Energy Company
Site Map (North Ponding Area)



Sandrock N Water Line Release

San Juan County, NM
Hilcorp Energy Company
Site Map (Impacted Arroyo Area)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 25, 2022

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

RE: Sandrock N Water Line OrderNo.: 2205787

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 12 sample(s) on 5/18/2022 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 **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BG-1 0-6 "
Project: Sandrock N Water Line
Collection Date: 5/17/2022 11:33:00 AM
Lab ID: 2205787-001 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	5/19/2022 1:44:59 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/19/2022 1:44:59 PM
Surr: DNOP	84.4	51.1-141		%Rec	1	5/19/2022 1:44:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2022 3:11:00 PM
Surr: BFB	87.8	37.7-212		%Rec	1	5/19/2022 3:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/19/2022 3:11:00 PM
Toluene	ND	0.050		mg/Kg	1	5/19/2022 3:11:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/19/2022 3:11:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/19/2022 3:11:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	5/19/2022 3:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/19/2022 4:39:49 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-1 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 11:36:00 AM
Lab ID: 2205787-002 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	16	8.9		mg/Kg	1	5/19/2022 1:55:48 PM
Motor Oil Range Organics (MRO)	160	45		mg/Kg	1	5/19/2022 1:55:48 PM
Surr: DNOP	99.9	51.1-141		%Rec	1	5/19/2022 1:55:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2022 3:50:00 PM
Surr: BFB	89.4	37.7-212		%Rec	1	5/19/2022 3:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/19/2022 3:50:00 PM
Toluene	ND	0.048		mg/Kg	1	5/19/2022 3:50:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/19/2022 3:50:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/19/2022 3:50:00 PM
Surr: 4-Bromofluorobenzene	90.0	70-130		%Rec	1	5/19/2022 3:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	240	59		mg/Kg	20	5/19/2022 4:52:10 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	Estimated value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-2 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 11:39:00 AM
Lab ID: 2205787-003 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/23/2022 2:08:45 PM
Motor Oil Range Organics (MRO)	140	45		mg/Kg	1	5/23/2022 2:08:45 PM
Surr: DNOP	74.0	51.1-141		%Rec	1	5/23/2022 2:08:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/19/2022 4:10:00 PM
Surr: BFB	86.3	37.7-212		%Rec	1	5/19/2022 4:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/19/2022 4:10:00 PM
Toluene	ND	0.049		mg/Kg	1	5/19/2022 4:10:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/19/2022 4:10:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/19/2022 4:10:00 PM
Surr: 4-Bromofluorobenzene	86.8	70-130		%Rec	1	5/19/2022 4:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	710	60		mg/Kg	20	5/19/2022 5:04:31 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-3 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 11:44:00 AM
Lab ID: 2205787-004 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/19/2022 2:17:32 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/19/2022 2:17:32 PM
Surr: DNOP	111	51.1-141		%Rec	1	5/19/2022 2:17:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2022 4:30:00 PM
Surr: BFB	84.4	37.7-212		%Rec	1	5/19/2022 4:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/19/2022 4:30:00 PM
Toluene	ND	0.048		mg/Kg	1	5/19/2022 4:30:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/19/2022 4:30:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/19/2022 4:30:00 PM
Surr: 4-Bromofluorobenzene	86.0	70-130		%Rec	1	5/19/2022 4:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	210	60		mg/Kg	20	5/19/2022 5:16:51 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-4 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 11:52:00 AM
Lab ID: 2205787-005 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/19/2022 2:28:35 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/19/2022 2:28:35 PM
Surr: DNOP	89.1	51.1-141		%Rec	1	5/19/2022 2:28:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2022 4:50:00 PM
Surr: BFB	88.1	37.7-212		%Rec	1	5/19/2022 4:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/19/2022 4:50:00 PM
Toluene	ND	0.050		mg/Kg	1	5/19/2022 4:50:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/19/2022 4:50:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/19/2022 4:50:00 PM
Surr: 4-Bromofluorobenzene	87.4	70-130		%Rec	1	5/19/2022 4:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	140	60		mg/Kg	20	5/19/2022 5:29:12 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-5 6"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:01:00 PM
Lab ID: 2205787-006 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/19/2022 2:39:36 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/19/2022 2:39:36 PM
Surr: DNOP	106	51.1-141		%Rec	1	5/19/2022 2:39:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/19/2022 5:10:00 PM
Surr: BFB	87.7	37.7-212		%Rec	1	5/19/2022 5:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	5/19/2022 5:10:00 PM
Toluene	ND	0.047		mg/Kg	1	5/19/2022 5:10:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/19/2022 5:10:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/19/2022 5:10:00 PM
Surr: 4-Bromofluorobenzene	88.6	70-130		%Rec	1	5/19/2022 5:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	230	60		mg/Kg	20	5/19/2022 5:41:32 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-6 6"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:06:00 PM
Lab ID: 2205787-007 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/19/2022 2:50:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2022 2:50:36 PM
Surr: DNOP	96.5	51.1-141		%Rec	1	5/19/2022 2:50:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2022 5:29:00 PM
Surr: BFB	86.2	37.7-212		%Rec	1	5/19/2022 5:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/19/2022 5:29:00 PM
Toluene	ND	0.048		mg/Kg	1	5/19/2022 5:29:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/19/2022 5:29:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/19/2022 5:29:00 PM
Surr: 4-Bromofluorobenzene	88.4	70-130		%Rec	1	5/19/2022 5:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	250	60		mg/Kg	20	5/19/2022 6:43:15 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-7 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:16:00 PM
Lab ID: 2205787-008 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	5/19/2022 3:01:35 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/19/2022 3:01:35 PM
Surr: DNOP	110	51.1-141		%Rec	1	5/19/2022 3:01:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/19/2022 5:49:00 PM
Surr: BFB	90.2	37.7-212		%Rec	1	5/19/2022 5:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	5/19/2022 5:49:00 PM
Toluene	ND	0.047		mg/Kg	1	5/19/2022 5:49:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/19/2022 5:49:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/19/2022 5:49:00 PM
Surr: 4-Bromofluorobenzene	93.0	70-130		%Rec	1	5/19/2022 5:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	540	59		mg/Kg	20	5/19/2022 6:55:35 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-8 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:20:00 PM
Lab ID: 2205787-009 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/19/2022 3:12:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2022 3:12:36 PM
Surr: DNOP	110	51.1-141		%Rec	1	5/19/2022 3:12:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/19/2022 6:09:00 PM
Surr: BFB	88.9	37.7-212		%Rec	1	5/19/2022 6:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/19/2022 6:09:00 PM
Toluene	ND	0.047		mg/Kg	1	5/19/2022 6:09:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/19/2022 6:09:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/19/2022 6:09:00 PM
Surr: 4-Bromofluorobenzene	87.8	70-130		%Rec	1	5/19/2022 6:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	150	60		mg/Kg	20	5/19/2022 7:07:56 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-9 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:22:00 PM
Lab ID: 2205787-010 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/19/2022 3:47:56 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/19/2022 3:47:56 PM
Surr: DNOP	112	51.1-141		%Rec	1	5/19/2022 3:47:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/19/2022 6:29:00 PM
Surr: BFB	85.5	37.7-212		%Rec	1	5/19/2022 6:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/19/2022 6:29:00 PM
Toluene	ND	0.048		mg/Kg	1	5/19/2022 6:29:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/19/2022 6:29:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/19/2022 6:29:00 PM
Surr: 4-Bromofluorobenzene	85.8	70-130		%Rec	1	5/19/2022 6:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	160	60		mg/Kg	20	5/19/2022 7:20:16 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-10 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:27:00 PM
Lab ID: 2205787-011 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/19/2022 3:58:50 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/19/2022 3:58:50 PM
Surr: DNOP	99.5	51.1-141		%Rec	1	5/19/2022 3:58:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2022 6:49:00 PM
Surr: BFB	88.7	37.7-212		%Rec	1	5/19/2022 6:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/19/2022 6:49:00 PM
Toluene	ND	0.050		mg/Kg	1	5/19/2022 6:49:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/19/2022 6:49:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/19/2022 6:49:00 PM
Surr: 4-Bromofluorobenzene	87.9	70-130		%Rec	1	5/19/2022 6:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	180	60		mg/Kg	20	5/19/2022 8:59:03 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	Estimated value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

