State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	65 (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	
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Application ID	

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

Printed Name: Mitch Killough Title: Environmental Specialist

Signature: Date: 7/8/2022

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

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	
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: 7/8/2022

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

OCD Only

Received by: _____ Date: _____

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

Signature: Nelson Velez Date: 09/12/2022

1. OCD approves SVE Pilot Test.
2. Submittal of a SVE Pilot Test Report along with a Final Remediation Plan, if a SVE System is planned to be implemented, are due by December 16, 2022.

ENSOLUM

July 8, 2022

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

Re: Site Characterization Report and Remediation Work Plan
Moore LS 6B
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: nAPP2206056316

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Site Characterization Report and Remediation Work Plan* for the Moore LS 6B natural gas production well (Site). The Site is located on private land in Section 25, Township 32 North, Range 12 West in San Juan County, New Mexico (Figure 1).

On February 14, 2022, Hilcorp discovered two bullet holes in the 268-barrel (bbl) condensate aboveground storage tank located within a bermed secondary containment at the Site (Figure 2). Based on tank-gauging data and the volume of fluid remaining in the tank, approximately 42 bbls of condensate were released from the tank and remained within the limits of the earthen bermed secondary containment on the production pad (attached photographs 1 and 2 in Appendix A). No fluids were recovered from the release. The initial footprint of visibly impacted soil was approximately 40 feet by 25 feet in lateral extent. Hilcorp provided verbal notification to the New Mexico Oil Conservation Division (NMOCD) on February 15, 2022, and submitted the initial C-141 on March 1, 2022.

SITE CHARACTERIZATION

The Site is located on private land approximately 8.1 miles east of La Plata, New Mexico, at the north end of Farmington Glade. As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were assessed in accordance with Title 19, Chapter 15, Part 29, Sections 11 and 12 (19.15.29.11 and 12) of the New Mexico Administrative Code (NMAC). This information is further discussed below.

GEOLOGY AND HYDROGEOLOGY

The Site is located on the border of the Tertiary San Jose and Nacimiento Formations. In the report titled “Hydrogeology and Water Resources of San Juan Basin, New Mexico” (Stone, et. al., 1983), the San Jose Formation is characterized by various lithologies including course-grained arkose, mudstones, and lenses of claystone, siltstone, and poorly consolidated sandstone. This formation ranges in thickness from 200 feet to 2,700 feet. Stone et. al. state that the aquifers in the San Jose Formation are largely untested and display variable hydrologic properties dependent on location. Where sufficient yield is present, the primary use of water from this formation is for domestic and/or livestock supply. The San

Jose Formation is the youngest Tertiary bedrock unit in the San Juan Basin and is underlain by the Nacimiento Formation.

The underlying Nacimiento Formation is characterized by interbedded black carbonaceous mudstones and white, coarse-grained sandstones and ranges in thickness from 418 feet to 2,232 feet. The hydrologic properties of the Nacimiento are similar to that of the San Jose Formation and vary dependent on location. The primary use of water from this formation is also for domestic and/or livestock supply in areas of sufficient yield. The Nacimiento Formation in underlain by the Ojo Alamo sandstone (Stone et. al., 1983).

POTENTIAL SENSITIVE RECEPTORS

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

The nearest significant watercourse to the Site is the Farmington Glade, located approximately 450 feet east of the Site. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland (Figure 3). The nearest fresh-water well is NMOSE permitted well SJ-03996 (Appendix B), located approximately 0.7 miles north-northeast of the Site. The recorded depth to water on the NMOSE database is 65 feet below ground surface (bgs). No wellhead protection areas, springs, or domestic/stock wells are located within a ½-mile from the Site (Figure 4). The Site is not within a 100-year floodplain, overlying a subsurface mine, or located within an area underlain by unstable geology (area designated as low potential karst by the BLM). Schools, hospitals, institutions, churches, and/or other occupied permanent residence or structures are not located within 300 feet of the Site.

SITE CLOSURE CRITERIA

Based on the information presented above and in accordance with the *Table 1, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 of the NMAC), the following closure criteria should be applied to the Site:

- Chloride: 10,000 milligrams per kilogram (mg/kg)
- Total Petroleum Hydrocarbons (TPH) as a combination of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO): 2,500 mg/kg
- TPH-GRO + TPH-DRO: 1,000 mg/kg
- A combination of benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 mg/kg
- Benzene: 10 mg/kg

SITE INVESTIGATION ACTIVITIES

On May 18 and 19, 2022, Hilcorp retained Ensolum to perform delineation activities to identify the horizontal and vertical extent of impacts related to the condensate release. Ensolum submitted notice of sampling to the NMOCD 48 hours in advance of the work (Appendix C). Drilling was performed by Enviro-Drill, Inc. using a Central Mining Equipment 75 hollow-stem auger drill rig. Seven borings, BH01 through BH07, were advanced to depths of 30 feet bgs during this investigation in the locations presented on Figure 5.

During drilling, an Ensolum geologist logged soil lithology and inspected the soil for petroleum hydrocarbon staining and odors. Soil descriptions were noted in field books/boring logs and generally followed the Unified Soil Classification System (USCS), as specified in American Society for Testing and Materials (ASTM) method D2488. Soil samples were also field screened for the presence of organic vapors using a photoionization detector (PID), with readings also noted on the field boring logs (attached as Appendix D). In general, soil samples were collected from depth intervals indicating the greatest impacts based on field screening and PID measurements. Soil samples were collected directly into laboratory-provided jars and immediately placed on ice. Samples were submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of BTEX by United States Environmental Protection Agency (EPA) Method 8021, TPH-GRO, TPH-DRO, TPH-MRO by EPA Method 8015, and chloride by EPA Method 300.0.

SOIL BORING RESULTS

In general, very fine to medium grained sands and silty sands with varying silt and clay content were encountered in all borings at the Site. Field indications of petroleum hydrocarbons, including staining, odors, and/or elevated PID readings, were noted in borings BH06 and BH07, both located within the secondary containment and in close proximity to the release source. Groundwater was not encountered in any of the borings during drilling.

Soil samples collected between the ground surface and 17 feet bgs from boring BH06 contained concentrations of total BTEX and TPH-GRO+DRO exceeding the NMOCD Table I Closure Criteria. BTEX, TPH, and chloride concentrations were not detected in any other soil samples exceeding the NMOCD Table I Closure Criteria collected during this investigation. A summary of analytical results is presented on Table 1 and Figure 5. Complete laboratory reports are attached in Appendix E.

REMEDIATION WORK PLAN

Based on the delineation activities and analytical results described above, an estimated 500 cubic yards of soil have been impacted by the condensate release at the Site. The release has impacted soil up to approximately 17 feet bgs and appears to be contained within the current footprint of the secondary containment. Based on the nature of the release as predominantly TPH-GRO hydrocarbons, favorable soil lithology, and the proximity of impacted soil to active equipment, Ensolum recommends the use of soil vapor extraction (SVE) techniques to remediate soil at the Site. As described by the EPA, SVE is an in-situ technique for the removal of volatile organic compounds (VOCs) and some semi-volatile organic compounds (SVOCs) from vadose zone soil through the application of vacuum to the subsurface. When air is removed from the soil, contaminants are volatilized and removed. Depending

on contaminant concentrations in the removed air, the SVE system may emit the exhaust directly to the atmosphere.

Based on field screening during drilling, borings BH01 (SVE01), BH06 (SVE02), and BH07 (SVE03) were completed as SVE wells to be used for future remediation. Screened casing was installed at depths from 5 feet to 10 feet bgs, across the subsurface interval with the highest petroleum hydrocarbon impacts based on PID readings in order to direct the applied vacuum to these depth intervals. SVE wells were constructed with 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 2-inch Schedule 40 PVC 0.010-inch slotted screen. Wells were completed with 10-20 silica sand pack to 3 feet above the screened interval, then hydrated bentonite seal to the ground surface. SVE well locations are depicted on Figure 5.

SVE PILOT TEST

Ensolum recommends performing a SVE pilot test to evaluate the effectiveness of SVE for the Site and, if applicable, assess the Site specific flow and vacuum rates required to volatilize and remove contaminants from the impacted subsurface. Data collected during the SVE pilot test will be used to estimate the system's radius-of-influence (ROI) and radius-of-effect (ROE) to determine well spacing and the need for additional SVE wells at the Site.

