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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	nAPP2212649502
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Mitch Killough	Contact Telephone 713-757-5247
Contact email mkillough@hilcorp.com	Incident # nAPP2212649502
Contact mailing address 1111 Travis Street, Houston, Texas 77002	

Location of Release Source

Latitude 36.8147621 Longitude -107.8746643
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Sunray B 1B	Site Type Well
Date Release Discovered 4/26/2021 @ 2:33 pm (MT)	API# 30-045-30010

Unit Letter	Section	Township	Range	County
F	15	30N	10W	San Juan

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 7	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☒ Condensate	Volume Released (bbls) 14 bbls	Volume Recovered (bbls) 5 bbls
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A release of approximately 21 bbls produced water/condensate was released from an 1/8-inch hole in a 300-bbl production storage tank that developed due to corrosion. The spill amount was determined by operator's monthly tank gauging data. The released fluids remained on location and inside secondary containment. 5 bbls were recovered. OCD will be notified 48 hours prior to the collection of confirmation soil sampling.

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2212649502
District RP	
Facility ID	
Application ID	

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

Initial Response

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

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

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

All free product that could be recovered from within secondary containment was removed via vacuum truck.

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

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

Printed Name: __Mitch Killough_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: 5/6/2022_____

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

OCD Only

Received by: Jocelyn Harimon _____ Date: 05/06/2022 _____

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: 105012
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	5/6/2022

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?	60 (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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Mitch Killough Title: Environmental Specialist

Signature: Date: 7/25/2022

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

OCD Only

Received by: Date:

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: 7/25/2022

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: 09/13/2022

1. OCD approves SVE Pilot Test. 2. Submittal of a SVE Pilot Test Report along with a Final Remediation Plan are due by December 16, 2022.

ENSOLUM

July 25, 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
Sunray B 1B
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: nAPP2212649502

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 a release at the Sunray B 1B natural gas production well (Site). The Site is located on land managed by the Bureau of Land Management (BLM) in Unit F, Section 15, Township 30 North, Range 10 West in San Juan County, New Mexico (Figure 1).

On April 26, 2022, Hilcorp discovered a release of produced water and condensate originating from a 1/8-inch hole in the 300-barrel (bbl) production storage tank at the Site (location shown on Figure 2). The hole appeared to be caused by corrosion of the steel tank. Based on the operator's tank-gauging data and the volume of fluid remaining in the tank, the release is estimated to consist of 7 bbls of produced water (no volume recovered) and 14 bbls of condensate, of which 5 barrels were recovered. All released fluids stayed within the bermed, unlined secondary containment on the production pad. Immediately upon discovery, the operator shut off the oil dump controller and removed the remaining fluids from the production storage tank. Additionally, Hilcorp moved the tank and excavated the top three feet of visually-impacted soil from the Site on April 27 to 29, 2022 in order to remove the petroleum-saturated soil and mitigate further migration of contaminants. Hilcorp submitted the initial Form C-141 to the New Mexico Oil Conservation Division (NMOCD) on May 6, 2022 and the Site was assigned NMOCD incident number nAPP2212649502. Hilcorp also submitted a *Report of Undesirable Event* to the BLM via sundry on May 9, 2022 (Appendix A).

SITE CHARACTERIZATION

The Site is located on BLM surface approximately 1 mile north of County Road 173 (Navajo Dam Road) and 6.5 miles east of Aztec, New Mexico. 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 in the Tertiary San Jose Formation. 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.

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 surface water features is an unnamed wash located 305 feet to the northwest of the Site. Of note, a dashed blue line is present on the USGS 7.5-minute quadrangle maps for this area (solid blue line indicated on Figure 3). Ensolum personnel performed a Site walk during field activities to assess any water feature within 300 feet of the Site that may be considered a “significant watercourse” as defined in 19.15.17.7 NMAC. Based on the Site walk, a drainage/erosional feature was identified greater northwest of the Site, as indicated on Figure 4. This feature ultimately terminates onto an access road approximately 660 feet to the southwest. Additionally, photographs 1 and 2 (Appendix B) show the start and terminus of the wash as encountered during field activities. Based on the distance of this feature from the Site and the discontinuous nature, no significant watercourses are present within 300 feet 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-00523 (Appendix C), located approximately 1.5 miles west of the Site. The recorded depth to water on the NMOSE database is 120 feet below ground surface (bgs). Additionally, a cathodic well log for the nearby Sunray B 1A well pad indicates that depth to groundwater at the Site is approximately 60 feet bgs (Appendix C). As such, depth to groundwater at the Site is determined to be between 50 and 100 feet bgs. No wellhead protection areas, springs, or domestic/stock wells are located within a ½-mile from the Site (Figure 3). 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 June 27 and 28, 2022, Hilcorp retained Ensolum to perform delineation activities to identify the horizontal and vertical extent of impacts related to the Site release. Ensolum submitted notice of sampling to the NMOCD 48 hours in advance of the work (Appendix D). 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 up to 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 results noted on the field boring logs (attached as Appendix E). 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, fine to coarse grained sand and weathered sandstone with varying amounts of silt were encountered in all borings at the Site. An organic clay layer was also encountered in boring BH01 from 15 to 20 feet bgs; however, this clay unit was not encountered in any other borings during drilling. Field indications of petroleum hydrocarbons, including staining, odors, and/or elevated PID readings, were noted in borings BH02 and BH04, both located 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 15 feet bgs from boring BH04 contained concentrations of total BTEX, TPH-GRO+DRO, and/or Total TPH 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. Complete laboratory reports are attached in Appendix F.

REMEDIATION WORK PLAN

Based on the delineation activities and analytical results described above, an estimated 600 cubic yards of soil have been impacted by the release at the Site. The release has impacted soil up to approximately 15 feet bgs and appears to be contained within the current footprint of the secondary containment. Based on the nature of the release, 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 BH04 (SVE01), BH05 (SVE02), and BH02 (SVE03) were completed as SVE wells to be used for future remediation. Screened casing was installed 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. Well construction details are included on the boring logs attached as Appendix E. 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 indicated 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 specifications required to remediate subsurface impacts, and, if determined feasible, an operation and maintenance plan for the system and the proposed remediation schedule and timeline.

Because of the lack of permanent electrical power at the Site, it is anticipated that a solar SVE system will be used to remediate subsurface impacts, if determined to be a viable remediation technology. However, the size of vacuum blower will be constrained by the size of solar array available for installation at the Site and therefore the voltage and amperage capable of being produced by the solar array. With

the results of the pilot test, Hilcorp will also assess the power requirements of the SVE system and the feasibility of a solar array being able to provide the requisite power.

Alternatively, if the pilot test demonstrates that solar SVE is not viable at the Site, Hilcorp proposes to excavate the impacted soil for off-Site treatment/disposal. Hilcorp will notify the BLM and NMOCD and propose an excavation schedule/timeline prior to implementation if this alternative remediation approach is selected. Hilcorp and Ensolum will perform the SVE pilot test and prepare the *Pilot Test Report* within 90 days of BLM and 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

Ashley Ager, MS, PG
Development Manager, Geologist
(970) 946-1093
aager@ensolum.com

Attachments:

Figure 1: Site Location Map
Figure 2: Site Features
Figure 3: Site Proximity to Watercourse, Lakebed, Sinkhole, Playa Lake, or Wetland
Figure 4: Site Proximity to Significant Watercourse
Figure 5: Soil Boring Locations

Table 1: Delineation Soil Sample Analytical Results

Appendix A: BLM Release Reporting
Appendix B: Project Photographs
Appendix C: NMOSE Well SJ-03996 Water Rights Summary
Appendix D: NMOCD Sampling Notification
Appendix E: Field Boring Logs
Appendix F: Laboratory Analytical Reports