Analytical Report
Lab Order **2205787**
Date Reported: **5/25/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-11 3"
Project: Sandrock N Water Line
Collection Date: 5/17/2022 12:31:00 PM
Lab ID: 2205787-012 **Matrix:** SOIL **Received Date:** 5/18/2022 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/20/2022 12:24:12 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/20/2022 12:24:12 PM
Surr: DNOP	99.7	51.1-141		%Rec	1	5/20/2022 12:24:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/19/2022 12:28:47 PM
Surr: BFB	93.8	37.7-212		%Rec	1	5/19/2022 12:28:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/19/2022 12:28:47 PM
Toluene	ND	0.050		mg/Kg	1	5/19/2022 12:28:47 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/19/2022 12:28:47 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/19/2022 12:28:47 PM
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	5/19/2022 12:28:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/19/2022 9:11:23 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	Estimated value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **MB-67566**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **67566**	RunNo: **88138**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3125287** Units: **mg/Kg**

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

Sample ID: **LCS-67566**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **67566**	RunNo: **88138**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3125288** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.4	90	110			

Sample ID: **MB-67579**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **67579**	RunNo: **88138**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3125317** Units: **mg/Kg**

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

Sample ID: **LCS-67579**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **67579**	RunNo: **88138**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3125318** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.5	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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **LCS-67562**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67562**	RunNo: **88120**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124115** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		111	51.1	141			

Sample ID: **MB-67562**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67562**	RunNo: **88120**
Prep Date: **5/19/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124116** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.3		10.00		82.8	51.1	141			

Sample ID: **MB-67546**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67546**	RunNo: **88120**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3126501** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.6		10.00		85.9	51.1	141			

Sample ID: **LCS-67546**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67546**	RunNo: **88120**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3126502** 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	92.0	64.4	127			
Surr: DNOP	4.4		5.000		87.9	51.1	141			

Sample ID: **LCS-67548**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67548**	RunNo: **88170**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126893** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		101	51.1	141			

Sample ID: **LCS-67574**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67574**	RunNo: **88170**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126895** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.5	51.1	141			

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **MB-67548**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67548**	RunNo: **88170**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126897** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		112	51.1	141			

Sample ID: **MB-67574**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67574**	RunNo: **88170**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126899** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		103	51.1	141			

Sample ID: **2205787-012AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **S-11 3"**	Batch ID: **67547**	RunNo: **88170**
Prep Date: **5/18/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126903** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.6	48.12	0	91.5	36.1	154			
Surr: DNOP	3.6		4.812		74.8	51.1	141			

Sample ID: **2205787-012AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **S-11 3"**	Batch ID: **67547**	RunNo: **88170**
Prep Date: **5/18/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126904** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	49.80	0	89.7	36.1	154	1.42	33.9	
Surr: DNOP	4.2		4.980		84.3	51.1	141	0	0	

Sample ID: **LCS-67547**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67547**	RunNo: **88170**
Prep Date: **5/18/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.7	64.4	127			
Surr: DNOP	4.4		5.000		87.3	51.1	141			

Sample ID: **MB-67547**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67547**	RunNo: **88170**
Prep Date: **5/18/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126925** 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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **MB-67547**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67547**	RunNo: **88170**
Prep Date: **5/18/2022**	Analysis Date: **5/20/2022**	SeqNo: **3126925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		113	51.1	141			

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124657** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	930		1000		93.4	37.7	212			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124658** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		217	37.7	212			S

Sample ID: **mb-67544**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124661** 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		96.3	37.7	212			

Sample ID: **lcs-67544**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124662** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	113	72.3	137			
Surr: BFB	2200		1000		223	37.7	212			S

Sample ID: **2205787-012ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **S-11 3"**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124664** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.9	24.53	0	115	70	130			
Surr: BFB	2100		981.4		214	37.7	212			S

Sample ID: **2205787-012amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **S-11 3"**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124665** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	24.90	0	112	70	130	1.03	20	
Surr: BFB	2100		996.0		216	37.7	212	0	0	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **lcs-67542**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67542**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124724** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	2000		1000		202	37.7	212			

Sample ID: **mb-67542**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67542**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124725** 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	880		1000		88.0	37.7	212			

Sample ID: **lcs-67545**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67545**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124750** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		191	37.7	212			

Sample ID: **mb-67545**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67545**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124752** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		90.6	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124719** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	70	130			

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124720** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: **mb-67544**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124723** 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	0.97		1.000		97.0	70	130			

Sample ID: **LCS-67544**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67544**	RunNo: **88115**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124728** 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	94.0	80	120			
Toluene	0.97	0.050	1.000	0	97.0	80	120			
Ethylbenzene	0.98	0.050	1.000	0	97.6	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.3	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	70	130			

Sample ID: **lcs-67542**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67542**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124800** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.5	80	120			
Toluene	1.0	0.050	1.000	0	99.9	80	120			
Ethylbenzene	1.0	0.050	1.000	0	99.6	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.2	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2205787**

25-May-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **lcs-67542**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67542**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124800** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		93.9	70	130			

Sample ID: **mb-67542**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67542**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124801** 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	0.92		1.000		91.7	70	130			

Sample ID: **lcs-67545**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67545**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124827** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	70	130			

Sample ID: **mb-67545**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67545**	RunNo: **88144**
Prep Date: **5/18/2022**	Analysis Date: **5/19/2022**	SeqNo: **3124828** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Hilcorp Energy | Work Order Number: 2205787 | RcptNo: 1

Received By: Juan Rojas 5/18/2022 7:05:00 AM

Completed By: Tracy Casarrubias 5/18/2022 8:19:01 AM

Reviewed By: SCM 5/18/22

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: JM 5/18/22

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	2.6	Good	Not Present			

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#: brandon.sinclair@hilcorp.com

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

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

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Sandrock N Water Line

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.6+0=2.6 (°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. 2205787	BTEX / ~~MTBE~~ / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	~~Cl~~, F, ~~Br~~, ~~NO_3~~, ~~NO_2~~, ~~PO_4~~, ~~SO_4~~	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5-17	1133	soil	DG-1 0-6"	(1) 4oz Jar	Cool	001	✓	✓					✓			
	1136		S-1 3"			002										
	1139		S-2 3"			003										
	1144		S-3 3"			004										
	1152		S-4 3"			005										
	1201		S-5 6"			006										
	1206		S-6 6"			007										
	1216		S-7 3"			008										
	1220		S-8 3"			009										
	1222		S-9 3"			010										
	1227		S-10 3"			011										
	1231		S-11 3"			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5-17	1637				5/17/22	1637
5/17/22	1752		courier		5/18/22	7:05

Remarks: cc: mkillough@hilcorp.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.