A vacuum truck will be used to remove air at one SVE well at a time (used as the "extraction" well). Flow and vacuum rates will be measured at the extraction well using an adjustable manifold and vacuum responses will be measured in the other SVE wells at the Site (used as "observation" wells). The pilot-test manifold will be used to control and incrementally increase vacuum being applied to the extraction well to assess the relationship between flow and vacuum. Vacuum measurements collected at the observation wells will be used to assess the ROI and ROE achievable at the Site. The following general procedures will be used to perform the SVE pilot test:

1. Collect initial VOC measurements using a PID from all SVE wells.
2. Attach a flexible hose from the vacuum truck to the SVE pilot test manifold. Connect the manifold to the first extraction well, start the vacuum truck, and slowly open the valve to increase flow and vacuum at the well.
3. During each test, apply a vacuum of approximately 10 inches of water column (IWC) and allow flow/vacuum measurements to stabilize for up to 15 minutes. Collect vacuum measurements and PID readings at each observation well once flow and vacuum have stabilized.
4. Increase the extraction well vacuum by 10 to 20 IWC, allow the vacuum/flow to stabilize, and collect observation well measurements as described below. Continue Steps 3 and 4 until 100 IWC is being applied at the extraction well or the vacuum truck capabilities are reached
5. Close the manifold valve, allow to vacuum to dissipate, and collect PID readings from each observation well.
6. Collect air samples from the extraction wells in 1-liter Tedlar® bags and submit to Hall for analysis of BTEX and total volatile petroleum hydrocarbons (TVPH).

After completion of the SVE pilot test, Ensolum will prepare a Pilot Test Report summarizing the results of the test and recommendations for the design and construction of the full-scale SVE system. The report will include the calculations for ROI and ROE, system specification, an operation and maintenance plan for the system, and the proposed remediation schedule and timeline. Hilcorp and Ensolum will perform

the SVE pilot test and prepare the Pilot Test Report within 90 days of NMOCD approval of this *Site Characterization Report and Remediation Work Plan*.

We appreciate the opportunity to provide this report to the NMOCD. If you should have any questions or comments regarding this document, please contact the undersigned.

Sincerely,
Ensolum, LLC

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

Daniel R. Moir, PG
Senior Managing Geologist
(303) 887-2946
dmoir@ensolum.com

Attachments:

Figure 1:	Site Location
Figure 2:	Site Features
Figure 3:	Site Proximity to Watercourse, Lakebed, Sinkhole, Playa Lake, or Wetland
Figure 4:	Site Proximity to Fresh Water Wells and Springs
Figure 5:	Soil Delineation Results
Table 1:	Delineation Soil Sample Analytical Results
Appendix A:	Project Photographs
Appendix B:	NMOSE Well SJ-03996 Water Rights Summary
Appendix C:	NMOCD Sampling Notification
Appendix D:	Field Boring Logs
Appendix E:	Laboratory Analytical Reports

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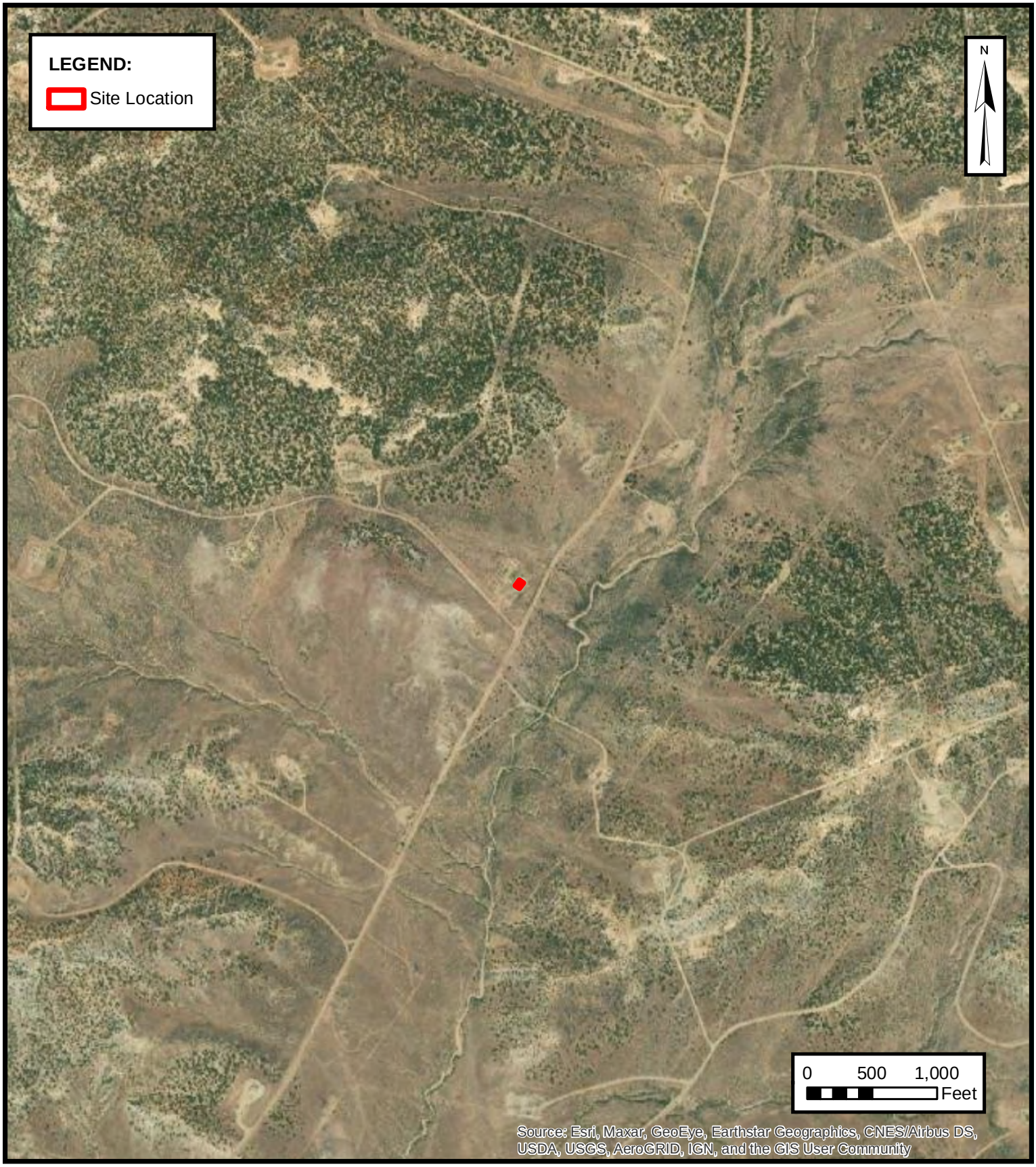
FIGURES



ENSOLUM
Environmental & Hydrogeologic Consultants

SITE LOCATION

HILCORP ENERGY COMPANY
MOORE LS 6B
San Juan, New Mexico
36.951020° N, 108.045799° W

PROJECT NUMBER: 07A1988011

FIGURE

1

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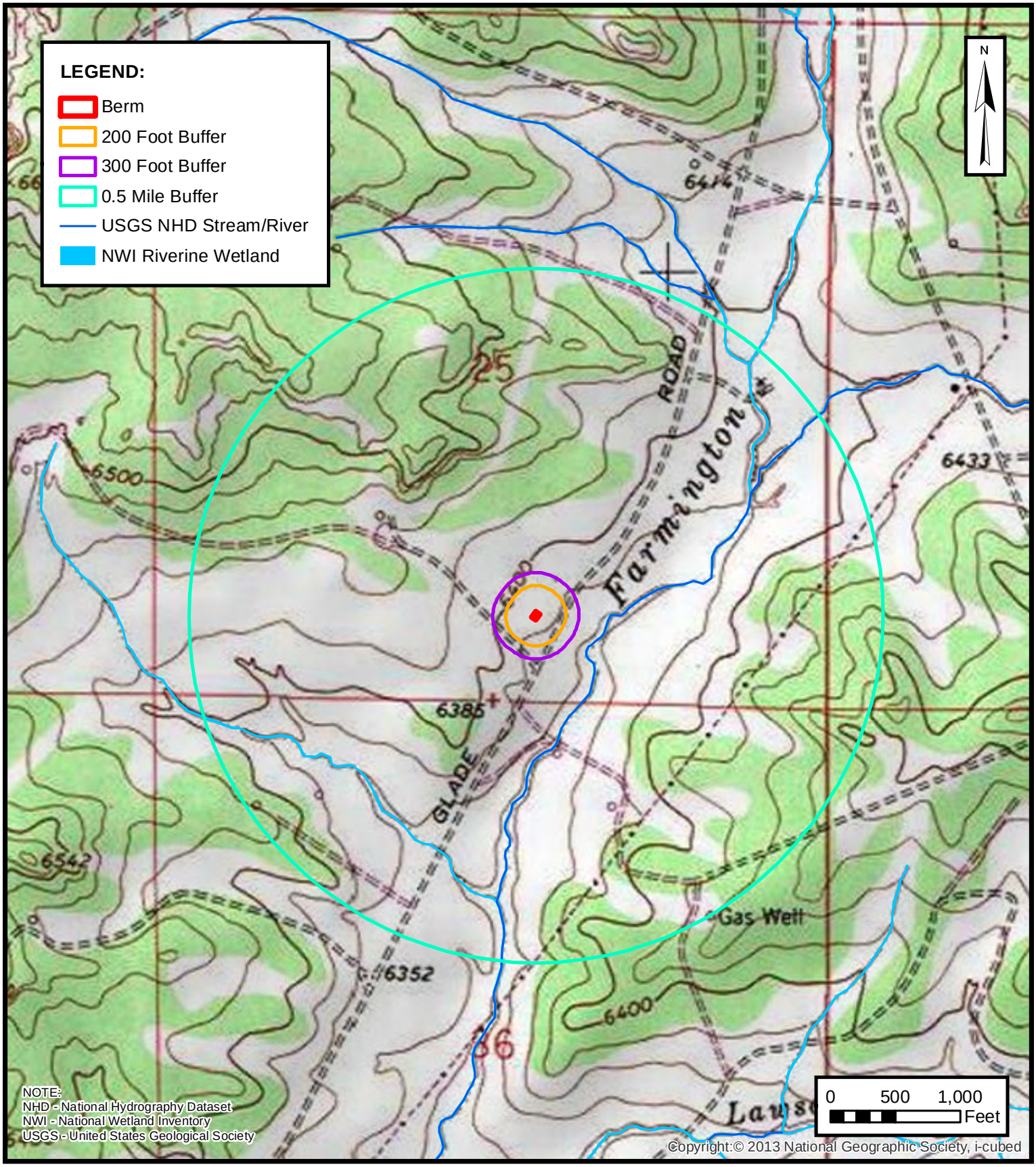
Environmental & Hydrogeologic Consultants