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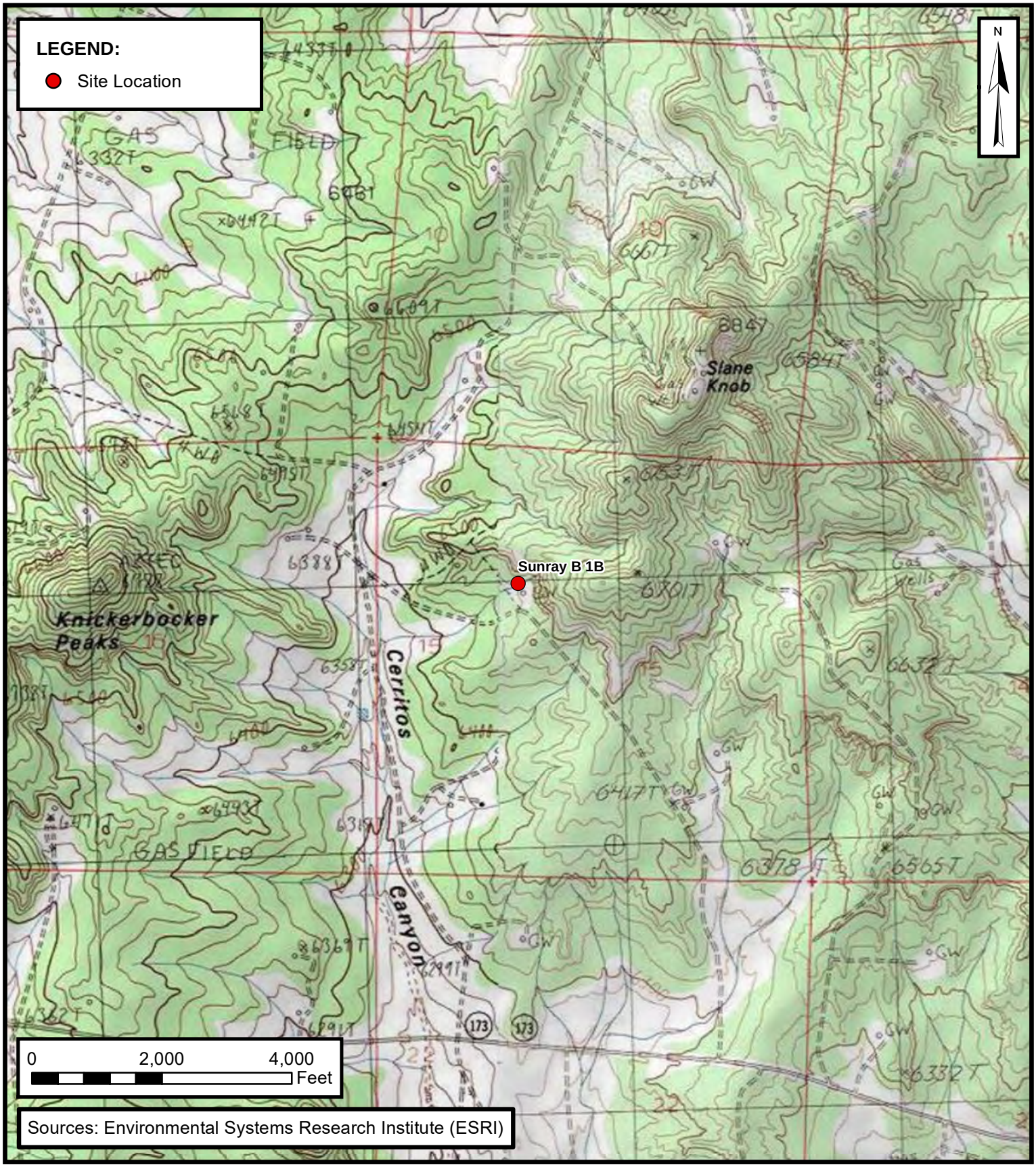
FIGURES



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Environmental & Hydrogeologic Consultants

SITE LOCATION MAP

HILCORP ENERGY COMPANY
SUNRAY B 1B
SAN JUAN COUNTY, NM
36.8147621, -107.8746643

PROJECT NUMBER: 07A1988042

FIGURE

1

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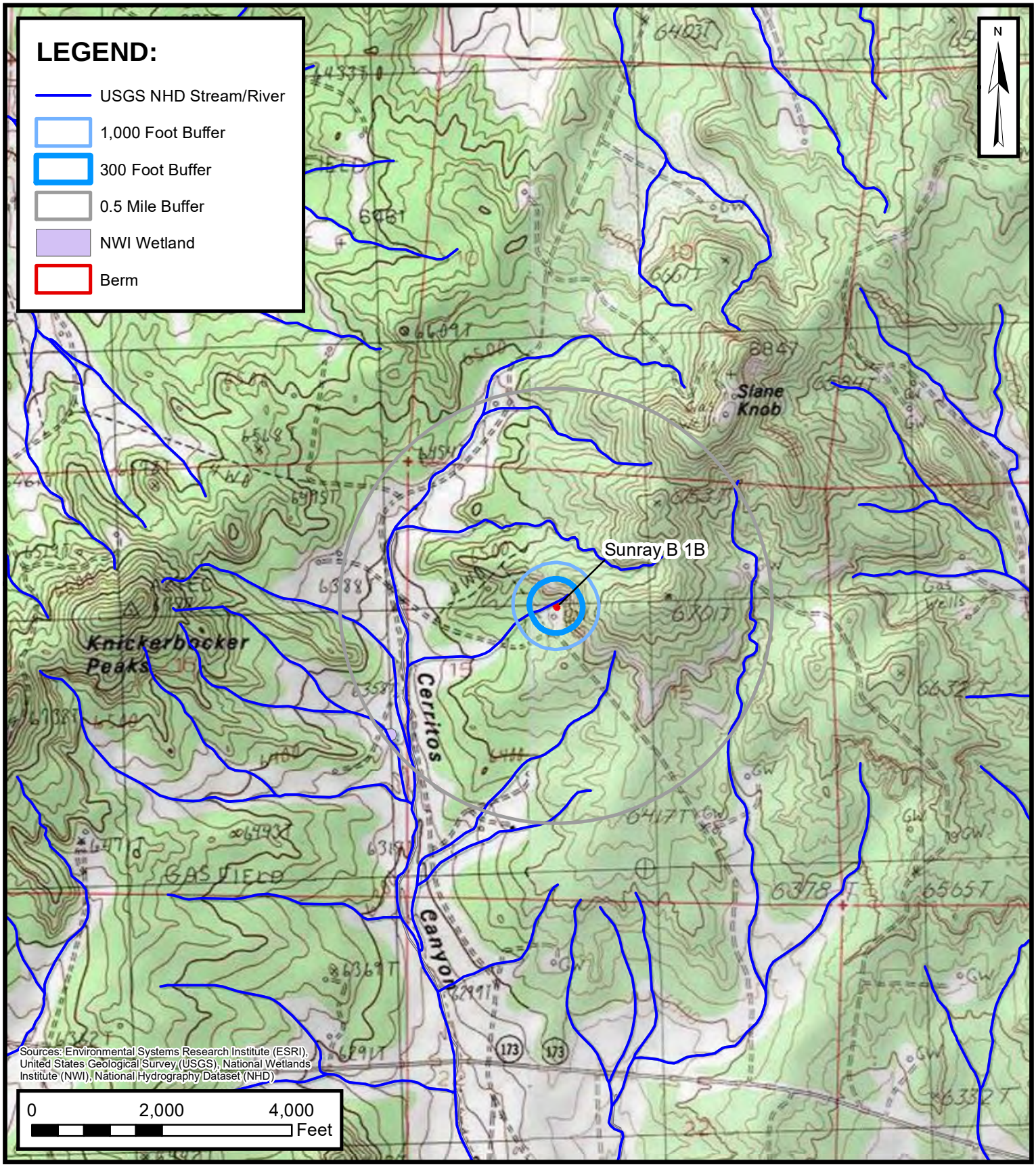
SITE FEATURES

HILCORP ENERGY COMPANY
SUNRAY B 1B
SAN JUAN COUNTY, NM
36.8147621, -107.8746643

PROJECT NUMBER: 07A1988042

FIGURE

2



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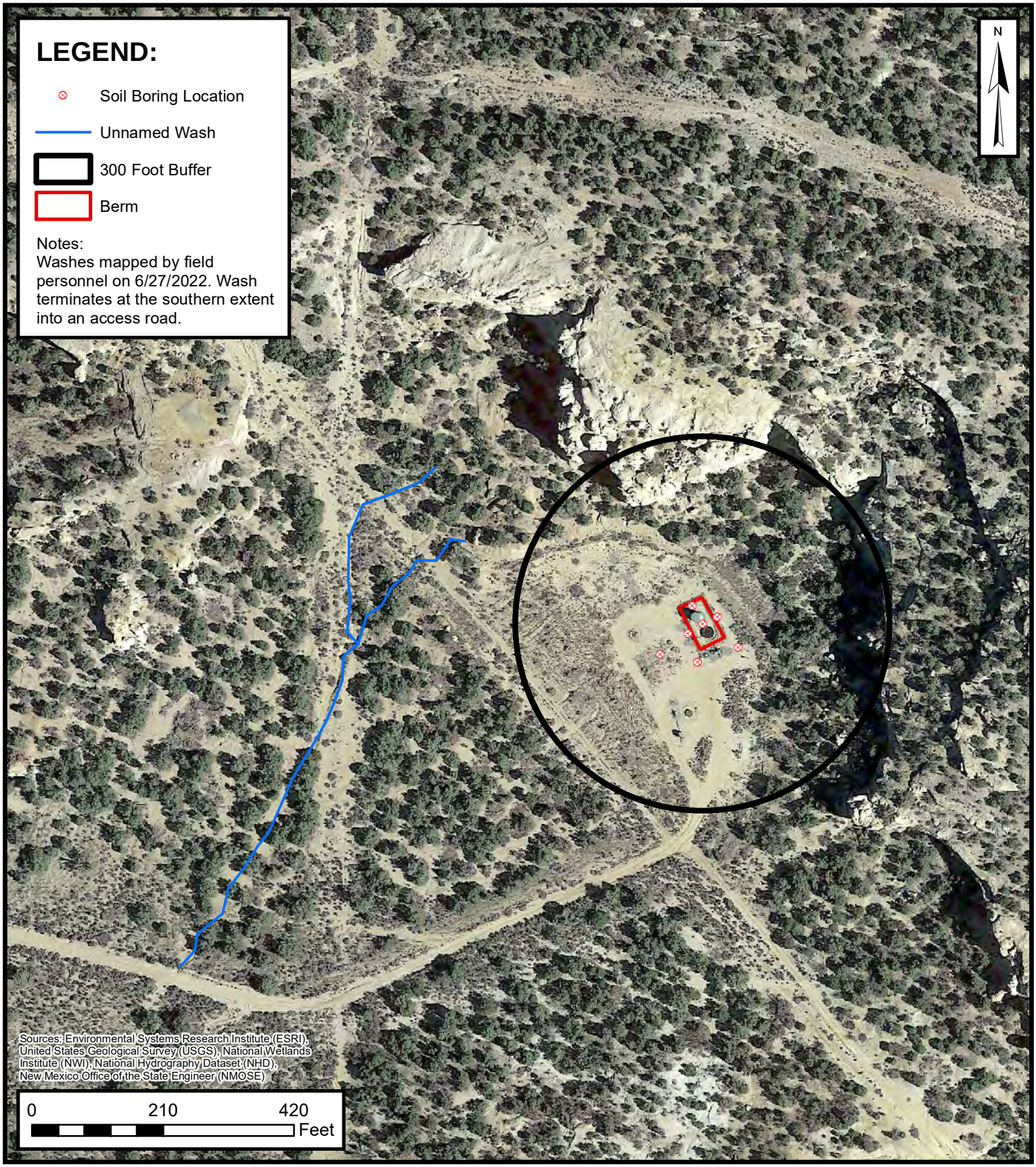
SITE PROXIMITY TO WATERCOURSE, LAKEBED, SINKHOLE, PLAYA LAKE, OR WETLAND