JR 5/18/22

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 08, 2022

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

RE: Sandrock N Water Line OrderNo.: 2206242

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/4/2022 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 **2206242**
Date Reported: **6/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-1 9"
Project: Sandrock N Water Line
Collection Date: 6/3/2022 9:10:00 AM
Lab ID: 2206242-001 **Matrix:** SOIL **Received Date:** 6/4/2022 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	6/7/2022 12:46:20 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/7/2022 12:46:20 PM
Surr: DNOP	86.4	51.1-141		%Rec	1	6/7/2022 12:46:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/7/2022 1:59:50 PM
Surr: BFB	110	37.7-212		%Rec	1	6/7/2022 1:59:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/7/2022 1:59:50 PM
Toluene	ND	0.049		mg/Kg	1	6/7/2022 1:59:50 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/7/2022 1:59:50 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/7/2022 1:59:50 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	6/7/2022 1:59:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	270	60		mg/Kg	20	6/7/2022 9:23:09 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2206242**
Date Reported: **6/8/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: S-2 9"
Project: Sandrock N Water Line
Collection Date: 6/3/2022 9:15:00 AM
Lab ID: 2206242-002 **Matrix:** SOIL **Received Date:** 6/4/2022 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	6/7/2022 12:57:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/7/2022 12:57:06 PM
Surr: DNOP	84.8	51.1-141		%Rec	1	6/7/2022 12:57:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/7/2022 3:11:23 PM
Surr: BFB	109	37.7-212		%Rec	1	6/7/2022 3:11:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	6/7/2022 3:11:23 PM
Toluene	ND	0.047		mg/Kg	1	6/7/2022 3:11:23 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/7/2022 3:11:23 PM
Xylenes, Total	ND	0.094		mg/Kg	1	6/7/2022 3:11:23 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	6/7/2022 3:11:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	190	60		mg/Kg	20	6/7/2022 10:24:54 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	Estimated value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206242**

08-Jun-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **MB-67931**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **67931**	RunNo: **88545**							
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142410**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-67931**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **67931**	RunNo: **88545**							
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142411**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2206242**
08-Jun-22

Client: HILCORP ENERGY
Project: Sandrock N Water Line

Sample ID: **LCS-67918** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **67918** RunNo: **88538**
Prep Date: **6/6/2022** Analysis Date: **6/7/2022** SeqNo: **3141733** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	15	50.00	0	86.5	64.4	127			
Surr: DNOP	3.2		5.000		64.4	51.1	141			

Sample ID: **MB-67918** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **67918** RunNo: **88538**
Prep Date: **6/6/2022** Analysis Date: **6/7/2022** SeqNo: **3141734** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.4	51.1	141			

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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206242**

08-Jun-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **mb-67915**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67915**	RunNo: **88526**
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142076** 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	980		1000		98.0	37.7	212			

Sample ID: **lcs-67915**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67915**	RunNo: **88526**
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142077** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	2100		1000		207	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206242**

08-Jun-22

Client: HILCORP ENERGY

Project: Sandrock N Water Line

Sample ID: **mb-67915**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67915**	RunNo: **88526**
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142123** 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		98.8	70	130			

Sample ID: **LCS-67915**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67915**	RunNo: **88526**
Prep Date: **6/6/2022**	Analysis Date: **6/7/2022**	SeqNo: **3142124** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.8	80	120			
Toluene	0.96	0.050	1.000	0	95.7	80	120			
Ethylbenzene	0.96	0.050	1.000	0	95.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.3	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	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 interference
B	Analyte detected in the associated Method Blank
E	Estimated value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2206242 RcptNo: 1

Received By: Tracy Casarrubias 6/4/2022 9:55:00 AM

Completed By: Tracy Casarrubias 6/4/2022 12:07:35 PM

Reviewed By: 6-6-22

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: CMC 6/6/22

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	1.8	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#: brandon.sinclair@hilcorp.com

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

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

Turn-Around Time:
☐ Standard ☑ Rush 2-day

Project Name: Sandrock N Water Line

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.8 - 0 = 1.8 (°C)

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

Analysis Request

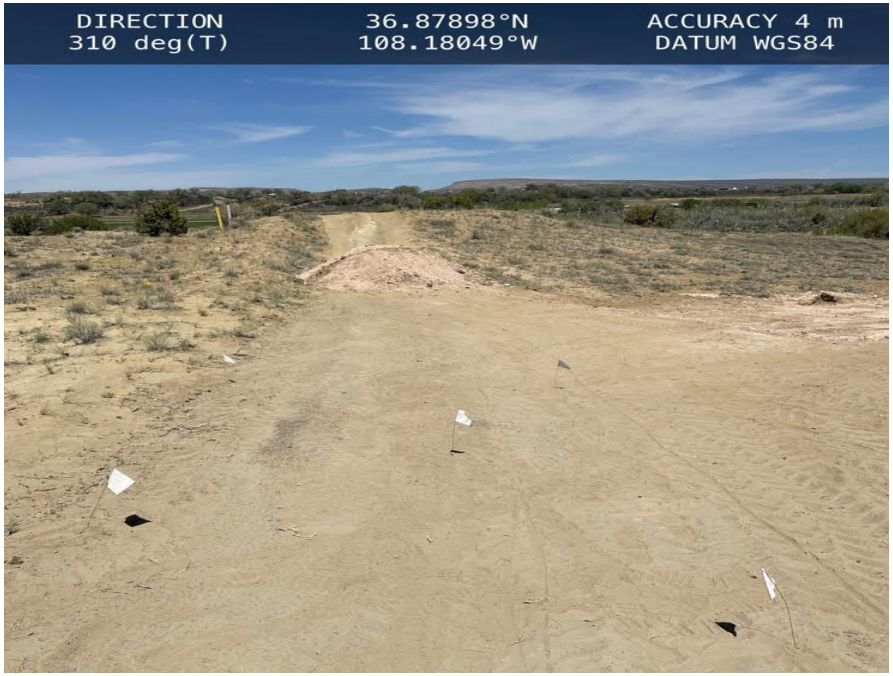
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2206242	BTEX / ~~MTBE~~ / ~~TMB's~~ (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl), F, ~~Br~~, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6-3	0910	soil	S-1 9"	4 oz jar	cool	001	✓	✓					✓			
6-3	0915	soil	S-2 9"	4 oz jar	cool	002	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-3				ccm		9:55
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/14/22	

Remarks: cc: mkillough@hilcorp.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.