SITE FEATURES

HILCORP ENERGY COMPANY
MOORE LS 6B
San Juan, New Mexico
36.951020° N, 108.045799° W

PROJECT NUMBER: 07A1988011

FIGURE
2



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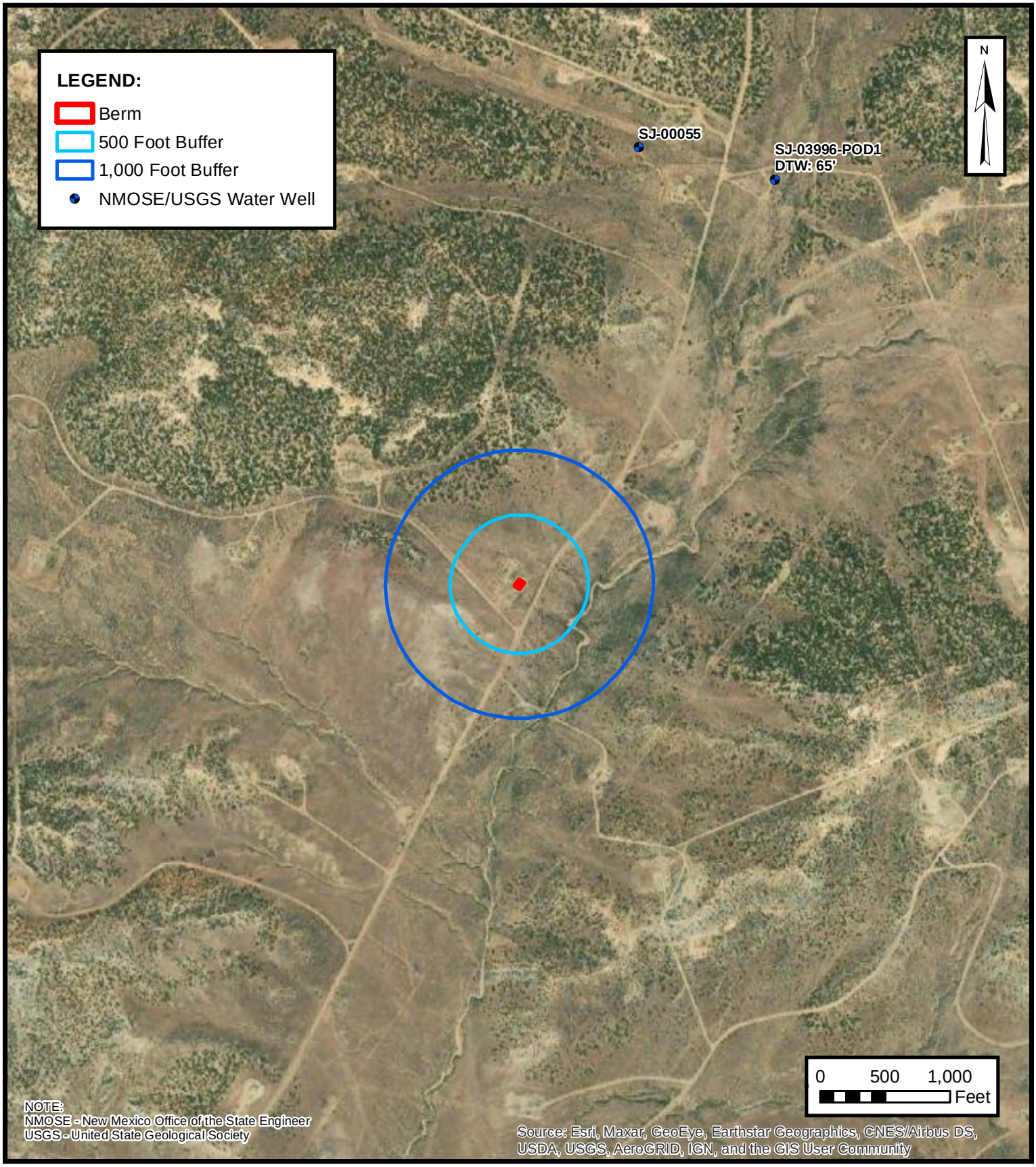
SITE PROXIMITY TO WATERCOURSE, LAKEBED, SINKHOLE, PLAYA LAKE, OR WETLAND
HILCORP ENERGY COMPANY
MOORE LS 6B
San Juan, New Mexico
36.951020° N, 108.045799° W

PROJECT NUMBER: 07A1988011

FIGURE
3



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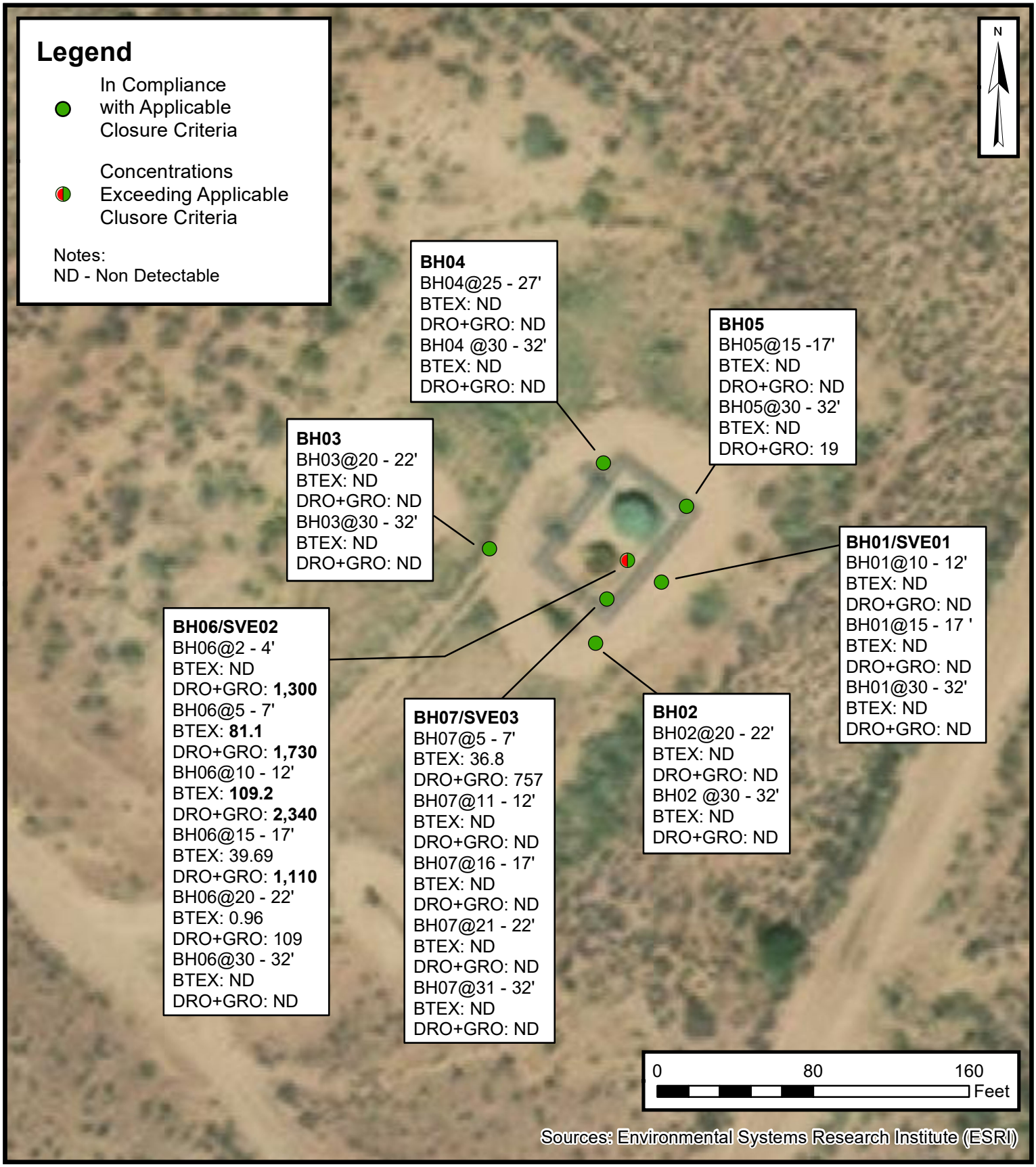
SITE PROXIMITY TO FRESH WATER WELLS AND SPRINGS