HILCORP ENERGY COMPANY
SUNRAY B 1B
SAN JUAN COUNTY, NM
36.8147621, -107.8746643

PROJECT NUMBER: 07A1988042

FIGURE
3



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SITE PROXIMITY TO SIGNIFICANT WATERCOURSE

HILCORP ENERGY COMPANY
SUNRAY B 1B
SAN JUAN COUNTY, NM
36.8147621, -107.8746643

PROJECT NUMBER: 07A1988042

FIGURE

4

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SOIL BORING LOCATIONS

HILCORP ENERGY COMPANY
SUNRAY B 1B
SAN JUAN COUNTY, NM
36.8147621, -107.8746643

PROJECT NUMBER: 07A1988042

FIGURE

5

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TABLES

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TABLE 1
DELINEATION SOIL SAMPLE ANALYTICAL RESULTS
Hilcorp - Sunray B 1B
San Juan County, New Mexico

Ensolum Project No. 07A1988042

Sample I.D.	Sample Date	Sample Depth (feet bgs)	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)			**10**	NE	NE	NE	**50**	NE	NE	NE	**1,000**	**2,500**	**10,000**
Delineation Soil Sample Analytical Results													
BH01 5-10	6/27/2022	5-10	<0.025	<0.050	<0.050	<0.10	<0.10	<5.0	<15	<48	<15	<48	<60
BH01 15-20	6/27/2022	15-20	<0.024	<0.049	<0.049	<0.097	<0.097	<4.9	<15	<50	<15	<50	<59
BH02 5-10	6/27/2022	5-10	<0.023	<0.047	<0.047	<0.093	<0.093	<4.7	<15	<50	<15	<50	<60
BH02 10-15	6/28/2022	10-15	<0.024	<0.049	<0.049	<0.098	<0.098	<4.9	<14	<48	<14	<48	<60
BH02 15-20	6/28/2022	15-20	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<15	<50	<15	<50	<59
BH02 20-25	6/28/2022	20-25	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<14	<46	<14	<46	<60
BH03 0-5	6/27/2022	0-5	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<14	<48	<14	<48	<60
BH03 15-20	6/27/2022	15-20	<0.024	<0.047	<0.047	<0.094	<0.094	<4.7	<14	<48	<14	<48	<60
BH04 5-10	6/27/2022	5-10	**0.74**	**56**	**17**	**160**	**234**	**2,300**	**4,100**	**870**	**6,400**	**7,270**	<60
BH04 10-15	6/27/2022	10-15	<0.49	**1.0**	**2.2**	**18**	**21**	**450**	**1,400**	**360**	**1,850**	**2,210**	<60
BH04 15-20	6/27/2022	15-20	<0.12	<0.23	<0.23	**1.2**	**1.2**	**43**	**190**	**65**	**233**	**298**	<60
BH04 25-30	6/27/2022	25-30	<0.023	<0.046	<0.046	<0.092	<0.092	<4.6	<15	<50	<15	<50	<60
BH05 5-10	6/27/2022	5-10	<0.024	<0.047	<0.047	<0.095	<0.095	<4.7	<14	<47	<15	<47	<60
BH06 10-15	6/28/2022	10-15	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<14	<48	<14	<48	**110**
BH06 25-30	6/28/2022	25-30	<0.024	<0.048	<0.048	<0.096	<0.096	<4.8	<15	<49	<15	<49	**84**
BH07 0-5	6/28/2022	0-5	<0.024	<0.08	<0.048	<0.095	<0.095	<4.8	<14	<47	<14	<47	<60
BH07 20-22	6/28/2022	20-22	<0.023	<0.046	<0.046	<0.093	<0.093	<4.6	<15	<50	<15	<50	<60

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NE: Not Established

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

MRO: Motor Oil/Lube Oil Range Organics

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*

ENSOLUM

APPENDIX A

BLM Release Reporting

United States Department of the Interior
Bureau of Land Management
New Mexico Farmington Field Office

Report of Undesirable Event

1. Operator: Hilcorp Energy Company			Field Name: Basin Dakota			
2. IID NO (Lease, ROW, Unit/PA, CA): USA NMSF078125						
3. Date of Occurrence: 4/26/2022			Time of Occurrence: 14:33 (MT)			
4. Date Reported to BLM: 5/6/2022	Time Reported to BLM: 14:40 MT		Reported to: BLM-FFO			
5. Reported By: Mitch Killough	Phone Number: 713-757-5247					
6. Person in Charge: Jeremy Brooks	Phone Number: 505-324-5146					
7. Location: Count San Juan	State: NM	T. 30N	R. 10W	Sec.15	Qtr/Qtr:	or UnitF
8. Surface Ownership (BLM, other Federal, Fee, State, Indian): BLM			Nearest Town or Landmark: Aztec, NM			
9. Well or Facility ID: 30-045-30010						
10. Type of Event (See instructions): Condensate/produced water release						
11. Cause of, and Extent of Event: A release of approximately 21 bbls produced water/condensate was released from an 1/8-inch hole in a 300-bbl production storage tank that developed due to corrosion.						
12. Volume Discharged or Consumed: Volume Recovered: Volume Lost:	Oil 14 Oil 5 Oil 9	Water 7 Water 0 Water 7	Gas Gas Gas	Other Other Other		
13. Time required to Control Event: 1 hour						
14. Action Taken to Control Event: Upon discovery, the operator immediately shut off the dump controller, called supervisor, area lead, and called out for a vacuum truck to respond to the release. The remaining fluid in the storage tank was pulled and the 300-bbl oil tank was taken out of service.						
15. Description of Potential/Resultant Damage and Cause/Extents of Personal Injuries: All spilled fluids remained on pad and inside containment. Visibly-impacted soil footprint is about 19' x 20'.						
16. Clean up Procedures and Dates: Between 4/27 - 4/29, Hilcorp removed the visibly impacted soil from the release area.						
17. Action Taken to Prevent Recurrence/Initiate or Update Contingency Planning: Tank will be inspected and coated ASAP.						
18. General Remarks: Per NMOCD 19.15.29 guidelines, Hilcorp will work towards the 90-day deadline of 7/25/2022. By this date, Hilcorp will provide a either a summary of delineation activities (with a plan of action for remediation) or a final closure report. BLM-FFO will be kept in the loop as we progress on this project.						
19. Other Federal, State, & Local Agencies Notified: NMOCD, EPA, ACE, Tribe, FIMO, Landowner (list names, phone numbers), Other (List name and phone): NMOCD - Initial C-141 - 5/6/2022						
20. Signature: Mitch Killough				Date: 5/6/2022		

BLM USE ONLY

A. Field Office:	B. Date Reported to NMSO:
C. Event Classification (I, II, or III):	
D. Site Inspected By:	Date:

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

05/17/2022

Well Name: SUNRAY B

Well Location: T30N / R10W / SEC 15 / SENW / 36.814755 / -107.874634

County or Parish/State: SAN JUAN / NM

Well Number: 1B

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078125

Unit or CA Name: SUNRAY B

Unit or CA Number: NMNM103095, NMNM73466

US Well Number: 3004530010

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Notice of Intent

Sundry ID: 2670624

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 05/09/2022

Time Sundry Submitted: 05:20

Date proposed operation will begin: 04/26/2022

Procedure Description: Attn: Emmanuel Adeloye A release of approximately 21 bbls produced water/condensate was released from an 1/8-inch hole in a 300-bbl production storage tank that developed due to corrosion. The spill amount was determined by operator's monthly tank gauging data. The released fluids remained on location and inside secondary containment. 5 bbls were recovered. BLM/OCD will be notified 48 hours prior to the collection of confirmation soil sampling.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

Sunray_B_1B___FFO_UE_Reporting_Form___05062022_20220509051856.pdf

Well Name: SUNRAY B

Well Location: T30N / R10W / SEC 15 / SENW / 36.814755 / -107.874634

County or Parish/State: SAN JUAN / NM

Well Number: 1B

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078125

Unit or CA Name: SUNRAY B

Unit or CA Number: NMNM103095, NMNM73466

US Well Number: 3004530010

Well Status: Producing Gas Well

Operator: HILCORP ENERGY COMPANY

Operator

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

Operator Electronic Signature: AMANDA WALKER

Signed on: MAY 09, 2022 05:19 AM

Name: HILCORP ENERGY COMPANY

Title: Operations/Regulatory Technician

Street Address: 1111 TRAVIS ST.