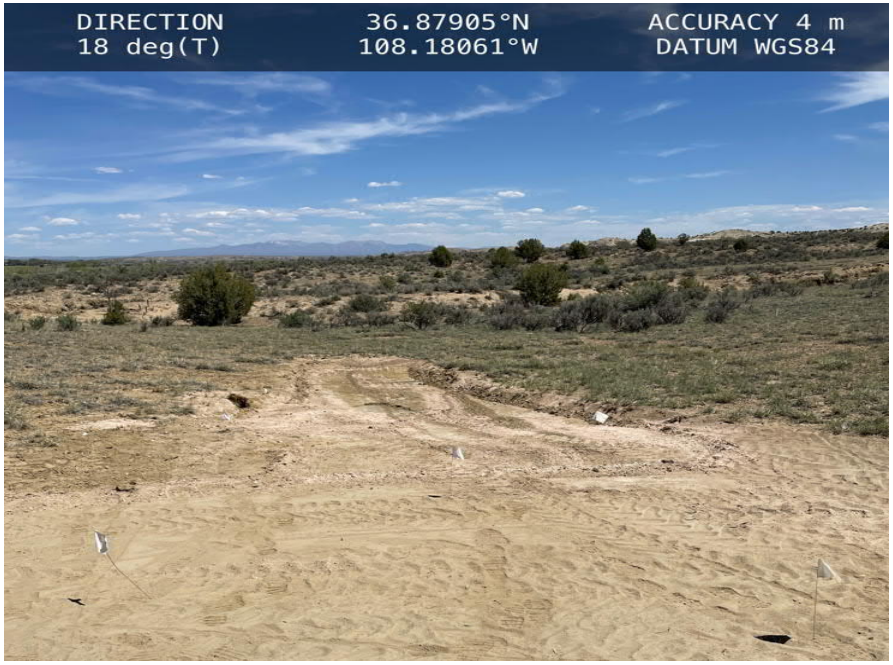
Photo Log – Closure Soil Samples



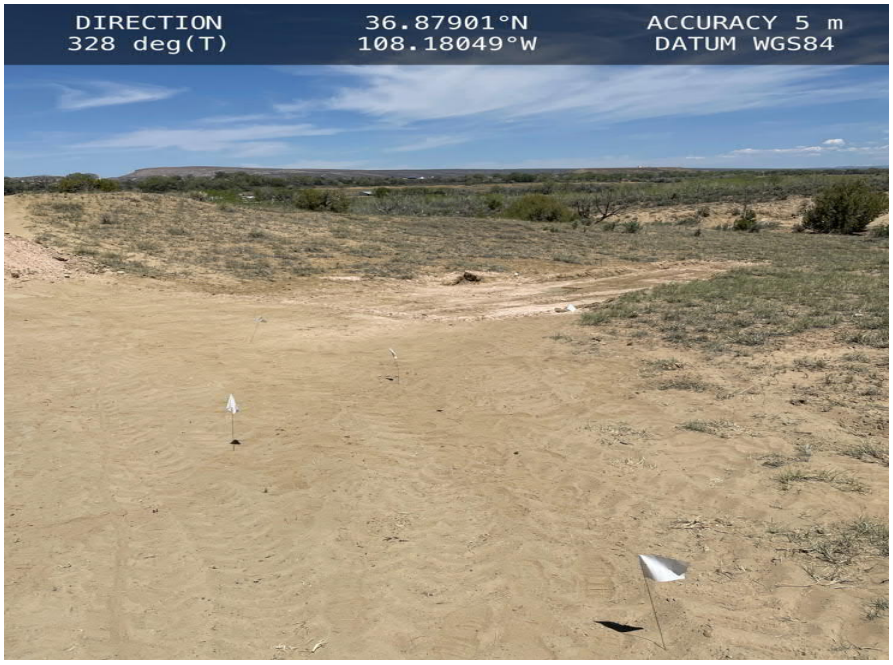
Photograph 1 (dated 5/17/22) – View of Soil Sample Identification S-1 3".

Photograph 2 (dated 5/17/22) – View of Soil Sample Identification S-2 3".

Photo Log – Closure Soil Samples

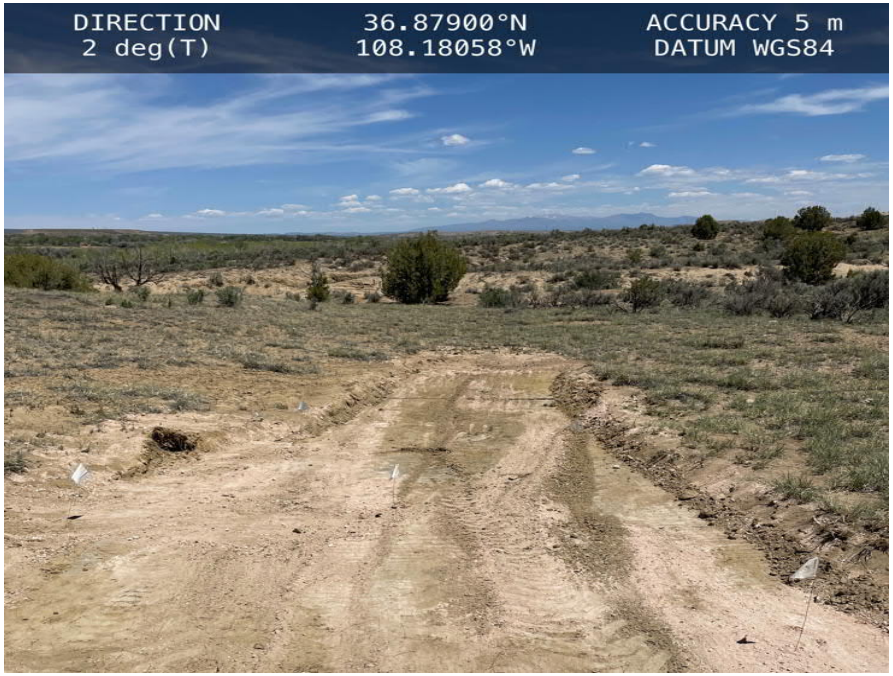


Photograph 3 (dated 5/17/22) – View of Soil Sample Identification S-3 3".



Photograph 4 (dated 5/17/22) – View of Soil Sample Identification S-4 3".

Photo Log – Closure Soil Samples

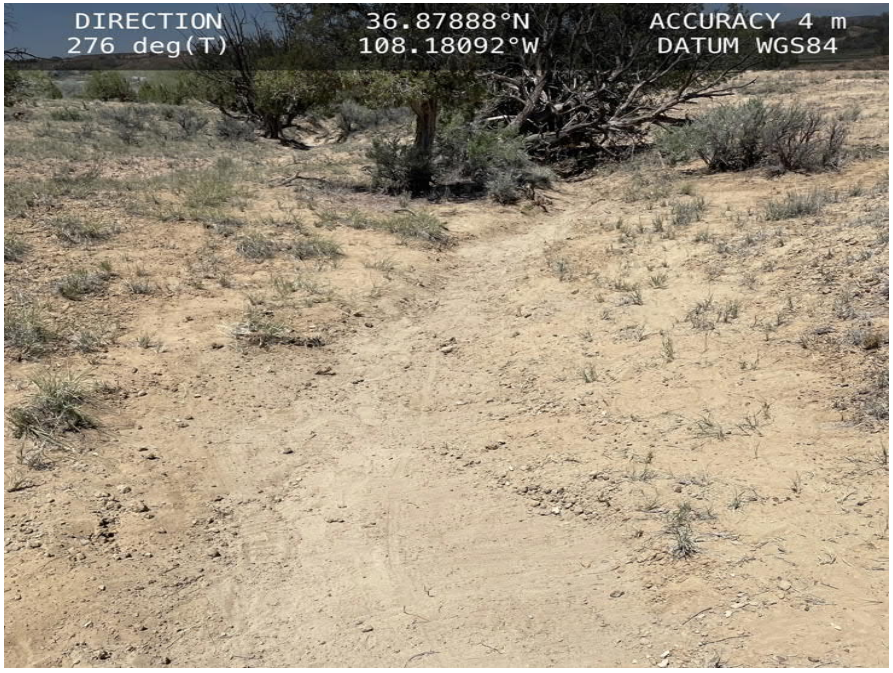


Photograph 5 (dated 5/17/22) – View of Soil Sample Identification S-5 6".

Photograph 6 (dated 5/17/22) – View of Soil Sample Identification S-6 6".