HILCORP ENERGY COMPANY
MOORE LS 6B
San Juan, New Mexico
36.951020° N, 108.045799° W

PROJECT NUMBER: 07A1988011

FIGURE

4



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SOIL DELINEATION RESULTS

HILCORP ENERGY COMPANY
MOORE LS 6B
San Juan, New Mexico
36.951020° N, 108.045799° W

PROJECT NUMBER: 07A1988011

FIGURE
5

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TABLES

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TABLE 1
DELINEATION SOIL SAMPLE ANALYTICAL RESULTS
Hilcorp Energy Company - Moore LS 6B
San Juan County, New Mexico

Ensolum Project No. 07A1988011

Sample Identification	Sample Date	Sample Depth (feet bgs)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total GRO+DRO (mg/kg)	Total TPH (GRO+DRO+MRO) (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release (Groundwater 50 - 100 feet)			NE	**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**10,000**
Delineation Soil Sample Analytical Results														
BH01 - 10 - 12	5/18/2022	10 - 12	135	<0.022	<0.045	<0.045	<0.090	<0.090	<4.5	<9.6	<48	<9.6	<48	<60
BH01 - 15 - 17	5/18/2022	15 - 17	98	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.8	<49	<9.8	<49	190
BH01 - 30 - 32	5/18/2022	30 - 32	23	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	<9.3	<47	<9.3	<47	<59
BH02 - 20 - 22	5/18/2022	20 - 22	9.1	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.7	<49	<9.7	<49	<61
BH02 - 30 - 32	5/18/2022	30 - 32	6.0	<0.025	<0.049	<0.049	<0.099	<0.099	<4.9	<9.5	<47	<9.5	<47	<60
BH03 - 20- 22	5/18/2022	20 - 22	4.6	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<9.1	<46	<9.1	<46	350
BH03 - 30 - 32	5/18/2022	30 - 32	3.5	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<9.3	<46	<9.3	<46	110
BH04 - 25 - 27	5/18/2022	25 - 27	5.4	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.8	<49	<9.8	<49	<60
BH04 - 30 - 32	5/18/2022	30 - 32	1.8	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	<10	<50	<10	<50	90
BH05 - 15 - 17	5/18/2022	15 -17	6.5	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<10	<51	<10	<51	<60
BH05 - 30 -32	5/18/2022	30 - 32	5.9	<0.023	<0.047	<0.047	<0.094	<0.094	<4.7	19	<48	19	19	<60
BH06 - 2 - 4	5/19/2022	2 - 4	4,720	<0.12	<0.24	<0.24	<0.47	<0.47	<24	1,300	<500 D	**1,300**	1,300	<60
BH06 - 5 - 7	5/19/2022	5 - 7	2,340	<0.12	6.4	6.7	68	**81.1**	1,200	530	<48	**1,730**	1,730	<60
BH06 - 10 - 12	5/19/2022	10 - 12	1,966	0.32	12	6.9	90	**109.2**	1,700	640	<49	**2,340**	2,340	<60
BH06 - 15 - 17	5/19/2022	15 - 17	2,542	0.19	4.9	2.6	32	39.69	860	250	<48	**1,110**	1,110	<60
BH06 - 20 - 22	5/19/2022	20 - 22	1,906	<0.025	0.077	<0.049	0.88	0.96	50	59	<48	109	109	<60
BH06 - 30 - 32	5/19/2022	30 - 32	140	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.6	<48	<9.6	<48	<59
BH07 - 5 - 7	5/19/2022	5 - 7	2,275	<0.12	3.5	2.3	31	36.8	660	97	<47	757	757	<60
BH07 - 11 - 12	5/19/2022	11 - 12	272	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.6	<48	<9.6	<48	<60
BH07 - 16 - 17	5/19/2022	16 - 17	62	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<8.7	<43	<8.7	<43	<61
BH07 - 21 - 22	5/19/2022	21 - 22	190	<0.025	<0.049	<0.049	<0.098	<0.098	<4.9	<9.1	<45	<9.1	<45	<60
BH07 - 31 - 32	5/19/2022	31 - 32	11.5	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<9.4	<47	<9.4	<47	<60

Notes:

bgs: below ground surface

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

DRO: Diesel Range Organics

GRO: Gasoline Range Organics

mg/kg: milligrams per kilogram

MRO: Motor Oil/Lube Oil Range Organics

NE: Not Established

NMOCD: New Mexico Oil Conservation Division

PID: Photoionization Detector

ppm: parts per million

TPH: Total Petroleum Hydrocarbon

<0.037: indicates result less than the stated laboratory reporting limit (RL)

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

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APPENDIX A

Project Photographs

PROJECT PHOTOGRAPHS
Moore LS 6B
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Site and bermed secondary containment, looking northeast.	
Photograph 2 Two bullet holes were found in the aboveground storage tank on February 14, 2022, resulting in a release of 42 barrels of condensate.	

Ensolum, LLC | Environmental & Hydrogeologic Consultants
Durango, Colorado | info@ensolum.com

PROJECT PHOTOGRAPHS
Moore LS 6B
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 3 View of boring BH01 looking northwest.	
Photograph 4 View of boring BH04 looking southeast.	

Ensolum, LLC | Environmental & Hydrogeologic Consultants
Durango, Colorado | info@ensolum.com

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APPENDIX B

NMOSE Well SJ-03996 Water Rights Summary

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	SJ 03996 POD1	2	4	2	25	32N	12W	229425	4094710

x

Driller License:	1357	**Driller Company:**	BAILEY DRILLING COMPANY		
Driller Name:	MARK BAILEY				
Drill Start Date:	01/23/2012	**Drill Finish Date:**	01/23/2012	**Plug Date:**	
Log File Date:	02/08/2012	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	10 GPM
Casing Size:	5.00	**Depth Well:**	120 feet	**Depth Water:**	65 feet

x

Water Bearing Stratifications:	Top	Bottom	Description
	70	100	Sandstone/Gravel/Conglomerate

x

Casing Perforations:	Top	Bottom
	0	120

x

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APPENDIX C

NMOCD Sampling Notification

Mitch Killough

From: Stuart Hyde <shyde@ensolum.com>
Sent: Monday, May 16, 2022 9:59 AM
To: ocd.enviro@state.nm.us; Velez, Nelson, EMNRD
Cc: Mitch Killough; Reece Hanson
Subject: [EXTERNAL] NAPP2206056316 - Moore LS 6B Delineation/Sampling Notification

On behalf of Hilcorp Energy Company, Ensolum is providing 48-hour notice of delineation drilling and sampling to take place at the Moore LS 6B site in San Juan County, NM (36.95101, -108.04544). This work will begin on Wednesday May 18th at 9:00 AM. Please call or email with any questions. Thank you.

Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

ENSOLUM

APPENDIX D

Field Boring Logs

ENSOLUM

Client: Hilcorp
Project Name: Moore LS CTB
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER: BH-01
Project No.

Date Sampled: 5/18/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hansen
Sampler: SAA

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow Stem w/ Split Spoon

SAMPLE TIME

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5		BH01 5-7	100	78			Mdm Brown - V fine to fine sand ~25%, silt ~25% + clay No S/O 50	
10 (1445)		BH01 10-12	100	135			Tan, V. Fine sand (<25%) silt + clay (<25%) No S/O	
15 (1448)		BH01 15-17	100	98			SAA	
20		BH01 20-22	100	35			tan to lt. Brown, fine to coarse sand w/ silt, No S/O	
25		BH01 25-27	100	55			SAA	
30		BH01 30-32		23			SAA, <10% fines	

ENSOLUM

Client: Hilcorp
Project Name: Nova LS 67
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH02
Project No.