City: HOUSTON **State:** TX

Phone: (346) 237-2177

Email address: mwalker@hilcorp.com

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: DAVE J MANKIEWICZ

BLM POC Title: AFM-Minerals

BLM POC Phone: 5055647761

BLM POC Email Address: DMANKIEW@BLM.GOV

Disposition: Approved

Disposition Date: 05/16/2022

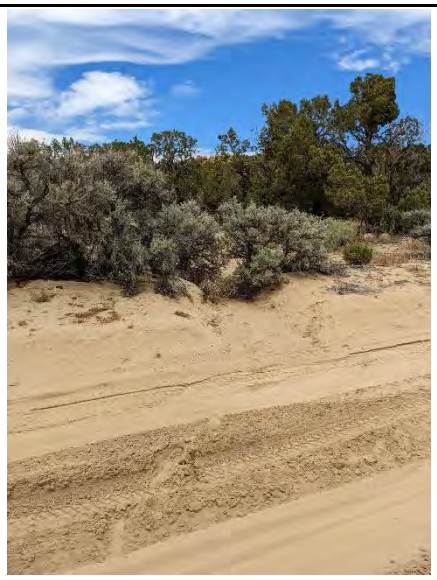
Signature: Dave Mankiewicz

ENSOLUM

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Sunray B 1B
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Beginning of unnamed wash located northwest of the well pad. View looking southwest.	
Photograph 2 View of unnamed wash where it terminates into access road. View looking northeast.	

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

PROJECT PHOTOGRAPHS
Sunray B 1B
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 3 Aerial view of the Site showing the initial excavation performed by Hilcorp immediately following discovery of the release	

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

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APPENDIX C

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	Tws	Rng	X	Y
	SJ 00523		4	4	08	30N	10W	241292	4078946*

Driller License:	697	**Driller Company:**	MADSON ENTERPRISES		
Driller Name:	PAMELA MADSON				
Drill Start Date:	12/12/1977	**Drill Finish Date:**	12/15/1977	**Plug Date:**	
Log File Date:	12/28/1977	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	10 GPM
Casing Size:	7.00	**Depth Well:**	160 feet	**Depth Water:**	120 feet

Water Bearing Stratifications:	Top	Bottom	Description
	120	160	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	120	160

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

1205

B #1-A 30-045-23166

A #3 30-045-20783

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL Location: Unit NW Sec. 15 Twp 30 Rng 10

Name of Well/Wells or Pipeline Serviced SUNRAY B #1A, SUNRAY A #3

cps 1469w

Elevation 6455' Completion Date 9/12/80 Total Depth 405' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 60' & 200' SAMPLE TAKEN

Depths gas encountered: N/A

Type & amount of coke breeze used: 3500 lbs.

Depths anodes placed: 365', 355', 345', 330', 320', 310', 300', 255', 245', 235'

Depths vent pipes placed: 400'

Vent pipe perforations: 320'

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

El Paso Natural Gas Company
Form 7-238 (Rev. 11-71)

WELL CASING
CATHODIC PROTECTION CONSTRUCTION REPORT
DAILY LOG

Drilling Log (Attach Hereto). ☐ 2"X60" Duriron Completion Date 9-12-80

Well Name	Location	CPS No.
Sunray B #1A & A #3	NW 15-30-10	1469W

Type & Size Bit Used	Work Order No.
6 3/4 Rock	57473-21 & 54844-19

Anode Hole Depth	Total Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
405 Log 405		3500		

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	365	355	345	330	320	310	300	255	245	235
Anode Output (Amps)	2.5	2.9	2.1	2.4	3.3	3.7	2.7	3.0	3.4	3.6

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Depth										
Anode Output (Amps)										

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 12.1	Amps 14.8	Ohms .82		

Remarks: STATIC % 600' E = .80 u-good (1A) & ST% = .84 u-good (#3)
Driller SAID WATER AT 200' CAUGHT WATER SAMPLE Drilled TO 400' HOLE CAVED while DRILLING WENT IN & CLEANED HOLE CAVED AGAIN DRILLED SECOND hole WITH MUD TO 405' Log 405' INST 400' VENT Pipe WITH 320' PERF. SLURRIED 35 SACKS OF coke

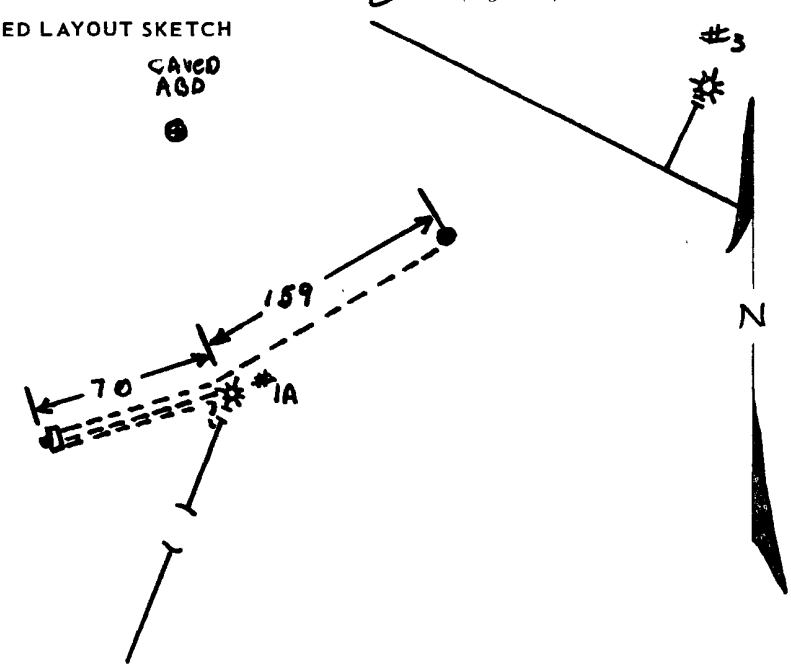
STUB POLE ✓
60V 30A RECT ✓
HOLE DEPTH = -95 ✓
DITCH & CABLE = 229 ✓
EXTRA CABLE = 170 ✓

TIME	REG	O.T.
9-10-80	8	1
9-11-80	8	
9-12-80	8	5

All Construction Completed

Robert J Babinski
(Signature)

GROUND BED LAYOUT SKETCH



DISTRIBUTION:
WHITE – Division Corrosion Office
YELLOW – Area Corrosion Office
PINK – Originator File

6455

Form 22-2 (Rev. 1-68)

EL PASO NATURAL GAS COMPANY

DRILLING DEPARTMENT

DAILY DRILLING REPORT

B #1A
A #3

LEASE Sunray NW 15-30-10 WELL NO. | CONTRACTOR Three C Drilling | RIG NO. 2 | REPORT NO CPS 1469 W 5473-21 5484-19 | DATE Sept 12 1980

MORNING

Driller Kevin Burge Total Men In Crew 3

FROM	TO	FORMATION	WT-BIT	R.P.M.
0	100	sandstone watersand shale		
100	120	bentonite		
120	160	sandstone watersand		
160	260	shale		

BIT NO. | NO. DC ____ SIZE ____ LENG. ____
NO. DC ____ SIZE ____ LENG. ____
SER. NO. | STANDS
SIZE 6 3/4 | SINGLES
TYPE | DOWN ON KELLY
MAKE | TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN
260	300	sandstone
300	370	shale
370	405	sandstone

REMARKS – Water at 60' & 200 7pm logged 405

DAYLIGHT

Driller Total Men In Crew

FROM	TO	FORMATION	WT-BIT	R.P.M.

BIT NO. | NO. DC ____ SIZE ____ LENG. ____
NO. DC ____ SIZE ____ LENG. ____
SERIAL NO. | STANDS
SIZE | SINGLES
TYPE | DOWN ON KELLY
MAKE | TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN

REMARKS –

EVENING

Driller Total Men In Crew

FROM	TO	FORMATION	WT-BIT	R.P.M.

BIT NO. | NO. DC ____ SIZE ____ LENG. ____
NO. DC ____ SIZE ____ LENG. ____
SERIAL NO. | STANDS
SIZE | SINGLES
TYPE | DOWN ON KELLY
MAKE | TOTAL DEPTH

MUD RECORD

Time	Wt.	Vis.