Photo Log – Closure Soil Samples

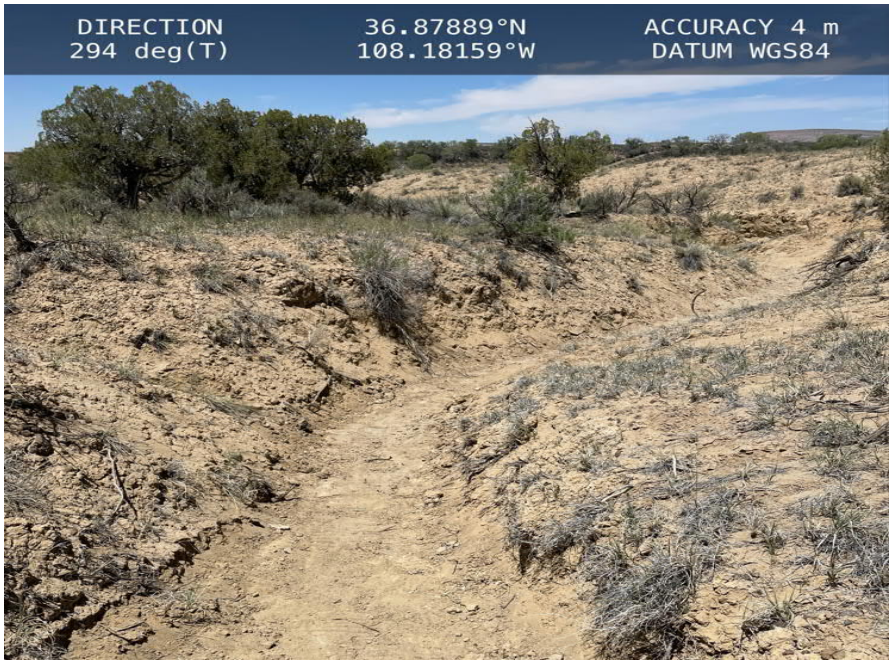
Photograph 7 (dated 5/17/22) – View of Soil Sample Identification S-7 3" taken along the ephemeral wash.



Photograph 8 (dated 5/17/22) – View of Soil Sample Identification S-8 3" taken along the ephemeral wash.

Photo Log – Closure Soil Samples

Photograph 9 (dated 5/17/22) – View of Soil Sample Identification S-9 3" taken along the ephemeral wash.



Photograph 10 (dated 5/17/22) – View of Soil Sample Identification S-10 3" taken along the ephemeral wash.

Photo Log – Closure Soil Samples

Photograph 11 (dated 5/17/22) – View of Soil Sample Identification S-11 3" taken along the ephemeral wash.

Photograph 12 (dated 6/3/22) – View of Soil Sample Identification S-1 9".

Photo Log – Closure Soil Samples

Photograph 13 (dated 6/3/22) – View of Soil Sample Identification S-2 9".

February 10, 2022

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

Subject: **Remediation and Sampling Work Plan**
Sandrock North Water Line
San Juan County, New Mexico
NMOCD Incident Number: nAPP2200560379

To Whom It May Concern:

On behalf of Hilcorp Energy Company (Hilcorp), WSP USA Inc. (WSP) has prepared this *Remediation and Sampling Work Plan* for the Sandrock North Water Line release (Site) located on United States Bureau of Land Management (BLM) surface in San Juan County, New Mexico. A release of produced water was discovered by Hilcorp personnel on December 21, 2021 originating from a 4-inch produced water line. Based on initial assessments conducted by Hilcorp, the pipeline froze and ruptured due to cold weather in the area, which allowed the released fluids to migrate outside of the pipeline ROW horizontally to the west. Immediately upon discovery, Hilcorp operators isolated nearby wells and removed all possible pooled fluids from the ground surface. The unrecovered fluids soaked into the surface soils. Because the release impacted a nearby ephemeral wash, Hilcorp submitted immediate notice to the New Mexico Oil Conservation Division (NMOCD) and BLM. Hilcorp also submitted a *Form C-141 Release Notification* to the NMOCD on January 5, 2022. The NMOCD has assigned Incident Number nAPP2200560379 to the Site.

INITIAL FIELD ASSESSMENT

WSP conducted a site visit on January 27, 2022 to perform initial field screening of soils impacted by the produced water release. Based on the site visit, it appears that the majority of the released fluids migrated approximately 100 linear feet to the northwest from the pipeline down a two-track road. The fluids then ponded in a depression to the north of the two-track road and impacted an area measuring approximately 1,160 square feet. Based on field screening using Hach® chloride test strips, elevated chloride concentrations are predominantly present in the depression from the ground surface to approximately 6 to 12 inches below ground surface (bgs). Additionally, a thin stream of produced water also flowed west of the depression and into a small ephemeral wash. The produced water flowed overland in a thin stream approximately 1-foot wide and, based on field screening, impacted shallow soils along the pathway of the release (up to approximately 3 inches bgs). The total flow path of the release is approximately 450 linear feet. The attached figure shows the approximate release flow path and location of the depression.

Based on the information provided above, approximately 25 cubic yards of soil have been impacted by the produced water release.

SITE CHARACTERIZATION

The Site is located on Bureau of Land Management (BLM) managed land in Unit D of Section 26, Township 31 North, Range 13 West, San Juan County, New Mexico. The Site is approximately 3.4 miles south of La Plata, New Mexico. As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were accessed in accordance with 19.15.29.11 of the New Mexico Administrative Code (NMAC). This information is further discussed below.

Based on United States Geological Survey (USGS) geologic mapping, the Site is located within the Tertiary Nacimiento Formation. In the report titled “Hydrogeology and Water Resources of San Juan Basin, New Mexico” (Stone, et. al., 1983), the Nacimiento Formation as characterized by interbedded black carbonaceous mudstones and white, coarse-grained sandstones. This formation ranges in thickness from 418 to 2,232 feet. The Nacimiento Formation overlies the Ojo Alamo sandstone formation (Stone et. al., 1983).

WSP USA
848 EAST 2ND AVENUE
DURANGO CO 81301

Tel.: 970-385-1096
wsp.com

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.

An unnamed ephemeral wash is located directly adjacent to the Site and is a first order tributary to the La Plata River, located approximately 800 feet west of the release location, and is considered a "significant watercourse". There are no known springs or fresh-water wells located within 500 feet of the Site. The nearest groundwater well (SJ 03611) is located approximately 3,500 feet north of the Site. Depth to water information from this well indicates that groundwater is approximately 14 feet below ground surface (bgs) at the location of the water well. The ground surface elevation at well SJ 03611 is approximately 5,620 feet above mean sea level (amsl). The Site is located at an elevation of approximately 5,670 feet amsl. Based on the elevation difference between the Site and depth to water in well SJ 03611, depth to water at the Site is assumed to be greater than 50 feet bgs.

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

REMEDIATION AND SAMPLING WORK PLAN

Based on the above information, WSP and Hilcorp propose to mechanically remove impacted soil at the site and collect confirmation soil samples. In the ponding area, 5-point composite samples will be collected at a frequency of one sample per 200 square feet. Because of the narrow and shallow nature of the release in the flow areas of the two track road and wash, WSP and Hilcorp propose to collect one 5- point composite sample every 100 linear feet along the path of the release (this equates to a total of five composite samples). The attached figure depicts the approximate sampling areas proposed for this work.

Prior to the start of work, Hilcorp will also engage with the BLM to assess the need for a cultural survey and/or any additional permitting required for this work. Remediation and confirmation soil sampling is anticipated to be completed within 60 days of BLM approval.

WSP appreciates the opportunity to provide this work plan to you. If you have any questions or comments, do not hesitate to contact Stuart Hyde at (970) 903-1607 or at stuart.hyde@wsp.com, or Mitch Killough at (713) 757-5274 or at mkillough@hilcorp.com.

Kind regards,

Stuart Hyde, L.G.
Environmental Geologist

Enclosed:

Figure: Proposed Confirmation Sampling

FIGURES

LEGEND

RELEASE PATH, APPROX. 450 LINEAR FEET

CONFIRMATION SAMPLING AREAS, APPROX. 90 LINEAR FEET

0 ft. 60 ft. 100 ft. 200 ft.