Date Sampled: 5/13/22
Drilled by: Env. Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SAA

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow stem w/ split spoon sampler

Sample time

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5		BH02 5-7	100	4.0			Clay & silt transitioning to fine to med. sand, silt & <10% fines. No S/O	
10		BH02 10-12	100	4.9			fine to med. sand (<25%) silt (>50%) & clay No S/O	
15		BH02 15-17	100	7.9			tan, fine to med. sand & silt No S/O	
20		BH02 20-22	100	9.1			SAA, <10% fines No S/O	
25		BH02 25-27	80	8.4			silt & clay, med brown to gray. No S/O	
30		BH02 30		6.0			SAA TD=30'	

1452

1459

ENSOLUM

Client: Hilcorp
Project Name: Moore LS 613
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH03
Project No.

Date Sampled: 5/18/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SAA

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow Stem w/ Split Spoon Sampler

Sample time

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5		BH03 5-7	100	2.2			light tan fine - md. sand ~50% ~50% silt, No S/O	
10		BH03 10-12	100	1.6			md. tan, fine - md. sand, w/ silt, <10% fines No S/O	
15		BH03 15-17	100	3.2			SAA	
20		BH03 20-22	100	4.6			V fine to fine sand & silt tan to lt brown, No S/O	
25		BH03 25-27	100	3.0			md. brown - silt & <25% fines	
30		BH03 30-32	100	3.5			tan v. fine to fine sand & silt, <10% fines TD=30'	

1456

1457

ENSOLUM

Client: Hilcorp
Project Name: Moore LS 6B
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH04
Project No.

Date Sampled: 5/18/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SHH

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
X At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow stem w/ split spoon samples

sample time

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5	X	BH04 5-7	100	2.7			lt. Brown to tan, fine to med. sand w/ silt <10% fines No S/O	
10	X	BH04 10-12	100	3.3			light brown, <25% fine-med. Sand, w/ silt & ~25% fines No S/O	
15	X	BH04 15-17	75	2.7			med. brown, silt & clay, <25% fine-med. sand No S/O	
20	X	BH04 20-22	100	3.8			med. brown, fine-med sand, rare coarse. silt & <10% clay No S/O	
25	X	BH04 25-27	80	5.4			med. brown, V fine to fine sand & silt, <10% fines No S/O	
30	X	BH04 30-32	100	1.8			tan to brown, fine to med sand ~25% silt, No S/O	

1502
1505

ENSOLUM

Client: Hilcorp
Project Name: Moore LS 6B
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH05
Project No.

Date Sampled: 5/18/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SAA

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow Stem

Sample time

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5	X	BH05 5-7	90	3.2			light brown, V Fine to fine sand ~25% ± silt No S/O	
10	X	BH05 10-12	100	5.4			md. brown, fine to med. Sand, silt ± ~10% Fines No S/O	
15	X	BH05 15-17	100	6.5			SAA, No S/O	
20	X	BH05 20-22	80	4.1			tan to brown, Fine to med. Sand, w/ silt, <10% fines No S/O	
25	X	BH05 25-27	90	4.4			tan to light gray, SAA No S/O	
30		BH05 [illegible]	100	5.9			light brown to tan, Fine to med. Some coarse sand w/ silt, <10% Fines, No S/O TD=30'	

1508

ENSOLUM

Client: Hilcorp
Project Name: Moore LS 61B
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH06
Project No.

Date Sampled: 5/19/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SH

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow Stem Auger

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	PID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
		BH06 2-4	100	4720			moist to saturated, stained w/ strong odor Clay & silt w/ ~ 25% fine-med. sand	
5		BH06 5-7	100	2340			moist, stained, strong odor Sand, silt & fines	
10		BH06 10-12	100	1966			@ ~ 11' bgs soil is less stained & has diminished odor, transitions to fine-med sand w/ silt 10-11' - silt & fines, w/ strong odor 15.5'	
15		BH06 15-17	100	2542			15'-16' stained silt & fines w/ strong odor. 15.5-17 - fine to med sand, w/ silt, tan, NS: S/O	
20		BH06 20-22	100	1906			20-20.5 stained w/ strong odor 20.5-22 no S/O fine-med. sand w/ silt & ~ 20% fines	
25		BH06 25-27	100	382			25-25.5, stained w/ mod odor, silt & fines 25.5-27 - no S/O, fine-med sand w/ silt	
30		BH06 30-32	100	140			4" band of clay @ ~ 31', fine to med. sand w/ silt & clay TD = 30'	

Well set same as BH07

ENSOLUM

Client: Hilcorp
Project Name: Moore CS 1B
Project Location:
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH07
Project No.

Date Sampled: 5/19/22
Drilled by: Enviro-Drill
Driller: Ryan
Logged by: Reece Hanson
Sampler: SAA

Ground Surface Elevation:
Top of Casing Elevation:
North Coordinate:
West Coordinate:
Bench Mark Elevation:
At Completion
At Well Stabilization

Borehole Diameter: 8"
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: Hollow stem Auger

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0								
5	5-7	BH07 5-7	100	275			Fine sand ~25%, silt & fines, moist, strong odor	
10	10-11			1005			10-11' - silt & clay, strong odor	
	11-12		10%	272			11-12 - V fine sand, silt & clay, silt odor	
15	BH07 15-16			325			15-16 - fine - med. sand, w/ silt & fines, mod. odor	Well set @ 15' w/ 5-15' screened
	16-17		10%	62			16-17 - tan, fine - med. sand w/ silt, No S/O	Bentonite Plug to 17'
20	20-21			524			20-21 - fine - med sand w/ silt & fines, mod. odor	
	21-22		100	190			21-22 - fine - med sand w/ silt, No S/O	
25	25-26			396			25-26 - fine - med sand w/ silt & <25% fines, mod. odor	
	26-27		100	78			26-27 - fine to med sand w/ silt No odor	
30	30-31			300			30-31' - fine - med sand w/ silt & <25% fines, silt odor.	
	31-32			11.5			31-32 - fine - med. sand w/ silt, <10% fines No S/O	