MUD, ADDITIVES USED AND RECEIVED

FROM	TO	TIME BREAKDOWN

REMARKS –

SIGNED: Toolpusher Kevin Burge Company Supervisor

Form 7-1 (Rev 9-77)

El Paso Natural Gas Company
ENGINEERING CALCULATION

Sheet: 1 of 1
Date: 9-10-80
By: RJB
File: 1469W

1469W SUNRAY B #1A NW15-30-10 57473-21 St%E = .80 u = good
SUNRAY A #3 54844-19 S+Ys = .84 u = ok

time 9/10 = (
9-11 = 8
9-12 = 1

STUB POLE 60U30A RECT

MW		gals/mol
16.04	C_1	6 4
30 07	C_2	10 12
44 10	C_3	10 42
58 12	iC_4	12.38
58.12	nC_4	11 93
72 15	iC_5	13 85
72 15	nC_5	13.71
86 18	iC_6	15 50
86 18	C_6	15.57
100.21	iC_7	17.2
100 21	C_7	17 46
114 23	C_8	19 39
28 05	$C_2^=$	9 64
42.08	$C_3^=$	9 67

MISC MW		gals/mol
32.00	O_2	3 37
28.01	CO	4 19
44 01	CO_2	6 38
64 06	SO_2	5 50
34.08	H_2S	5 17
28.01	N_2	4.16
2 02	H_2	3 38

		100	1.4	310	3.0–
200	2.0		1.0		2.7
	1.8–	10	.8	20	2.5–
10	1.8		1.2		2.1
	2.0	20	2.1	30	1.8–
20	1.9		1.0		1.6
	1.8–	30	.6	40	1.5
30	1.8		.5		1.7–
	1.7–	40	.6	50	1.7
40	1.7		.7		2.3–
	1.5–	50	.8	60	2.3
50	.6		.7		2.0–
	.2	60	.7	70	.9
60	.1		.8		.9
	.2	70	.7	80	1.0
70	.2		.8		.9
	.3	80	1.1	90	.8
80	.3		1.2		—
	.2	90	1.5	400	
90	1.0		1.7		—
	1.6	200	2.4		
300	1.7–		2.9		
	2.0	10	2.6		
10	2.0–		2.8		
	1.8	20	2.9		
20	1.5–		3.1		
	1.3	30	2.6		
30	1.1		3.0–		
	1.3	40	2.7		
40			2.5–		
		50	2.5		
50			2.3–		
		60	1.4		
60			.9		
		70	.8		
70			.4		
		80	.5		
80			.6		
		90	.4		
90			1.1		
		300	2.3–		
400			2.7		

DRILLER SAID WATER AT 200' CAUGHT WATER SAMPLE DRILLED 400 LOGGED 340. ~~INST FT~~ OF VENT PIPE WITH ~~FT PERF.~~ FIRST HOLE CAVED IN WENT BACK IN HOLE BLEW OUT ALOT OF SAND LOGGED AGAIN LOGGING ANODE STOPPED AT 250' MOVED OVER TO DRILL SECOND HOLE WITH MUD DRILLED 405 LOGGED 405. INST 400' VENT PIPE WITH 320' PERF. SLURRED 35 SACKS COKE

① 365 – 1.9 – 2.5
② 355 – 2.2 – 2.9
③ 345 – 1.5 – 2.1
④ 330 – 1.7 – 2.4
⑤ 320 – 2.5 – 3.3
⑥ 310 – 2.7 – 3.7
⑦ 300 – 1.9 – 2.7
⑧ 255 – 2.3 – 3.0
⑨ 245 – 2.5 – 3.4
⑩ 235 – 2.8 – 3.6

12.1 V 14.8 A = .82 ohms

CP

EL PASO NATURAL GAS COMPANY
SAN JUAN DIVISION
FARMINGTON, NEW MEXICO
PRODUCTION DEPARTMENT WATER ANALYSIS

Analysis No. 1-10062 Date 12-2-80

Operator El Paso Natural Gas Well Name Sunray B #1A

Location NW 15-30-10 County San Juan State New Mexico

Field Kutz Formation

Sampled From CPS 1469-W @200'

Date Sampled 9-10-80 By Robert Babnick

Tbg. Press. Csg. Surface Csg. Press.

	ppm	epm		ppm	epm
Sodium	54	2.4	Chloride	24	0.7
Calcium	276	13.8	Bicarbonate	120	2.0
Magnesium	76	6.3	Sulfate	950	19.8
Iron			Carbonate	0	0
H_2S			Hydroxide	0	0

Total Solids Dissolved 1774

pH 8.0

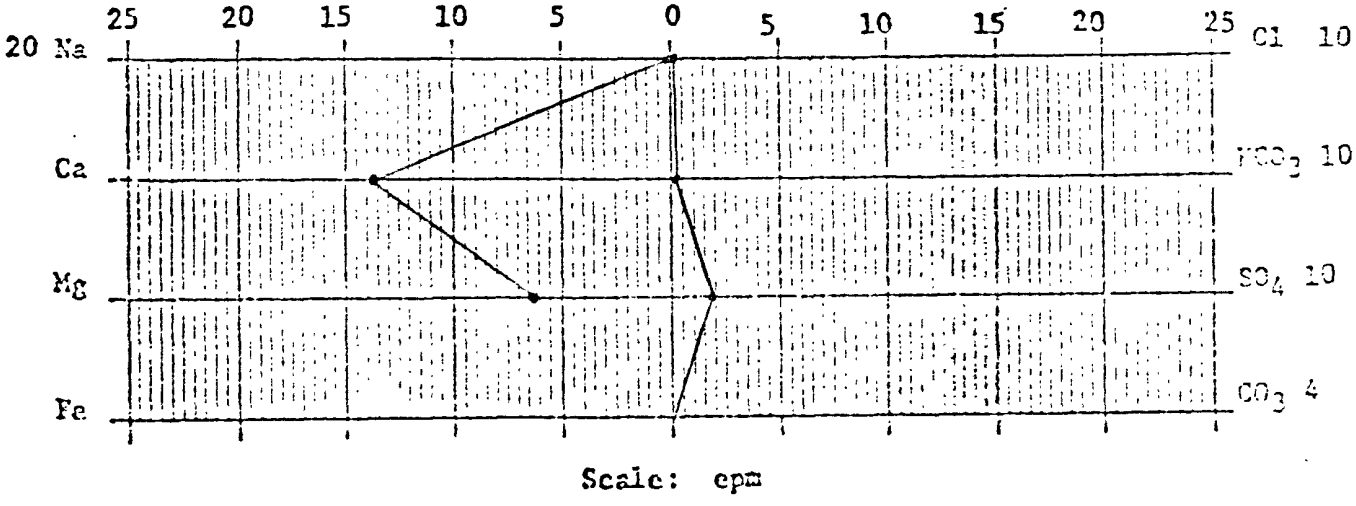
Sp. Gr. .9954 At 60°F

Resistivity 455 ohm-cm at 77°F

Dennie Bird
Chemist

JPB

cc: C.B. O'Nan
R.A. Ullrich
E.R. Paulek
J.W. McCarthy
A.M. Smith
W.B. Shropshire
D.C. Adams
File



Scale: epm

ENSOLUM

APPENDIX D

NMOCD Sampling Notification

From: Velez, Nelson, EMNRD
To: Stuart Hyde; Enviro, OCD, EMNRD
Cc: Devin Hencmann; Mitch Killough; jbrooks@hilcorp.com
Subject: RE: [EXTERNAL] nAPP2212649502 - Sunray B 1B Delineation Sampling Notification
Date: Thursday, June 23, 2022 7:33:28 AM
Attachments: image001.png
image002.png
image003.png
image004.png

[**EXTERNAL EMAIL**]

Stuart,

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

Please keep a copy of this communication for inclusion within the appropriate reporting documentation.

The OCD requires a copy of all correspondence related to remedial activities be included in all proposals, weekly/monthly/quarterly/semi-annual/annual, or final closure reports. Correspondence reporting requirements may include, but not limited to, notifications for sampling or drilling event(s), and request for time extension(s) or variance(s).

If you have any questions, please contact me via email at your convenience.

Thanks again

Regards,

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

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

From: Stuart Hyde <shyde@ensolum.com>
Sent: Wednesday, June 22, 2022 4:42 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@state.nm.us>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
Cc: Devin Hencmann <dhencmann@ensolum.com>; Mitch Killough <mkillough@hilcorp.com>; jbrooks@hilcorp.com

Subject: [EXTERNAL] nAPP2212649502 - Sunray B 1B Delineation Sampling Notification

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

Nelson,

On behalf of Hilcorp, we are submitting this delineation soil sampling notification for the Sunray B 1B site located at coordinates 36.814852, -107.874352. Drilling and soil sampling will take place on June 27 and 28, 2022 beginning at 9:00 AM. We will keep you informed of any changes to this schedule. Please reach out with any questions regarding the upcoming sampling. Thank you.

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

ENSOLUM

APPENDIX E

Field Boring Logs

ENSOLUM

Client: Hilcorp
Project Name: Sunray B 1B
Project Location: San Juan County
Project Manager: Stuart Hyde

BORING LOG NUMBER: BH01
Project No. 07A1958042

Date Sampled: 6-27-22
Drilled by: EDF
Driller:
Logged by: Ensolum
Sampler: E. Carroll

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: HSA CME-75

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0	0-5	BH01 0-5	100	0.8			moist, soft, red brown, coarse sand trace silt no stain/odor	
5	5-10	BH01 5-10 11:50	100	2.9			moist, soft, loose, white coarse sand, trace silt rust mottling no stain/odor	
10	10-15	BH01 10-15	100	1.3			moist, loose, white coarse sand few black organic clay, no stain/odor	
15	15-20	BH01 15-20 12:10	100	0.7			moist, black organic clay, firm non-plastic, some white coarse sand no stain/odor	
20								
25								

ENSOLUM

Client: Hilcorp
Project Name: Sunray B1B
Project Location: San Juan County
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH07 / SVE03
Project No. 07A1926042

Date Sampled: 6-27
Drilled by: EDI
Driller:
Logged by: Ensolum
Sampler: E. Carroll