PROPOSED CONFIRMATION SAMPLING
SANDROCK NORTH WATER LINE
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Mitch Killough

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Monday, February 14, 2022 10:04 AM
To: Mitch Killough
Cc: Hencmann, Devin
Subject: [EXTERNAL] FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 81037
Attachments: nAPP2200560379_Remediation and Sampling Work Plan.pdf

Sandrock North Water Line remediation work plan approved.

Stuart Hyde, L.G.
Senior Geologist
T+ 1 970-385-1096
M+ 1 970-903-1607

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Friday, February 11, 2022 3:51 PM
To: Hyde, Stuart <Stuart.Hyde@wsp.com>
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 81037

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

The OCD has approved the submitted Application for administrative approval of a release notification and corrective action (C-141), for incident ID (n#) nAPP2200560379,
with the following conditions:

- None

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Nelson Velez
Environmental Specialist - Advanced
505-469-6146
Nelson.Velez@state.nm.us

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

-LAEmHhHzdJzBlTWfa4Hgs7pbKI

Well Name: PAYNE

Well Location: T31N / R13W / SEC 26 / NWNW / 36.87589 / -108.17854

County or Parish/State: SAN JUAN / NM

Well Number: 3E

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078464

Unit or CA Name:

Unit or CA Number:

US Well Number: 3004525953

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Notice of Intent

Sundry ID: 2657629

Type of Submission: Notice of Intent

Type of Action: Surface Disturbance

Date Sundry Submitted: 02/17/2022

Time Sundry Submitted: 12:13

Date proposed operation will begin: 02/28/2022

Procedure Description: Attn: Ryan Joyner, FFO The Sandrock North Comp Facility does not have an API#, therefore the API# for the Payne 3E is being used as it is the closest location. Hilcorp is seeking concurrence from the BLM allowing Hilcorp to follow the NMOCD-approved plan. WSP and Hilcorp propose to mechanically remove impacted soil at the site and collect confirmation soil samples. In the ponding area, 5-point composite samples will be collected at a frequency of one sample per 200 square feet. Because of the narrow and shallow nature of the release in the flow areas of the two track road and wash, WSP and Hilcorp propose to collect one 5-point composite sample every 100 linear feet along the path of the release (this equates to a total of five composite samples). Also, prior to the start of the work, Hilcorp requests that BLM assess the need for a cultural survey and/or any additional permitting required for this work. Remediation and confirmation soil sampling is anticipated to be completed within 60 days of BLM approval. Refer to WSP's Remediation and Sampling Work Plan for a site plat.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

nAPP2200560379_Remediation_and_Sampling_Work_Plan_20220217121253.pdf

NMOCD_Approval___02112022_20220217121252.pdf

NMOCD_Email_Approval___02082022_20220217121252.pdf

Well Name: PAYNE

Well Location: T31N / R13W / SEC 26 / NWNW / 36.87589 / -108.17854

County or Parish/State: SAN JUAN / NM

Well Number: 3E

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078464

Unit or CA Name:

Unit or CA Number:

US Well Number: 3004525953

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Operator Certification

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: AMANDA WALKER

Signed on: FEB 17, 2022 12:12 PM

Name: HILCORP ENERGY COMPANY

Title: Operations/Regulatory Technician

Street Address: 1111 TRAVIS ST.

City: HOUSTON **State:** TX

Phone: (346) 237-2177

Email address: mwalker@hilcorp.com

Field Representative

Representative Name: Mitch Killough

Street Address: 1111 TRAVIS ST.

City: HOUSTON **State:** TX **Zip:** 77002

Phone: (713)757-5247

Email address: mkillough@hilcorp.com

BLM Point of Contact

BLM POC Name: DAVE J MANKIEWICZ

BLM POC Title: AFM-Minerals

BLM POC Phone: 5055647761

BLM POC Email Address: DMANKIEW@BLM.GOV

Disposition: Approved

Disposition Date: 03/24/2022

Signature: Dave Mankiewicz

Mitch Killough

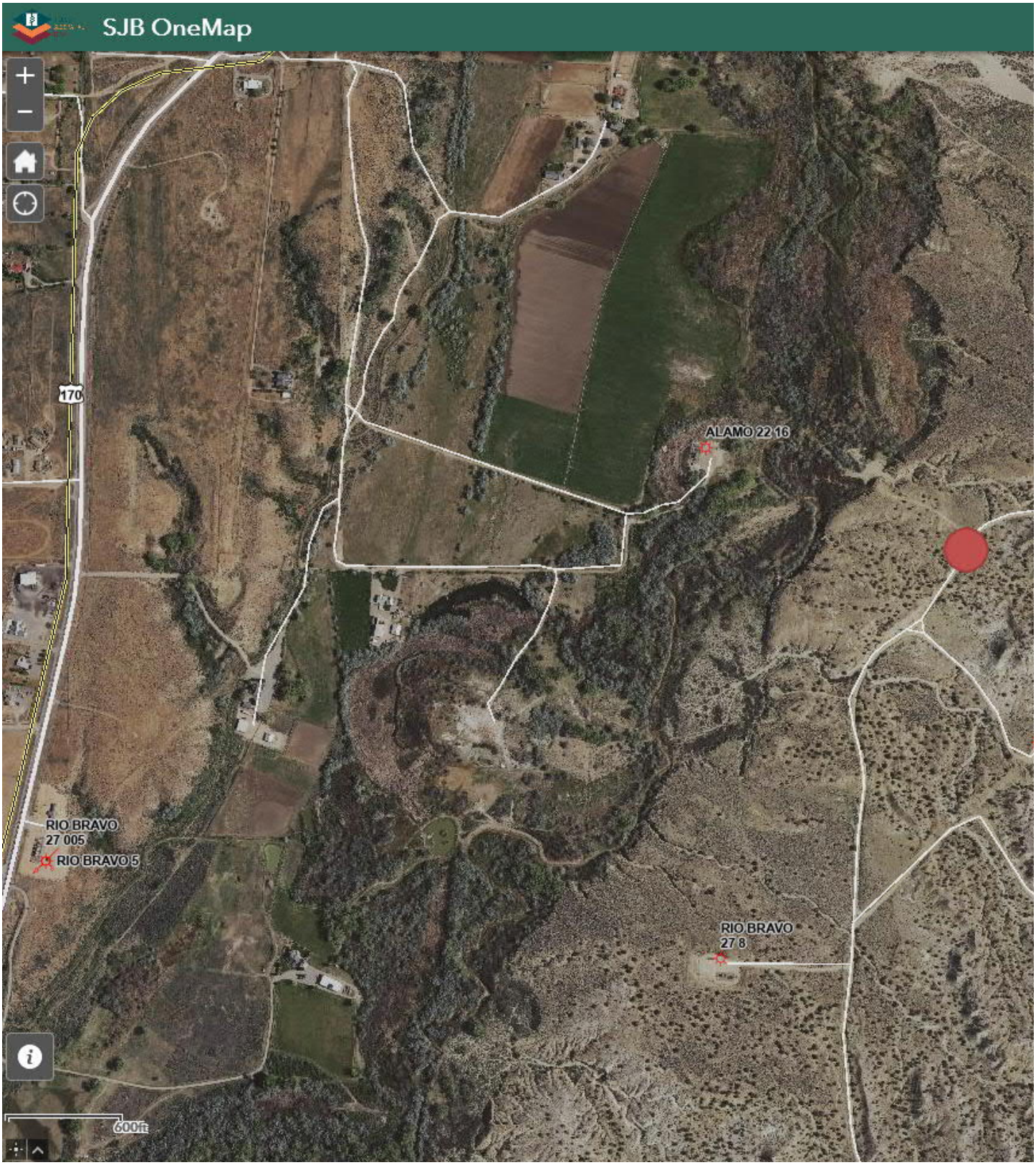
From:	Mitch Killough
Sent:	Wednesday, December 22, 2021 3:32 PM
To:	Smith, Cory, EMNRD; Enviro, OCD, EMNRD
Cc:	Adeloye, Abiodun A; Joyner, Ryan N; Matt Henderson
Subject:	Hilcorp Release Notification - Sandrock North Water Line

Good afternoon.