ENSOLUM

APPENDIX E

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 02, 2022

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

RE: Moore LS 6B OrderNo.: 2205871

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/19/2022 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH01-10-12
Project: Moore LS 6B **Collection Date:** 5/18/2022 2:45:00 PM
Lab ID: 2205871-001 **Matrix:** MEOH (SOIL) **Received Date:** 5/19/2022 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 11:30:17 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/19/2022 11:30:17 AM
Surr: DNOP	110	51.1-141		%Rec	1	5/19/2022 11:30:17 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	5/19/2022 9:44:35 AM
Surr: BFB	128	37.7-212		%Rec	1	5/19/2022 9:44:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.022		mg/Kg	1	5/19/2022 9:44:35 AM
Toluene	ND	0.045		mg/Kg	1	5/19/2022 9:44:35 AM
Ethylbenzene	ND	0.045		mg/Kg	1	5/19/2022 9:44:35 AM
Xylenes, Total	ND	0.090		mg/Kg	1	5/19/2022 9:44:35 AM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	5/19/2022 9:44:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/19/2022 1:43:55 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01-30-32
Project: Moore LS 6B
Collection Date: 5/18/2022 2:50:00 PM
Lab ID: 2205871-002 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.3		mg/Kg	1	5/21/2022 12:59:40 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/21/2022 12:59:40 AM
Surr: DNOP	94.3	51.1-141		%Rec	1	5/21/2022 12:59:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/20/2022 2:31:00 PM
Surr: BFB	89.2	37.7-212		%Rec	1	5/20/2022 2:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	5/20/2022 2:31:00 PM
Toluene	ND	0.047		mg/Kg	1	5/20/2022 2:31:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/20/2022 2:31:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/20/2022 2:31:00 PM
Surr: 4-Bromofluorobenzene	91.2	70-130		%Rec	1	5/20/2022 2:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	59		mg/Kg	20	5/24/2022 1:45:55 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01-15-17
Project: Moore LS 6B
Collection Date: 5/18/2022 2:48:00 PM
Lab ID: 2205871-003 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.8		mg/Kg	1	5/21/2022 1:10:38 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2022 1:10:38 AM
Surr: DNOP	95.4	51.1-141		%Rec	1	5/21/2022 1:10:38 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 2:51:00 PM
Surr: BFB	86.4	37.7-212		%Rec	1	5/20/2022 2:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 2:51:00 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 2:51:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 2:51:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/20/2022 2:51:00 PM
Surr: 4-Bromofluorobenzene	87.9	70-130		%Rec	1	5/20/2022 2:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	190	60		mg/Kg	20	5/23/2022 8:18:56 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02-20-22
Project: Moore LS 6B
Collection Date: 5/18/2022 2:52:00 PM
Lab ID: 2205871-004 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.7		mg/Kg	1	5/21/2022 1:21:40 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2022 1:21:40 AM
Surr: DNOP	100	51.1-141		%Rec	1	5/21/2022 1:21:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 3:11:00 PM
Surr: BFB	91.0	37.7-212		%Rec	1	5/20/2022 3:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 3:11:00 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 3:11:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 3:11:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/20/2022 3:11:00 PM
Surr: 4-Bromofluorobenzene	90.9	70-130		%Rec	1	5/20/2022 3:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	61		mg/Kg	20	5/23/2022 8:31:18 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02-30-32
Project: Moore LS 6B
Collection Date: 5/18/2022 2:54:00 PM
Lab ID: 2205871-005 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.5		mg/Kg	1	5/21/2022 1:32:42 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/21/2022 1:32:42 AM
Surr: DNOP	90.3	51.1-141		%Rec	1	5/21/2022 1:32:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 3:31:00 PM
Surr: BFB	88.7	37.7-212		%Rec	1	5/20/2022 3:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/20/2022 3:31:00 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 3:31:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 3:31:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2022 3:31:00 PM
Surr: 4-Bromofluorobenzene	91.7	70-130		%Rec	1	5/20/2022 3:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/23/2022 8:43:38 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03-20-22
Project: Moore LS 6B
Collection Date: 5/18/2022 2:56:00 PM
Lab ID: 2205871-006 **Matrix:** SOIL **Received Date:** 5/19/2022 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	5/21/2022 1:43:41 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/21/2022 1:43:41 AM
Surr: DNOP	94.6	51.1-141		%Rec	1	5/21/2022 1:43:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 3:51:00 PM
Surr: BFB	92.2	37.7-212		%Rec	1	5/20/2022 3:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 3:51:00 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 3:51:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 3:51:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2022 3:51:00 PM
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	5/20/2022 3:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	350	60		mg/Kg	20	5/24/2022 2:47:57 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03-30-32
Project: Moore LS 6B
Collection Date: 5/18/2022 2:59:00 PM
Lab ID: 2205871-007 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.3		mg/Kg	1	5/21/2022 1:54:40 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/21/2022 1:54:40 AM
Surr: DNOP	99.8	51.1-141		%Rec	1	5/21/2022 1:54:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 4:11:00 PM
Surr: BFB	88.6	37.7-212		%Rec	1	5/20/2022 4:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 4:11:00 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 4:11:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 4:11:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/20/2022 4:11:00 PM
Surr: 4-Bromofluorobenzene	89.1	70-130		%Rec	1	5/20/2022 4:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	110	61		mg/Kg	20	5/24/2022 3:00:21 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04-25-27
Project: Moore LS 6B
Collection Date: 5/18/2022 3:02:00 PM
Lab ID: 2205871-008 **Matrix:** SOIL **Received Date:** 5/19/2022 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	9.8		mg/Kg	1	5/21/2022 2:05:38 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/21/2022 2:05:38 AM
Surr: DNOP	95.8	51.1-141		%Rec	1	5/21/2022 2:05:38 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2022 4:50:00 PM
Surr: BFB	88.8	37.7-212		%Rec	1	5/20/2022 4:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 4:50:00 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2022 4:50:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2022 4:50:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/20/2022 4:50:00 PM
Surr: 4-Bromofluorobenzene	89.2	70-130		%Rec	1	5/20/2022 4:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	5/24/2022 3:12:45 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04-30-32
Project: Moore LS 6B
Collection Date: 5/18/2022 3:05:00 PM
Lab ID: 2205871-009 **Matrix:** SOIL **Received Date:** 5/19/2022 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	10		mg/Kg	1	5/21/2022 2:16:35 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/21/2022 2:16:35 AM
Surr: DNOP	87.9	51.1-141		%Rec	1	5/21/2022 2:16:35 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/20/2022 5:10:00 PM
Surr: BFB	88.5	37.7-212		%Rec	1	5/20/2022 5:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	5/20/2022 5:10:00 PM
Toluene	ND	0.047		mg/Kg	1	5/20/2022 5:10:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/20/2022 5:10:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/20/2022 5:10:00 PM
Surr: 4-Bromofluorobenzene	89.1	70-130		%Rec	1	5/20/2022 5:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	90	60		mg/Kg	20	5/24/2022 3:25:10 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05-15-17
Project: Moore LS 6B
Collection Date: 5/18/2022 3:08:00 PM
Lab ID: 2205871-010 **Matrix:** SOIL **Received Date:** 5/19/2022 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	10		mg/Kg	1	5/21/2022 2:27:33 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	5/21/2022 2:27:33 AM
Surr: DNOP	89.6	51.1-141		%Rec	1	5/21/2022 2:27:33 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2022 5:30:00 PM
Surr: BFB	90.3	37.7-212		%Rec	1	5/20/2022 5:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.025		mg/Kg	1	5/20/2022 5:30:00 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2022 5:30:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2022 5:30:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2022 5:30:00 PM
Surr: 4-Bromofluorobenzene	89.9	70-130		%Rec	1	5/20/2022 5:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	5/24/2022 3:37:35 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 **2205871**
Date Reported: **6/2/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** BH05-30-32
Project: Moore LS 6B **Collection Date:** 5/18/2022 3:11:00 PM
Lab ID: 2205871-011 **Matrix:** SOIL **Received Date:** 5/19/2022 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)	19	9.6		mg/Kg	1	5/21/2022 2:38:31 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/21/2022 2:38:31 AM
Surr: DNOP	103	51.1-141		%Rec	1	5/21/2022 2:38:31 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/20/2022 5:50:00 PM
Surr: BFB	90.0	37.7-212		%Rec	1	5/20/2022 5:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	5/20/2022 5:50:00 PM
Toluene	ND	0.047		mg/Kg	1	5/20/2022 5:50:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/20/2022 5:50:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/20/2022 5:50:00 PM
Surr: 4-Bromofluorobenzene	89.4	70-130		%Rec	1	5/20/2022 5:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	5/24/2022 3:50:00 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

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-67624** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **67624** RunNo: **88218**
Prep Date: **5/23/2022** Analysis Date: **5/23/2022** SeqNo: **3127935** Units: **mg/Kg**

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

Sample ID: **LCS-67624** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **67624** RunNo: **88218**
Prep Date: **5/23/2022** Analysis Date: **5/23/2022** SeqNo: **3127936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

Sample ID: **MB-67624** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **67624** RunNo: **88201**
Prep Date: **5/23/2022** Analysis Date: **5/23/2022** SeqNo: **3128094** Units: **mg/Kg**

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

Sample ID: **LCS-67624** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **67624** RunNo: **88201**
Prep Date: **5/23/2022** Analysis Date: **5/23/2022** SeqNo: **3128095** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **MB-67654**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **67654**	RunNo: **88240**
Prep Date: **5/24/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129210** Units: **mg/Kg**

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

Sample ID: **LCS-67654**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **67654**	RunNo: **88240**
Prep Date: **5/24/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129211** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.1	64.4	127			
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: **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	8.3		10.00		82.8	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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.6	64.4	127			
Surr: DNOP	4.6		5.000		91.5	51.1	141			

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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								

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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

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: **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	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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	110	72.3	137			
Surr: BFB	2200		1000		217	37.7	212			S

Sample ID: **lcs-67570**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67570**	RunNo: **88180**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3125949** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	72.3	137			
Surr: BFB	2000		1000		200	37.7	212			

Sample ID: **mb-67570**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67570**	RunNo: **88180**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3125950** 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	910		1000		91.2	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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

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: **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	0.94		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: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.3	80	120			
Toluene	0.97	0.050	1.000	0	97.5	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.4	80	120			
Xylenes, Total	2.9	0.10	3.000	0	98.2	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: **2205871-001ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH01-10-12**	Batch ID: **B88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124721** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.022	0.8993	0	91.0	68.8	120			
Toluene	0.85	0.045	0.8993	0	94.2	73.6	124			
Ethylbenzene	0.85	0.045	0.8993	0.01349	93.4	72.7	129			
Xylenes, Total	2.6	0.090	2.698	0.01871	94.8	75.7	126			
Surr: 4-Bromofluorobenzene	0.88		0.8993		97.3	70	130			

Sample ID: **2205871-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH01-10-12**	Batch ID: **B88115**	RunNo: **88115**
Prep Date:	Analysis Date: **5/19/2022**	SeqNo: **3124722** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.022	0.8993	0	93.1	68.8	120	2.25	20	
Toluene	0.86	0.045	0.8993	0	95.6	73.6	124	1.39	20	
Ethylbenzene	0.87	0.045	0.8993	0.01349	95.4	72.7	129	2.05	20	
Xylenes, Total	2.6	0.090	2.698	0.01871	96.6	75.7	126	1.86	20	
Surr: 4-Bromofluorobenzene	0.92		0.8993		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix 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#: **2205871**

02-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **lcs-67570**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67570**	RunNo: **88180**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3125984** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.3	80	120			
Toluene	0.97	0.050	1.000	0	97.1	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.9	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.4	80	120			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	70	130			

Sample ID: **mb-67570**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67570**	RunNo: **88180**
Prep Date: **5/19/2022**	Analysis Date: **5/20/2022**	SeqNo: **3125985** 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	0.91		1.000		91.1	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: 2205871 RcptNo: 1