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method: HSA
CME 75

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	PID/FID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
							TD: 30' Screen 25'-10' (only 1-10' blank left) Sand: 25-8'	
0	0-5	BH07 0-5	100	1.2			moist, loose, soft, red brown coarse sand, trace silt No stain/odor	
5	5-10	BH07 5-10	100	9.9			SAA no stain/odor	
10	10-13	BH07 10-13	100	1.0 6.4			~~SAA no stain/odor~~ ~~Refusal @ 13'~~ White coarse sand	
15	15-20	BH07 15-20	80	29.3			moist, lt. brown/white coarse sand NO stain slight odor	
20	20-25	BH07 20-25	100	13.5			Dry, lt. brown sand, some silt NO stain/odor	
25	25-30	BH07 25-30	70	19.7			SAA NO stain/odor	Bentonite

ENSOLUM

Client: Hilcorp
Project Name: Sunray B 1B
Project Location: San Juan
Project Manager: Steve Hyde

BORING LOG NUMBER: BH03
Project No. 07A1988047

Date Sampled: 6-27
Drilled by: EDI
Driller:
Logged by: E. Carroll
Sampler: E. Carroll

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
0	0-5	BH03 0-5 12:40	100	1.1			moist, loose, lt. brown medium sand few silt no stain/odor	
5	5-10	BH03 5-10	100	0.9			SAA, ~~NO~~ NO stain/odor	
10	10-15	BH03 10-15	100	0.0			SAA no stain/odor	
15	15-20	BH03 15-20 13:10	60	0.0			white, coarse, sand (weathered sand stone) no stain/odor	
20								
25								

ENSOLUM

Client: Hilcorp
Project Name: Sunray B1B
Project Location: San Juan
Project Manager: Stuart Hyde

BORING LOG NUMBER
BH04/SVE01
Project No. 07A1988042

Date Sampled: 6-27
Drilled by: EDF
Driller:
Logged by: E. Carron
Sampler: E. Carron

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
							TD = 30'	
							Screen = 16'-6'	
0	0-5	BH04 0-5	100	4087			loose, moist, red brown, med sand no stain, slight odor	
5	5-10	BH04 5-10 14:00	100	4702			SAA strong odor	
10	10-15	BH04 10-15 14:05	100	4629			white, coarse, sand, weathered ss no stain, slight odor	
15	15-20	BH04 15-20 14:07	100	267				
20	20-25	BH04 20-25 14:12	100	126			Gray, medium sand, no stain odor	
25	25-30	BH04 25-30 14:15	60	97				BACKFILL

ENSOLUM

Client:
Project Name:
Project Location:
Project Manager:

BORING LOG NUMBER
BH05 / SVE07
Project No.

Date Sampled:
Drilled by:
Driller:
Logged by:
Sampler:

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
							Screen 16'-6'	
0	0-5	BH05 0-5	100	5.7			moist, loose, red brown, sand no stain/odor	
5	5-10	BH05 5-10	100	11.5			white, moist, coarse sand no stain/odor	
10	10-15	BH05 10-15	100	10.7			lt brown, moist, coarse sand no stain/odor	
15	15-20	BH05 15-20	100	4.6			SAA no stain/odor	Bentonite
20	20-25	BH05 20-25	100	0.9			moist gray/white, med-coarse sand no stain/odor	Backfill
25	25-30	BH05 25-30		0.8			SAA no stain/odor	

ENSOLUM

Client: Hilcorp
Project Name: Sunray B 1 3
Project Location: San Juan County
Project Manager: Stuart Hyde

BORING LOG NUMBER: BH06
Project No.:

Date Sampled: 6/28/22
Drilled by: EDI
Driller:
Logged by: Ensolum
Sampler: E. Carroll

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

Borehole Diameter:
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)
							Back fill	
0	0-5		100	3.8			red - brown sand	
5	5-10		100	2.1			SAA	
10	10-15		100	4.2			SAA	
15	15-20		100	3.2			SAA	
20	20-25		100	2.6			white sand	
25	25-30		100	1.8			SAA	

ENSOLUM

Client: Hilcorp
Project Name: Snyder B13
Project Location: San Juan County
Project Manager: Stuart Hyde

BORING LOG NUMBER: BH07
Project No. 07A1589042

Date Sampled: 6/28/22
Drilled by: EDI
Driller:
Logged by: Easum
Sampler: Reece Hanson

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

Borehole Diameter:
Casing Diameter:
Well Materials:
Surface Completion:
Boring Method:

DEPTH (ft)	SAMPLE INTERVAL	SAMPLE ID	RECOVERY (%)	FID/PID READING (ppm)	POTENTIOMETRIC SURFACE	GEOLOGIC LOG SYMBOL	GEOLOGIC DESCRIPTION	BORING / WELL COMPLETION (GRAPHIC DEPICTION)
							Backfill	
0	0-5	BH07 0-5	100	1.4			tan, md - coarse sand w/ silt No S/O	
5	5-10	BH07 5-10	100	0.9			tan - brown, SAA No S/O	
10	10-15	BH07 10-15	100	1.2			brown, Fine - md sand, occasional coarse w/ >25% silt No S/O	
15	15-20	BH07 15-20	100	0.9			tan - Brown fine - coarse sand trace silt N S/O	
20	20-22	BH07 20-22		3.6			SAA w/ consolidated, coarse grained ss stringer, No S/O Refusal @ 22'	
25								