On 12/21/2021 at approximately 3:30 pm (MT), Hilcorp Energy Company (Hilcorp) discovered a 1.56-bbl release of produced water at the Sandrock North Water Line in San Juan County, NM (36.878617, -108.180276). Refer to red point shown in the snippet below. Based on initial assessments conducted by Hilcorp personnel, a 4-inch produced water line froze and ruptured due to cold weather in the area, which allowed for spilled fluid to migrate outside of the pipeline ROW horizontally 570 ft to the west and 160 ft to the north. The spilled fluids that flowed to the west did enter an unnamed, ephemeral water feature that was dry at the time of the incident. However, the fluids did not enter any continuous flowing water features. The fluids that flowed to the north followed an existing lease road and terminated on the west side of the road. Immediately upon discovery, Hilcorp operators isolated nearby wells and removed all possible pooled fluids from the ground surface. The remainder soaked into the surface soils. A root cause analysis is still underway. However, the source of the release has been shut-in and the line will not be returned to service until all necessary repairs have been addressed.

An initial C-141 will be submitted to the NMOCD no later than 1/5/2022. The BLM will receive a copy of all NMOCD-related correspondence.

Please contact me if anyone has any questions.



Sincerely,

Mitch Killough
Environmental Specialist
Hilcorp Energy Company
1111 Travis Street

Houston, TX 77002
713-757-5247 (office)
281-851-2338 (cell)
mkillough@hilcorp.com

Mitch Killough

From:	Mitch Killough
Sent:	Tuesday, May 31, 2022 10:12 AM
To:	Velez, Nelson, EMNRD
Cc:	Brandon Sinclair; Joey Becker; 'slandon@blm.gov'; jtafoya@blm.gov
Subject:	RE: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

My apologies Nelson. After speaking with operations, it appears that the original One Call expired. We will now be scheduling confirmation soil sampling for Friday, June 3 at 9 am MT.

Thanks.

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Mitch Killough
Sent: Tuesday, May 31, 2022 9:37 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; jtafoya@blm.gov
Subject: RE: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

Thanks Nelson.

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Tuesday, May 31, 2022 8:46 AM
To: Mitch Killough <mkillough@hilcorp.com>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; jtafoya@blm.gov
Subject: RE: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

Mitch,

Thank you for the notice. If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Your request for a time extension to submit the final closure report by June 29, 2022 is approved.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:00 am & 12:00–3:30 pm Mon.–Thur.
7:00-11:00 am & 12:00-4:00 pm Fri.

From: Mitch Killough <mkillough@hilcorp.com>
Sent: Monday, May 30, 2022 6:42 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; jtafoya@blm.gov
Subject: RE: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

Morning Nelson.

On 5/17/2022, Hilcorp collected confirmation soil samples following excavation activities at the Sandrock North Water Line (Incident No. nAPP2200560379). Confirmation soil samples came back below Table 1 (19.15.29.12 NMAC) cleanup thresholds (≤ 50 ft) with the exception of the following (site plats attached):

- S-1 3" – TPH value of <180.8 mg/kg
- S-2 3" – Chlorides value of 710 mg/kg; TPH value of <154 mg/kg

We will commence additional excavation activities at this location on Wednesday, June 1 in these two remaining areas. Final soil confirmation sampling is scheduled for June 1 at 9 am MT. Please accept this email as our 48-hour notice.

In addition, can Hilcorp get a 30 day extension for this project? This allows additional time to address the remaining impacts, allow for additional sampling events (if needed), and submit the closure report. If NMOCD agrees to this extension, the new deadline would be 6/29/2022.

Thanks!

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Monday, May 16, 2022 1:45 PM
To: Mitch Killough <mkillough@hilcorp.com>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; jtafoya@blm.gov
Subject: RE: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

Mitch,

Thank you for the notice. If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

Regards,

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:00 am & 12:00–3:30 pm Mon.–Thur.
7:00-11:00 am & 12:00-4:00 pm Fri.

From: Mitch Killough <mkillough@hilcorp.com>
Sent: Sunday, May 15, 2022 5:31 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; jtafoya@blm.gov
Subject: [EXTERNAL] RE: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Nelson,

We are going to have to change this date up just a bit. We will schedule the closure sampling for Tuesday, May 17 at 9 am.

Thanks.

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Mitch Killough
Sent: Friday, May 13, 2022 4:30 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Brandon Sinclair <Brandon.Sinclair@hilcorp.com>; Joey Becker <jobecker@hilcorp.com>; 'slandon@blm.gov' <slandon@blm.gov>; 'jtofoya@blm.gov' <jtofoya@blm.gov>
Subject: Closure Soil Sampling - Sandrock North Water Line (Incident No. nAPP2200560379)

Hi Nelson.

Hilcorp Energy Company (Hilcorp) is prepared to collect closure soil samples at the Sandrock North Water Line (Incident No. nAPP2200560379) next week. With your permission, we are requesting a variance to the 48-hour notification process. Could we conduct the confirmation soil sampling on Monday, May 16 at 9 am (MT)? His schedule is busy next week and he has requested this. However, if we need to allow for the 48-hour business day period to clear, we can certainly do that.

Please let me know if you have any questions.

Thanks.

Mitch Killough
Environmental Specialist
Hilcorp Energy Company
1111 Travis Street
Houston, TX 77002
713-757-5247 (office)
281-851-2338 (cell)
mkillough@hilcorp.com

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Mitch Killough

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Tuesday, February 8, 2022 12:03 PM
To: Velez, Nelson, EMNRD
Cc: Mitch Killough; Hencmann, Devin; Carroll, Eric; Bratcher, Mike, EMNRD
Subject: RE: [EXTERNAL] Sandrock North Water Line

Thank you Nelson. We will update you on a timeline once we have more details from the BLM.

Stuart Hyde, L.G.
Senior Geologist
T+ 1 970-385-1096
M+ 1 970-903-1607

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Tuesday, February 8, 2022 10:51 AM
To: Hyde, Stuart <Stuart.Hyde@wsp.com>
Cc: Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric <Eric.Carroll@wsp.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Subject: RE: [EXTERNAL] Sandrock North Water Line

Good morning Stuart,

Your request for approval of this remediation and confirmation sampling work scope is approved. Please retain this email for future inclusion into the final report.

Thank you and have a great day!

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:30 am & 1:00–4:00 pm Mon.–Thur.
7:00 am-12:00 pm & 1:00-4:00 Fri.

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Monday, February 7, 2022 1:51 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
Subject: [EXTERNAL] Sandrock North Water Line

Nelson,

WSP has conducted a site visit to the Sandrock North water line release located outside of La Plata, NM (see attached C-141) to conduct initial field screening of soils impacted by the produced water release. Based on the site walk, it appears that the majority of volume of the release flowed northwest approximately 100 linear feet from the pipeline down an old two track road and ponded in a depression measuring approximately 1,160 square feet. Based on field screening using chloride test strips, the chlorides are predominantly present in the top 6 to 12 inches of soil in this area.