Received By: **Juan Rojas** 5/19/2022 7:05:00 AM

Completed By: **Juan Rojas** 5/19/2022 7:28:27 AM

Reviewed By: SCL 5/19/22

Sameday Sample ! NBS/19/22

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: JNS/19/22

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	2.0	Good				

Chain-of-Custody Record

Client: Hilcorp

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: See Remarks
☐ Standard ☐ Rush

Project Name: Moore LS 6B

Project #:

Project Manager: Stuart Hyde
shyde@ensolum.com

Sampler: Reece Hanson

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.1-0.1=2.0 (°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. 2205871	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)
5/18/22	1445	soil	BH01-10-12 *	1,402	Cool	-001	X	X					X			
	1450		BH01-30-32			-002										
	1448		BH01-15-17			-003										
	1452		BH02-20-22			-004 ~~-004~~										
	1454		BH02-30-32			-005										
	1456		BH03-20-22			-006										
	1459		BH03-30-32			-007										
	1502		BH04-25-27			-008										
	1505		BH04-30-32			-009										
	1508		BH05-15-17			-010										
↓	1511	↓	BH05-30-32	↓	↓	-011	↓	↓					↓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/18/22	1552				5/18/22	1552
5/18/22	1806			courier	5/19/22	7:05

Remarks: * BH01-10-12, Same day turn-around
All other samples Standard.
cc: rhanson@ensolum.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 03, 2022

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

RE: Moore LS 6B OrderNo.: 2205934

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/20/2022 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-2-4
Project: Moore LS 6B
Collection Date: 5/19/2022 10:55:00 AM
Lab ID: 2205934-001 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	1300	100		mg/Kg	10	5/26/2022 3:13:04 PM
Motor Oil Range Organics (MRO)	ND	500	D	mg/Kg	10	5/26/2022 3:13:04 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	5/26/2022 3:13:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	24		mg/Kg	5	5/24/2022 5:55:00 AM
Surr: BFB	90.4	37.7-212		%Rec	5	5/24/2022 5:55:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.12		mg/Kg	5	5/24/2022 5:55:00 AM
Toluene	ND	0.24		mg/Kg	5	5/24/2022 5:55:00 AM
Ethylbenzene	ND	0.24		mg/Kg	5	5/24/2022 5:55:00 AM
Xylenes, Total	ND	0.47		mg/Kg	5	5/24/2022 5:55:00 AM
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	5	5/24/2022 5:55:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/25/2022 5:26:28 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-5-7
Project: Moore LS 6B
Collection Date: 5/19/2022 10:58:00 AM
Lab ID: 2205934-002 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	530	9.6		mg/Kg	1	5/26/2022 9:18:59 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2022 9:18:59 AM
Surr: DNOP	93.1	51.1-141		%Rec	1	5/26/2022 9:18:59 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	1200	24		mg/Kg	5	5/24/2022 6:14:00 AM
Surr: BFB	353	37.7-212	S	%Rec	5	5/24/2022 6:14:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.12		mg/Kg	5	5/24/2022 6:14:00 AM
Toluene	6.4	0.24		mg/Kg	5	5/24/2022 6:14:00 AM
Ethylbenzene	6.7	0.24		mg/Kg	5	5/24/2022 6:14:00 AM
Xylenes, Total	68	4.8		mg/Kg	50	5/24/2022 10:39:00 AM
Surr: 4-Bromofluorobenzene	165	70-130	S	%Rec	5	5/24/2022 6:14:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/25/2022 5:38:49 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-10-12
Project: Moore LS 6B
Collection Date: 5/19/2022 11:00:00 AM
Lab ID: 2205934-003 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	640	9.8		mg/Kg	1	5/26/2022 9:42:56 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2022 9:42:56 AM
Surr: DNOP	94.0	51.1-141		%Rec	1	5/26/2022 9:42:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1700	24		mg/Kg	5	5/24/2022 9:29:25 AM
Surr: BFB	1260	37.7-212	S	%Rec	5	5/24/2022 9:29:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.32	0.12		mg/Kg	5	5/24/2022 9:29:25 AM
Toluene	12	0.24		mg/Kg	5	5/24/2022 9:29:25 AM
Ethylbenzene	6.9	0.24		mg/Kg	5	5/24/2022 9:29:25 AM
Xylenes, Total	90	4.8		mg/Kg	50	5/24/2022 11:03:34 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	50	5/24/2022 11:03:34 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/25/2022 5:51:09 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-15-17
Project: Moore LS 6B
Collection Date: 5/19/2022 11:03:00 AM
Lab ID: 2205934-004 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	250	9.5		mg/Kg	1	5/26/2022 10:06:56 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2022 10:06:56 AM
Surr: DNOP	94.8	51.1-141		%Rec	1	5/26/2022 10:06:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	860	24		mg/Kg	5	5/24/2022 9:52:52 AM
Surr: BFB	691	37.7-212	S	%Rec	5	5/24/2022 9:52:52 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.19	0.12		mg/Kg	5	5/24/2022 9:52:52 AM
Toluene	4.9	0.24		mg/Kg	5	5/24/2022 9:52:52 AM
Ethylbenzene	2.6	0.24		mg/Kg	5	5/24/2022 9:52:52 AM
Xylenes, Total	32	0.49		mg/Kg	5	5/24/2022 9:52:52 AM
Surr: 4-Bromofluorobenzene	121	70-130		%Rec	5	5/24/2022 9:52:52 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/25/2022 6:28:11 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-20-22
Project: Moore LS 6B
Collection Date: 5/19/2022 11:06:00 AM
Lab ID: 2205934-005 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	59	9.7		mg/Kg	1	5/26/2022 10:30:58 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2022 10:30:58 AM
Surr: DNOP	91.7	51.1-141		%Rec	1	5/26/2022 10:30:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	50	4.9		mg/Kg	1	5/24/2022 11:27:03 AM
Surr: BFB	325	37.7-212	S	%Rec	1	5/24/2022 11:27:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/24/2022 11:27:03 AM
Toluene	0.077	0.049		mg/Kg	1	5/24/2022 11:27:03 AM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2022 11:27:03 AM
Xylenes, Total	0.88	0.099		mg/Kg	1	5/24/2022 11:27:03 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	5/24/2022 11:27:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	5/25/2022 6:40:32 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06-30-32
Project: Moore LS 6B
Collection Date: 5/19/2022 11:08:00 AM
Lab ID: 2205934-006 **Matrix:** SOIL **Received Date:** 5/20/2022 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	9.6		mg/Kg	1	5/24/2022 11:28:10 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2022 11:28:10 AM
Surr: DNOP	110	51.1-141		%Rec	1	5/24/2022 11:28:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2022 10:40:02 AM
Surr: BFB	103	37.7-212		%Rec	1	5/24/2022 10:40:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	5/24/2022 10:40:02 AM
Toluene	ND	0.048		mg/Kg	1	5/24/2022 10:40:02 AM
Ethylbenzene	ND	0.048		mg/Kg	1	5/24/2022 10:40:02 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/24/2022 10:40:02 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	5/24/2022 10:40:02 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	59		mg/Kg	20	5/24/2022 11:27:11 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07-5-7
Project: Moore LS 6B
Collection Date: 5/19/2022 11:15:00 AM
Lab ID: 2205934-007 **Matrix:** SOIL **Received Date:** 5/20/2022 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)	97	9.5		mg/Kg	1	5/27/2022 9:22:00 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2022 9:22:00 AM
Surr: DNOP	90.7	51.1-141		%Rec	1	5/27/2022 9:22:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	660	24		mg/Kg	5	5/24/2022 11:50:32 AM
Surr: BFB	626	37.7-212	S	%Rec	5	5/24/2022 11:50:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	5/24/2022 11:50:32 AM
Toluene	3.5	0.24		mg/Kg	5	5/24/2022 11:50:32 AM
Ethylbenzene	2.3	0.24		mg/Kg	5	5/24/2022 11:50:32 AM
Xylenes, Total	31	0.48		mg/Kg	5	5/24/2022 11:50:32 AM
Surr: 4-Bromofluorobenzene	123	70-130		%Rec	5	5/24/2022 11:50:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2022 11:39:31 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07-11-12
Project: Moore LS 6B
Collection Date: 5/19/2022 11:18:00 AM
Lab ID: 2205934-008 **Matrix:** SOIL **Received Date:** 5/20/2022 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	9.6		mg/Kg	1	5/24/2022 11:49:24 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2022 11:49:24 AM
Surr: DNOP	116	51.1-141		%Rec	1	5/24/2022 11:49:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2022 12:14:09 PM
Surr: BFB	107	37.7-212		%Rec	1	5/24/2022 12:14:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/24/2022 12:14:09 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2022 12:14:09 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2022 12:14:09 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/24/2022 12:14:09 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	5/24/2022 12:14:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2022 11:51:52 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07-16-17
Project: Moore LS 6B
Collection Date: 5/19/2022 11:20:00 AM
Lab ID: 2205934-009 **Matrix:** SOIL **Received Date:** 5/20/2022 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	8.7		mg/Kg	1	5/24/2022 12:00:03 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/24/2022 12:00:03 PM
Surr: DNOP	116	51.1-141		%Rec	1	5/24/2022 12:00:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2022 1:25:08 PM
Surr: BFB	98.2	37.7-212		%Rec	1	5/24/2022 1:25:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/24/2022 1:25:08 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2022 1:25:08 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2022 1:25:08 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/24/2022 1:25:08 PM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	5/24/2022 1:25:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	61		mg/Kg	20	5/25/2022 12:04:13 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07-21-22
Project: Moore LS 6B
Collection Date: 5/19/2022 11:23:00 AM
Lab ID: 2205934-010 **Matrix:** SOIL **Received Date:** 5/20/2022 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	5/24/2022 12:10:39 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/24/2022 12:10:39 PM
Surr: DNOP	111	51.1-141		%Rec	1	5/24/2022 12:10:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2022 2:35:34 PM
Surr: BFB	99.3	37.7-212		%Rec	1	5/24/2022 2:35:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/24/2022 2:35:34 PM
Toluene	ND	0.049		mg/Kg	1	5/24/2022 2:35:34 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2022 2:35:34 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/24/2022 2:35:34 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	5/24/2022 2:35:34 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/25/2022 12:16:34 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 **2205934**
Date Reported: **6/3/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07-31-32
Project: Moore LS 6B
Collection Date: 5/19/2022 11:25:00 AM
Lab ID: 2205934-011 **Matrix:** SOIL **Received Date:** 5/20/2022 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	5/24/2022 12:21:21 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/24/2022 12:21:21 PM
Surr: DNOP	115	51.1-141		%Rec	1	5/24/2022 12:21:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2022 2:59:19 PM
Surr: BFB	97.8	37.7-212		%Rec	1	5/24/2022 2:59:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	5/24/2022 2:59:19 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2022 2:59:19 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2022 2:59:19 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/24/2022 2:59:19 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%Rec	1	5/24/2022 2:59:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/25/2022 12:28:54 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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **MB-67663**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **67663**	RunNo: **88242**
Prep Date: **5/24/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129332** Units: **mg/Kg**