ENSOLUM

APPENDIX F

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

July 14, 2022

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

RE: Sunray B 1B OrderNo.: 2206F42

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 20 sample(s) on 6/29/2022 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 5-10
Project: Sunray B 1B
Collection Date: 6/27/2022 11:50:00 AM
Lab ID: 2206F42-001 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/7/2022 9:49:37 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2022 9:49:37 AM
Surr: DNOP	81.3	51.1-141		%Rec	1	7/7/2022 9:49:37 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/1/2022 10:35:23 PM
Surr: BFB	93.0	37.7-212		%Rec	1	7/1/2022 10:35:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	7/1/2022 10:35:23 PM
Toluene	ND	0.050		mg/Kg	1	7/1/2022 10:35:23 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/1/2022 10:35:23 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/1/2022 10:35:23 PM
Surr: 4-Bromofluorobenzene	87.3	70-130		%Rec	1	7/1/2022 10:35:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/5/2022 11:42:31 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH01 15-20
Project: Sunray B 1B
Collection Date: 6/27/2022 12:10:00 PM
Lab ID: 2206F42-002 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/6/2022 7:42:25 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2022 7:42:25 PM
Surr: DNOP	94.0	51.1-141		%Rec	1	7/6/2022 7:42:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/1/2022 3:39:00 PM
Surr: BFB	95.8	37.7-212		%Rec	1	7/1/2022 3:39:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 3:39:00 PM
Toluene	ND	0.049		mg/Kg	1	7/1/2022 3:39:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/1/2022 3:39:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/1/2022 3:39:00 PM
Surr: 4-Bromofluorobenzene	91.0	70-130		%Rec	1	7/1/2022 3:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	59		mg/Kg	20	7/6/2022 1:52:22 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 5-10
Project: Sunray B 1B
Collection Date: 6/27/2022 12:20:00 PM
Lab ID: 2206F42-003 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/6/2022 7:56:48 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2022 7:56:48 PM
Surr: DNOP	95.5	51.1-141		%Rec	1	7/6/2022 7:56:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/1/2022 4:19:00 PM
Surr: BFB	94.3	37.7-212		%Rec	1	7/1/2022 4:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	7/1/2022 4:19:00 PM
Toluene	ND	0.047		mg/Kg	1	7/1/2022 4:19:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/1/2022 4:19:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/1/2022 4:19:00 PM
Surr: 4-Bromofluorobenzene	88.7	70-130		%Rec	1	7/1/2022 4:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 2:04:47 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 0-5
Project: Sunray B 1B
Collection Date: 6/27/2022 12:40:00 PM
Lab ID: 2206F42-004 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/6/2022 8:11:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/6/2022 8:11:11 PM
Surr: DNOP	96.6	51.1-141		%Rec	1	7/6/2022 8:11:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2022 4:39:00 PM
Surr: BFB	95.4	37.7-212		%Rec	1	7/1/2022 4:39:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 4:39:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2022 4:39:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2022 4:39:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2022 4:39:00 PM
Surr: 4-Bromofluorobenzene	87.2	70-130		%Rec	1	7/1/2022 4:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 2:17:11 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH03 15-20
Project: Sunray B 1B
Collection Date: 6/27/2022 1:10:00 PM
Lab ID: 2206F42-005 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/6/2022 8:25:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/6/2022 8:25:11 PM
Surr: DNOP	98.5	51.1-141		%Rec	1	7/6/2022 8:25:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/1/2022 4:59:00 PM
Surr: BFB	91.1	37.7-212		%Rec	1	7/1/2022 4:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 4:59:00 PM
Toluene	ND	0.047		mg/Kg	1	7/1/2022 4:59:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/1/2022 4:59:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/1/2022 4:59:00 PM
Surr: 4-Bromofluorobenzene	87.3	70-130		%Rec	1	7/1/2022 4:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 2:29:36 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 5-10
Project: Sunray B 1B
Collection Date: 6/27/2022 2:00:00 PM
Lab ID: 2206F42-006 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	4100	140		mg/Kg	10	7/7/2022 3:30:01 PM
Motor Oil Range Organics (MRO)	870	480		mg/Kg	10	7/7/2022 3:30:01 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	7/7/2022 3:30:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	2300	97		mg/Kg	20	7/1/2022 5:18:00 PM
Surr: BFB	285	37.7-212	S	%Rec	20	7/1/2022 5:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	0.74	0.48		mg/Kg	20	7/1/2022 5:18:00 PM
Toluene	56	0.97		mg/Kg	20	7/1/2022 5:18:00 PM
Ethylbenzene	17	0.97		mg/Kg	20	7/1/2022 5:18:00 PM
Xylenes, Total	160	1.9		mg/Kg	20	7/1/2022 5:18:00 PM
Surr: 4-Bromofluorobenzene	205	70-130	S	%Rec	20	7/1/2022 5:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 2:42:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 10-15
Project: Sunray B 1B
Collection Date: 6/27/2022 2:05:00 PM
Lab ID: 2206F42-007 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	1400	29		mg/Kg	2	7/7/2022 3:01:17 PM
Motor Oil Range Organics (MRO)	360	95		mg/Kg	2	7/7/2022 3:01:17 PM
Surr: DNOP	79.3	51.1-141		%Rec	2	7/7/2022 3:01:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	450	97	D	mg/Kg	20	7/5/2022 9:35:00 AM
Surr: BFB	240	37.7-212	SD	%Rec	20	7/5/2022 9:35:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.49	D	mg/Kg	20	7/5/2022 9:35:00 AM
Toluene	1.0	0.97	D	mg/Kg	20	7/5/2022 9:35:00 AM
Ethylbenzene	2.2	0.97	D	mg/Kg	20	7/5/2022 9:35:00 AM
Xylenes, Total	18	1.9	D	mg/Kg	20	7/5/2022 9:35:00 AM
Surr: 4-Bromofluorobenzene	117	70-130	D	%Rec	20	7/5/2022 9:35:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 2:54:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 15-20
Project: Sunray B 1B
Collection Date: 6/27/2022 2:07:00 PM
Lab ID: 2206F42-008 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	190	15		mg/Kg	1	7/7/2022 2:46:59 PM
Motor Oil Range Organics (MRO)	65	49		mg/Kg	1	7/7/2022 2:46:59 PM
Surr: DNOP	85.5	51.1-141		%Rec	1	7/7/2022 2:46:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	43	23		mg/Kg	5	7/5/2022 9:55:00 AM
Surr: BFB	153	37.7-212		%Rec	5	7/5/2022 9:55:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	7/5/2022 9:55:00 AM
Toluene	ND	0.23		mg/Kg	5	7/5/2022 9:55:00 AM
Ethylbenzene	ND	0.23		mg/Kg	5	7/5/2022 9:55:00 AM
Xylenes, Total	1.2	0.47		mg/Kg	5	7/5/2022 9:55:00 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	5	7/5/2022 9:55:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 3:31:40 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH04 25-30
Project: Sunray B 1B
Collection Date: 6/27/2022 2:15:00 PM
Lab ID: 2206F42-010 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/6/2022 9:35:48 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/6/2022 9:35:48 PM
Surr: DNOP	100	51.1-141		%Rec	1	7/6/2022 9:35:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/1/2022 6:18:00 PM
Surr: BFB	111	37.7-212		%Rec	1	7/1/2022 6:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	7/1/2022 6:18:00 PM
Toluene	ND	0.046		mg/Kg	1	7/1/2022 6:18:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/1/2022 6:18:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	7/1/2022 6:18:00 PM
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	1	7/1/2022 6:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 3:44:05 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH05 5-10
Project: Sunray B 1B
Collection Date: 6/27/2022 3:30:00 PM
Lab ID: 2206F42-011 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/6/2022 9:49:37 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/6/2022 9:49:37 PM
Surr: DNOP	101	51.1-141		%Rec	1	7/6/2022 9:49:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/1/2022 6:38:00 PM
Surr: BFB	94.4	37.7-212		%Rec	1	7/1/2022 6:38:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 6:38:00 PM
Toluene	ND	0.047		mg/Kg	1	7/1/2022 6:38:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/1/2022 6:38:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2022 6:38:00 PM
Surr: 4-Bromofluorobenzene	88.4	70-130		%Rec	1	7/1/2022 6:38:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	7/6/2022 3:56:30 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06 10-15
Project: Sunray B 1B
Collection Date: 6/28/2022 9:30:00 AM
Lab ID: 2206F42-012 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/6/2022 10:03:18 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/6/2022 10:03:18 PM
Surr: DNOP	108	51.1-141		%Rec	1	7/6/2022 10:03:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2022 6:58:00 PM
Surr: BFB	92.3	37.7-212		%Rec	1	7/1/2022 6:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 6:58:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2022 6:58:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2022 6:58:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/1/2022 6:58:00 PM
Surr: 4-Bromofluorobenzene	85.9	70-130		%Rec	1	7/1/2022 6:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	110	60		mg/Kg	20	7/6/2022 4:08:54 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH06 25-30
Project: Sunray B 1B
Collection Date: 6/28/2022 9:40:00 AM
Lab ID: 2206F42-013 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/6/2022 10:17:03 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2022 10:17:03 PM
Surr: DNOP	97.6	51.1-141		%Rec	1	7/6/2022 10:17:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2022 7:18:00 PM
Surr: BFB	90.2	37.7-212		%Rec	1	7/1/2022 7:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 7:18:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2022 7:18:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2022 7:18:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2022 7:18:00 PM
Surr: 4-Bromofluorobenzene	84.6	70-130		%Rec	1	7/1/2022 7:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	84	60		mg/Kg	20	7/6/2022 4:21:19 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 10-15
Project: Sunray B 1B
Collection Date: 6/28/2022 1:15:00 PM
Lab ID: 2206F42-014 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/1/2022 5:11:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/1/2022 5:11:14 PM
Surr: DNOP	136	51.1-141		%Rec	1	7/1/2022 5:11:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/1/2022 9:16:00 PM
Surr: BFB	90.2	37.7-212		%Rec	1	7/1/2022 9:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 9:16:00 PM
Toluene	ND	0.049		mg/Kg	1	7/1/2022 9:16:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/1/2022 9:16:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/1/2022 9:16:00 PM
Surr: 4-Bromofluorobenzene	85.8	70-130		%Rec	1	7/1/2022 9:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **LRN**
Chloride	ND	60		mg/Kg	20	7/1/2022 4:44:39 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 15-20
Project: Sunray B 1B
Collection Date: 6/28/2022 1:18:00 PM
Lab ID: 2206F42-015 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/1/2022 6:46:58 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/1/2022 6:46:58 PM
Surr: DNOP	104	51.1-141		%Rec	1	7/1/2022 6:46:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2022 10:16:00 PM
Surr: BFB	91.5	37.7-212		%Rec	1	7/1/2022 10:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 10:16:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2022 10:16:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2022 10:16:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2022 10:16:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	7/1/2022 10:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **LRN**
Chloride	ND	59		mg/Kg	20	7/1/2022 4:57:04 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH02 20-25
Project: Sunray B 1B
Collection Date: 6/28/2022 1:22:00 PM
Lab ID: 2206F42-016 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/1/2022 7:10:46 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/1/2022 7:10:46 PM
Surr: DNOP	127	51.1-141		%Rec	1	7/1/2022 7:10:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/1/2022 11:15:00 PM
Surr: BFB	90.1	37.7-212		%Rec	1	7/1/2022 11:15:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 11:15:00 PM
Toluene	ND	0.047		mg/Kg	1	7/1/2022 11:15:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/1/2022 11:15:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2022 11:15:00 PM
Surr: 4-Bromofluorobenzene	86.2	70-130		%Rec	1	7/1/2022 11:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **LRN**
Chloride	ND	60		mg/Kg	20	7/1/2022 5:09:28 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07 0-5
Project: Sunray B 1B
Collection Date: 6/28/2022 1:25:00 PM
Lab ID: 2206F42-017 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	7/1/2022 7:34:37 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/1/2022 7:34:37 PM
Surr: DNOP	122	51.1-141		%Rec	1	7/1/2022 7:34:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2022 11:34:00 PM
Surr: BFB	96.0	37.7-212		%Rec	1	7/1/2022 11:34:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.024		mg/Kg	1	7/1/2022 11:34:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2022 11:34:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2022 11:34:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2022 11:34:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	7/1/2022 11:34:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **LRN**
Chloride	ND	60		mg/Kg	20	7/1/2022 5:21:53 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 **2206F42**
Date Reported: **7/14/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: BH07 20-22
Project: Sunray B 1B
Collection Date: 6/28/2022 1:28:00 PM
Lab ID: 2206F42-018 **Matrix:** SOIL **Received Date:** 6/29/2022 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **ED**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	7/1/2022 7:58:30 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/1/2022 7:58:30 PM
Surr: DNOP	126	51.1-141		%Rec	1	7/1/2022 7:58:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/1/2022 11:54:00 PM
Surr: BFB	89.2	37.7-212		%Rec	1	7/1/2022 11:54:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.023		mg/Kg	1	7/1/2022 11:54:00 PM
Toluene	ND	0.046		mg/Kg	1	7/1/2022 11:54:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/1/2022 11:54:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/1/2022 11:54:00 PM
Surr: 4-Bromofluorobenzene	86.4	70-130		%Rec	1	7/1/2022 11:54:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **LRN**
Chloride	ND	60		mg/Kg	20	7/1/2022 5:59:07 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **MB-68503**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **68503**	RunNo: **89225**							
Prep Date: **7/1/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171931**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-68503**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **68503**	RunNo: **89225**							
Prep Date: **7/1/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171932**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Sample ID: **MB-68553**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **68553**	RunNo: **89243**							
Prep Date: **7/5/2022**	Analysis Date: **7/5/2022**	SeqNo: **3172487**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-68553**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **68553**	RunNo: **89243**							
Prep Date: **7/5/2022**	Analysis Date: **7/5/2022**	SeqNo: **3172488**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Sample ID: **MB-68579**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **68579**	RunNo: **89283**							
Prep Date: **7/6/2022**	Analysis Date: **7/6/2022**	SeqNo: **3175109**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-68579**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **68579**	RunNo: **89283**							
Prep Date: **7/6/2022**	Analysis Date: **7/6/2022**	SeqNo: **3175110**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.2	90	110			