A thin stream of produced water also flowed west of the depression and into a small wash. The attached photo is taken at the intersection of the two track road looking west into the small wash. The produced water flowed overland in a thin stream approximately 1 ft wide and has impacted only very shallow soils along the pathway of the release (up to about 3 inches deep). The total flow path of the release is approximately 450 linear ft.

Based on the above information, WSP and Hilcorp propose to remove impacted soil at the site and collect confirmation soil samples. In the ponding area, we are proposing the collection of 5-point composite samples at a frequency of one per 200 square feet. Because of the narrow and shallow nature of the release in the flow areas of the two track road and wash, we are proposing to collect 5-point composite samples every 100 linear feet along the path of the release (this equates to approximately one composite sample per 100 square feet). Prior to the start of work, Hilcorp will also work with the BLM to assess the need for a cultural survey and/or any additional permitting required for this work.

WSP and Hilcorp are requesting approval of this remediation and confirmation sampling work scope prior to engaging with the BLM. Please feel free to reach out with any questions regarding the site or the information presented above. Thanks.

Stuart Hyde, L.G.
Senior Geologist

T+ 1 970-385-1096
M+ 1 970-903-1607
Stuart.hyde@wsp.com

WSP USA Inc.
848 East 2nd Avenue
Durango, Colorado 81301
wsp.com

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-LAEmiHhHzdJzBITWfa4Hgs7pbKl

Mitch Killough

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Wednesday, March 9, 2022 4:50 PM
To: Hyde, Stuart; Enviro, OCD, EMNRD
Cc: Mitch Killough; Hencmann, Devin; Bratcher, Mike, EMNRD
Subject: RE: [EXTERNAL] NMOCD Incident nAPP2200560379 - Sandrock North Water Line 45-Day Extension Request

Stuart,

Your request for an extension to May 5th, 2022 is approved. Please include this correspondence within the final closure report submittal.

Thank you and have a good day.

Regards,

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:00 am & 12:00–3:30 pm Mon.–Thur.
7:00-11:00 am & 12:00-4:00 pm Fri.

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Wednesday, March 9, 2022 9:37 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
Cc: Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>
Subject: [EXTERNAL] NMOCD Incident nAPP2200560379 - Sandrock North Water Line 45-Day Extension Request

Nelson,

Hilcorp submitted a sundry to the BLM on February 17, 2022 with the approved remediation work plan for the Sandrock North Water Line release. We have followed up with the BLM Farmington Field Office but still have not received approval to move forward with the work. Because of this, we are requesting a 45 day extension from the NMOCD for submittal of the final closure report. The current deadline is March 21, 2022, and we are requesting a new deadline of May 5, 2022. Please reach out with any questions regarding this request.

Stuart Hyde, L.G.
Senior Geologist
T+ 1 970-385-1096
M+ 1 970-903-1607

Mitch Killough

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Friday, April 29, 2022 12:53 PM
To: Mitch Killough
Cc: Bratcher, Mike, EMNRD; Devin Hencmann; shyde@ensolum.com; Eric Carroll
Subject: RE: [EXTERNAL] Sandrock North Water Line; incident # nAPP2200560379

Hi Mitch,

Your request for a time extension to June 1, 2022 is approved. Please retain this email for future inclusion into the final closure report.

Thank you and have a great day!

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:00 am & 12:00–3:30 pm Mon.–Thur.
7:00-11:00 am & 12:00-4:00 pm Fri.

From: Mitch Killough <mkillough@hilcorp.com>
Sent: Friday, April 29, 2022 9:25 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Devin Hencmann <dhencmann@ensolum.com>; shyde@ensolum.com; Eric Carroll <ecarroll@ensolum.com>
Subject: RE: [EXTERNAL] Sandrock North Water Line

Nelson,

Per our conversation from yesterday, NMOCD has a deadline of 5/5/2022 for submitting either a delineation or closure report. Unfortunately, we were forced to hold off a bit so that the BLM-FFO could review/approve the site characterization plan and clear the site for cultural. Once we were given BLM approval on 3/24/2022, we scheduled this work to begin in late April due being short one construction foreman. In light of this, Hilcorp respectfully requests an extension till 6/1/2022, which will enable Hilcorp to complete the delineation and/or closure report in a timely manner.

Thanks.

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Mitch Killough
Sent: Wednesday, April 27, 2022 4:21 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>

Cc: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Devin Hencmann <dhencmann@ensolum.com>; shyde@ensolum.com; Eric Carroll <ecarroll@ensolum.com>
Subject: RE: [EXTERNAL] Sandrock North Water Line
Importance: High

Nelson,

I wanted to provide an update to you in regards to the Sandrock North Water Line release. As stated in the attached remediation and sampling work plan, we had indicated that "remediation and confirmation soil sampling is anticipated to be completed within 60 days of BLM approval." Following approval from the NMOCD on 2/11/2022 for this sampling variance, we submitted a sundry approval to the BLM-FFO on 2/17/2022 and received their approval (attached) on 3/24/2022. The approval took a bit longer than usual since we were directed to the BLM Realty group for approval.

At this time, we are making plans to conduct the work next week and will collect confirmation samples afterwards (with a 48-hour notification). It has been some time, so I just wanted to make sure that this time line above is still acceptable with NMOCD. We intend to have this wrapped up by 5/23/2022 (60 days from the BLM approval date).

Thanks!

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Sent: Tuesday, February 8, 2022 11:51 AM
To: Hyde, Stuart <Stuart.Hyde@wsp.com>
Cc: Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric <Eric.Carroll@wsp.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Subject: RE: [EXTERNAL] Sandrock North Water Line

Good morning Stuart,

Your request for approval of this remediation and confirmation sampling work scope is approved. Please retain this email for future inclusion into the final report.

Thank you and have a great day!

Nelson Velez ● Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@state.nm.us

Hrs.: 7:00–11:30 am & 1:00–4:00 pm Mon.–Thur.
7:00 am-12:00 pm & 1:00-4:00 Fri.

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Monday, February 7, 2022 1:51 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>
Cc: Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric

<Eric.Carroll@wsp.com>
Subject: [EXTERNAL] Sandrock North Water Line

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Nelson,

WSP has conducted a site visit to the Sandrock North water line release located outside of La Plata, NM (see attached C-141) to conduct initial field screening of soils impacted by the produced water release. Based on the site walk, it appears that the majority of volume of the release flowed northwest approximately 100 linear feet from the pipeline down an old two track road and ponded in a depression measuring approximately 1,160 square feet. Based on field screening using chloride test strips, the chlorides are predominantly present in the top 6 to 12 inches of soil in this area.

A thin stream of produced water also flowed west of the depression and into a small wash. The attached photo is taken at the intersection of the two track road looking west into the small wash. The produced water flowed overland in a thin stream approximately 1 ft wide and has impacted only very shallow soils along the pathway of the release (up to about 3 inches deep). The total flow path of the release is approximately 450 linear ft.

Based on the above information, WSP and Hilcorp propose to remove impacted soil at the site and collect confirmation soil samples. In the ponding area, we are proposing the collection of 5-point composite samples at a frequency of one per 200 square feet. Because of the narrow and shallow nature of the release in the flow areas of the two track road and wash, we are proposing to collect 5-point composite samples every 100 linear feet along the path of the release (this equates to approximately one composite sample per 100 square feet). Prior to the start of work, Hilcorp will also work with the BLM to assess the need for a cultural survey and/or any additional permitting required for this work.

WSP and Hilcorp are requesting approval of this remediation and confirmation sampling work scope prior to engaging with the BLM. Please feel free to reach out with any questions regarding the site or the information presented above. Thanks.

Stuart Hyde, L.G.
Senior Geologist

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
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CONDITIONS

Action 123551

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 123551
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	9/12/2022