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

Sample ID: **LCS-67663**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **67663**	RunNo: **88242**
Prep Date: **5/24/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129333** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Sample ID: **MB-67690**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **67690**	RunNo: **88285**
Prep Date: **5/25/2022**	Analysis Date: **5/25/2022**	SeqNo: **3130981** Units: **mg/Kg**

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

Sample ID: **LCS-67690**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **67690**	RunNo: **88285**
Prep Date: **5/25/2022**	Analysis Date: **5/25/2022**	SeqNo: **3130982** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix 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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **2205934-006AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH06-30-32**	Batch ID: **67618**	RunNo: **88241**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	9.5	47.44	5.752	119	36.1	154			
Surr: DNOP	7.1		4.744		150	51.1	141			S

Sample ID: **2205934-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH06-30-32**	Batch ID: **67618**	RunNo: **88241**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129278** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	8.9	44.60	5.752	113	36.1	154	9.78	33.9	
Surr: DNOP	5.6		4.460		126	51.1	141	0	0	

Sample ID: **MB-67618**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67618**	RunNo: **88241**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3129297** 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	11		10.00		114	51.1	141			

Sample ID: **MB-67669**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67669**	RunNo: **88246**
Prep Date: **5/24/2022**	Analysis Date: **5/26/2022**	SeqNo: **3131392** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.2		10.00		92.1	51.1	141			

Sample ID: **LCS-67669**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67669**	RunNo: **88246**
Prep Date: **5/24/2022**	Analysis Date: **5/26/2022**	SeqNo: **3131393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.4	64.4	127			
Surr: DNOP	4.8		5.000		95.9	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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **MB-67680**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67680**	RunNo: **88246**
Prep Date: **5/25/2022**	Analysis Date: **5/26/2022**	SeqNo: **3132682** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		93.1	51.1	141			

Sample ID: **LCS-67680**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67680**	RunNo: **88246**
Prep Date: **5/25/2022**	Analysis Date: **5/26/2022**	SeqNo: **3132685** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		93.1	51.1	141			

Sample ID: **MB-67703**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **67703**	RunNo: **88246**
Prep Date: **5/25/2022**	Analysis Date: **5/27/2022**	SeqNo: **3132716** 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		86.1	51.1	141			

Sample ID: **LCS-67703**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **67703**	RunNo: **88246**
Prep Date: **5/25/2022**	Analysis Date: **5/27/2022**	SeqNo: **3132724** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	64.4	127			
Surr: DNOP	3.9		5.000		77.2	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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **mb-67605**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67605**	RunNo: **88206**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3126958** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		91.8	37.7	212			

Sample ID: **lcs-67605**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67605**	RunNo: **88206**
Prep Date: **5/20/2022**	Analysis Date: **5/23/2022**	SeqNo: **3126959** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	72.3	137			
Surr: BFB	2000		1000		200	37.7	212			

Sample ID: **mb-67606**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128711** 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-67606**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128712** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	72.3	137			
Surr: BFB	2100		1000		206	37.7	212			

Sample ID: **lcs-67637**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **67637**	RunNo: **88236**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128820** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		202	37.7	212			

Sample ID: **mb-67637**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **67637**	RunNo: **88236**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128821** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	930		1000		93.2	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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **mb-67605**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67605**	RunNo: **88206**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3127001** 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	0.95		1.000		95.4	70	130			

Sample ID: **LCS-67605**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67605**	RunNo: **88206**
Prep Date: **5/20/2022**	Analysis Date: **5/23/2022**	SeqNo: **3127002** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	89.3	80	120			
Toluene	0.92	0.050	1.000	0	92.3	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.6	80	120			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.8	70	130			

Sample ID: **mb-67606**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128759** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: **LCS-67606**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128760** 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	92.5	80	120			
Toluene	0.96	0.050	1.000	0	95.9	80	120			
Ethylbenzene	0.96	0.050	1.000	0	95.5	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.4	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix 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#: **2205934**

03-Jun-22

Client: HILCORP ENERGY

Project: Moore LS 6B

Sample ID: **2205934-008ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH07-11-12**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128764** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.6	68.8	120			
Toluene	0.93	0.050	1.000	0.01906	90.7	73.6	124			
Ethylbenzene	0.93	0.050	1.000	0.01377	91.3	72.7	129			
Xylenes, Total	2.9	0.10	3.000	0.06198	93.0	75.7	126			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: **2205934-008amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH07-11-12**	Batch ID: **67606**	RunNo: **88235**
Prep Date: **5/20/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128765** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	0.9990	0	85.2	68.8	120	2.82	20	
Toluene	0.90	0.050	0.9990	0.01906	87.9	73.6	124	3.25	20	
Ethylbenzene	0.89	0.050	0.9990	0.01377	88.2	72.7	129	3.47	20	
Xylenes, Total	2.7	0.10	2.997	0.06198	89.5	75.7	126	3.80	20	
Surr: 4-Bromofluorobenzene	1.0		0.9990		102	70	130	0	0	

Sample ID: **lcs-67637**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **67637**	RunNo: **88236**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128876** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		94.0	70	130			

Sample ID: **mb-67637**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **67637**	RunNo: **88236**
Prep Date: **5/23/2022**	Analysis Date: **5/24/2022**	SeqNo: **3128877** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94		1.000		94.5	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: 2205934 RcptNo: 1

Received By: Juan Rojas 5/20/2022 7:05:00 AM

Completed By: Tracy Casarrubias 5/20/2022 9:00:39 AM

Reviewed By: SCA 5/20/22

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: JMS 5/20/22

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	2.0	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#: mKillough@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Moore LS 6B

Project #:

Project Manager: Stuart Hyde

shyde@ensolum.com

Sampler: Reece Hanson

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.1-0.1=2.0 (°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. 2205934	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)
5/19/22	1055	Soil	BH06-2-4	1,402	Cool	001	X	X					X			
	1058		BH06-5-7			002										
	1100		BH06-10-12			003										
	1103		BH06-15-17			004										
	1106		BH06-20-22			005										
	1108		BH06-30-32			006										
	1115		BH07-5-7			007										
	1118		BH07-11-12			008										
	1120		BH07-16-17			009										
	1123		BH07-21-22			010										
↓	1125	↓	BH07-31-32	↓		011	↓	↓					↓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/19/22	1617				5/19/22	1617
5/19/22	1752			Courier	5/20/22	7:05

Remarks:

cc: rhanson@ensolum.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 124794
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. OCD approves SVE Pilot Test. 2. Submittal of a SVE Pilot Test Report along with a Final Remediation Plan, if a SVE System is to be implemented, are due by December 16, 2022.	9/12/2022