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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **MB-68483**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **68483**	RunNo: **89114**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171985** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	13		10.00		125	51.1	141			

Sample ID: **LCS-68483**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **68483**	RunNo: **89114**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171988** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.00	0	99.7	64.4	127			
Surr: DNOP	5.5		5.000		110	51.1	141			

Sample ID: **2206F42-014AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH02 10-15**	Batch ID: **68483**	RunNo: **89114**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171991** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	14	46.90	0	107	36.1	154			
Surr: DNOP	5.6		4.690		120	51.1	141			

Sample ID: **2206F42-014AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH02 10-15**	Batch ID: **68483**	RunNo: **89114**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171992** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	13	44.25	0	115	36.1	154	1.71	33.9	
Surr: DNOP	5.5		4.425		123	51.1	141	0	0	

Sample ID: **LCS-68543**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **68543**	RunNo: **89259**
Prep Date: **7/5/2022**	Analysis Date: **7/6/2022**	SeqNo: **3173754** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	15	50.00	0	83.3	64.4	127			
Surr: DNOP	4.3		5.000		85.8	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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **MB-68543**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **68543**	RunNo: **89259**
Prep Date: **7/5/2022**	Analysis Date: **7/6/2022**	SeqNo: **3173755** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		88.4	51.1	141			

Sample ID: **MB-68548**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **68548**	RunNo: **89263**
Prep Date: **7/5/2022**	Analysis Date: **7/6/2022**	SeqNo: **3175949** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		97.0	51.1	141			

Sample ID: **LCS-68548**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **68548**	RunNo: **89263**
Prep Date: **7/5/2022**	Analysis Date: **7/6/2022**	SeqNo: **3175950** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	15	50.00	0	84.1	64.4	127			
Surr: DNOP	4.8		5.000		95.2	51.1	141			

Sample ID: **2206F42-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH01 15-20**	Batch ID: **68548**	RunNo: **89263**
Prep Date: **7/5/2022**	Analysis Date: **7/7/2022**	SeqNo: **3176002** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	15	49.41	0	81.3	36.1	154			
Surr: DNOP	4.9		4.941		99.5	51.1	141			

Sample ID: **2206F42-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH01 15-20**	Batch ID: **68548**	RunNo: **89263**
Prep Date: **7/5/2022**	Analysis Date: **7/7/2022**	SeqNo: **3176003** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	15	49.12	0	89.8	36.1	154	9.36	33.9	
Surr: DNOP	4.8		4.912		97.2	51.1	141	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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **lcs-68473**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **68473**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170402**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.4	72.3	137			
Surr: BFB	2200		1000		218	37.7	212			S

Sample ID: **mb-68473**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **68473**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170403**	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	1200		1000		115	37.7	212			

Sample ID: **lcs-68478**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **68478**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170829**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.5	72.3	137			
Surr: BFB	1900		1000		194	37.7	212			

Sample ID: **mb-68478**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **68478**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170830**	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		91.6	37.7	212			

Sample ID: **2206f42-014ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH02 10-15**	Batch ID: **68478**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170832**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.06	0	102	70	130			
Surr: BFB	2000		962.5		209	37.7	212			

Sample ID: **2206f42-014amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH02 10-15**	Batch ID: **68478**	RunNo: **89189**							
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170833**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix 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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2206f42-014amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH02 10-15**	Batch ID: **68478**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170833** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.04	0	105	70	130	2.69	20	
Surr: BFB	2000		961.5		213	37.7	212	0	0	S

Sample ID: **mb-68445**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **68445**	RunNo: **89209**
Prep Date: **6/29/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171002** 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	970		1000		96.9	37.7	212			

Sample ID: **lcs-68445**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **68445**	RunNo: **89209**
Prep Date: **6/29/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171003** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	113	72.3	137			
Surr: BFB	2100		1000		213	37.7	212			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **lcs-68473**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **68473**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170414** 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	94.5	80	120			
Toluene	0.96	0.050	1.000	0	95.9	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.0	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	70	130			

Sample ID: **mb-68473**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **68473**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170415** 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	1.1		1.000		108	70	130			

Sample ID: **lcs-68478**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **68478**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170853** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.1	80	120			
Toluene	0.96	0.050	1.000	0	95.7	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.2	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.4	80	120			
Surr: 4-Bromofluorobenzene	0.91		1.000		90.8	70	130			

Sample ID: **mb-68478**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **68478**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170854** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix 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#: **2206F42**

14-Jul-22

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2206f42-015ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH02 15-20**	Batch ID: **68478**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170857** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.024	0.9579	0	98.9	68.8	120			
Toluene	0.96	0.048	0.9579	0	101	73.6	124			
Ethylbenzene	0.96	0.048	0.9579	0	101	72.7	129			
Xylenes, Total	2.9	0.096	2.874	0	99.9	75.7	126			
Surr: 4-Bromofluorobenzene	0.84		0.9579		88.1	70	130			

Sample ID: **2206f42-015amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH02 15-20**	Batch ID: **68478**	RunNo: **89189**
Prep Date: **6/30/2022**	Analysis Date: **7/1/2022**	SeqNo: **3170858** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9737	0	104	68.8	120	6.67	20	
Toluene	1.0	0.049	0.9737	0	105	73.6	124	5.82	20	
Ethylbenzene	1.0	0.049	0.9737	0	105	72.7	129	6.06	20	
Xylenes, Total	3.0	0.097	2.921	0	104	75.7	126	5.74	20	
Surr: 4-Bromofluorobenzene	0.85		0.9737		87.4	70	130	0	0	

Sample ID: **mb-68445**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **68445**	RunNo: **89209**
Prep Date: **6/29/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171086** 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		90.9	70	130			

Sample ID: **LCS-68445**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **68445**	RunNo: **89209**
Prep Date: **6/29/2022**	Analysis Date: **7/1/2022**	SeqNo: **3171087** 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	80	120			
Toluene	0.91	0.050	1.000	0	91.3	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.7	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.2	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	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

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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: 2206F42 | RcptNo: 1

Received By: **Juan Rojas** 6/29/2022 6:30:00 AM

Completed By: **Sean Livingston** 6/29/2022 8:59:49 AM

Reviewed By: 6-29-22

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: JR 6/29/22

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good				
2	3.0	Good				

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address:

Phone #: 713-757-5247

email or Fax#: mkillough@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

5 day

☒ Standard ☐ Rush

Project Name: Sunray B 1B

Project #:

Project Manager: Mitch Killough - Hilcorp

Stuart Hyde - Ensolum

Sampler: E. Carroll / R Hansen

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.0-0=1.0 (°C)

3.0-0=3.0

HEAL No. 2206F42

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6-27	11:50	Soil	BH01 5-10	1, 4oz	cool	001	X	X					X			
↓	12:10	↓	BH01 15-20	↓	↓	002	↓	↓					↓			
↓	12:20	↓	BH02 5-10	↓	↓	003	↓	↓					↓			
			BH02													
6/27	12:40	Soil	BH03 0-5	1, 4oz	cool	004	X	X					X			
↓	13:10	↓	BH03 15-20	↓	↓	005	↓	↓					↓			
↓	14:00	↓	BH04 5-10	↓	↓	006	↓	↓					↓			
↓	14:05	↓	BH04 10-15	↓	↓	007	↓	↓					↓			
↓	14:07	↓	BH04 15-20	↓	↓	008	↓	↓					↓			
↓	14:12	↓	BH04 20-25	↓	↓	009	↓	↓					↓			
↓	14:15	↓	BH04 25-30	↓	↓	010	↓	↓					↓			
↓	15:30	↓	BH05 5-10	↓	↓	011	↓	↓					↓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/28/22	1515				6/28/22	1515
6/28/22	1806			courier	6/29/22	6:30

Remarks: Hold BH04 20-25

cc: shyde@ensolum.com

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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

Chain-of-Custody Record

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Mitch Killough

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email or Fax#: mkillough@hilcorp.com

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Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

5 day

☒ Standard ☐ Rush

Project Name:

Sunray B 1B

Project #:

Project Manager:

Mitch Killough - Hilcorp

Stuart Hyde - Ensolum

Sampler: E Carroll / R Hanson

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(Including CF): 1.0-0=1.0 (°C) 3.0-0=3.0

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6-28	9:30	Soil	BH06 10-15	1 4oz	Cool	012	X	X					X			
6-28	9:40	Soil	BH06 25-30	1 4oz	Cool	013	X	X					X			
	1315		BH02 10-15			014										
	1718		BH02 15-20			015										
	1322		BH02 20-25			016										
	1325		BH07 0-5			017										
	1328		BH07 20-22			018										
6/28	13:25		BH02 25-30			019										
6/27	15:45		BH05 25-30			020										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/28/22	1515				6/28/22	1515
6/28/22	1802			Courier	6/29/22	6:30

Remarks:

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

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

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 128553
	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 are due by December 16, 2022.	9/13/2022