State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NRM2020945060 |
| 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? | 32 (ft bgs) |
| Did this release impact groundwater or surface water? groundwater | ☒ Yes ☐ No |
| Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 1000 feet of any other fresh water well or spring? | ☐ Yes ☒ No |
| Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field? | ☐ Yes ☒ No |
| Are the lateral extents of the release within 300 feet of a wetland? | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying a subsurface mine? | ☐ Yes ☒ No |
| Are the lateral extents of the release overlying an unstable area such as karst geology? | ☐ Yes ☒ No |
| Are the lateral extents of the release within a 100-year floodplain? | ☐ Yes ☒ No |
| Did the release impact areas **not** on an exploration, development, production, or storage site? | ☒ Yes ☐ No |

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

**Characterization Report Checklist**: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NRM2020945060 |
| 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: 5/28/2021

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

**OCD Only**

Received by: Date: 5/28/2021

**From:** Smith, Cory, EMNRD
**To:** Hencmann, Devin; Burns, Daniel
**Cc:** Mitch Killough; Carroll, Eric
**Subject:** RE: HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)
**Date:** Wednesday, May 19, 2021 3:59:00 PM
**Attachments:** image001.png
image002.png
image003.png

---

Devin,

As per our phone conversation today. Please submit an interim delineation report with the delineation information that HEC has acquired to date. OCD will use this report to determine good cause for granting a 3rd extension due to recent delineation actives going off the active well pad and onto undisturbed BLM surface areas.

Please submit the interim report via the OCD E-permitting portal no later than 5/28/21 and include a brief executive summary of activities of the site to date, indicate that additional delineation will be done upon the approval from BLM and the requested extension date.

Please email me the PO# once it has been submitted so I can quickly review and grant an approval.

Thank you,

**Cory Smith** • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

---

**From:** Hencmann, Devin <Devin.Hencmann@wsp.com>
**Sent:** Friday, May 14, 2021 3:14 PM
**To:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Burns, Daniel <Danny.Burns@wsp.com>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
**Cc:** Mitch Killough <mkillough@hilcorp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
**Subject:** [EXT] RE: HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)

Cory,

We did conduct additional delineation in February. We felt from the initial field data that we had completed the delineation. When we returned to the site after drilling, we discovered that some of the borings had groundwater in them and required sampling to determine if additional delineation was necessary. The lab data confirmed that additional boreholes would be required. To conduct the additional delineation, we had to evaluate our plan moving forward and schedule drilling, which led to the 5/17/21 drilling date. We have access to the rig until 5/25/21 and are confident we can complete drilling activities during this round of drilling. We have drilled 20 borings during two separate drilling events and have been active in working toward completing the delineation and

reporting by the 5/28/2021 extension deadline, but were limited by driller availability. Due to the complexity of the site, we are looking for a little extra time to compile data and provide a thorough report.

Thank you,
Devin

**Devin Hencmann**
Senior Consultant, Geologist
Devin.Hencmann@wsp.com

M + 1 970-403-6023
T + 1 970-385-1096

WSP USA
848 East 2nd Avenue
Durango, Colorado 81301

**wsp.com**

---

**From:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
**Sent:** Friday, May 14, 2021 1:49 PM
**To:** Hencmann, Devin <Devin.Hencmann@wsp.com>; Burns, Daniel <Danny.Burns@wsp.com>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
**Cc:** Mitch Killough <mkillough@hilcorp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
**Subject:** RE: HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)

Devin,

Just reading through the notes.. this would be the 3rd extension request… This plan was suppose to be done in Feb. Did the work done in Feb require more delineation if so what was the hold up on getting a rig asap?

**Cory Smith** • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

---

**From:** Hencmann, Devin <Devin.Hencmann@wsp.com>
**Sent:** Friday, May 14, 2021 1:18 PM
**To:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Burns, Daniel <Danny.Burns@wsp.com>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
**Cc:** Mitch Killough <mkillough@hilcorp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
**Subject:** [EXT] RE: HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)

Cory,

We also wanted to follow up on the email sent 5/12/21 requesting an extension to the 5/28/21 deadline. We have had to work with drill rig availability and now that we are confirmed for 5/17/21 we would like additional 30 days beyond the 5/28/21 deadline to submit the delineation findings and present remediation options.

Let us know if have any questions.

Thank you,
Devin

**Devin Hencmann**
Senior Consultant, Geologist
*Devin.Hencmann@wsp.com*

M + 1 970-403-6023
T + 1 970-385-1096

WSP USA
848 East 2nd Avenue
Durango, Colorado 81301

**wsp.com**

---

**From:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
**Sent:** Friday, May 14, 2021 12:22 PM
**To:** Burns, Daniel <Danny.Burns@wsp.com>; Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>
**Cc:** Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
**Subject:** RE: HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)

Danny,

Thank you for the update.. Please proceeded with Delineation activities.

**Cory Smith** • Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1000 Rio Brazos | Aztec, NM 87410
505.334.6178 x115 | Cory.Smith@state.nm.us
http://www.emnrd.state.nm.us/OCD/

---

**From:** Burns, Daniel <Danny.Burns@wsp.com>
**Sent:** Friday, May 14, 2021 11:37 AM
**To:** Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>

**Cc:** Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Mitch Killough <mkillough@hilcorp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>; Carroll, Eric <Eric.Carroll@wsp.com>
**Subject:** [EXT] HEC - Hare 15 - Additional Delineation Activities (Incident# NRM2020945060)

On behalf of Hilcorp Energy Company, we are submitting this notification that additional delineation activities will occur at the Hare 15 beginning on May 17, 2021 at 8 AM. The initial C-141 was submitted on 7/27/20 and assigned incident number NRM2020945060. An additional 4 borehole/monitoring well locations are proposed to continue delineation of soil and groundwater to the north and west of previously identified impacts. Following receipt of additional soil and groundwater analytical results, a characterization report and remediation work plan will be submitted to the NMOCD.

Thank you.

**Danny Burns**
Consultant, Geologist
*Please note the new email address.*

T+ 1 970-385-1096
M+ 1 701-570-4727

WSP USA
848 East 2nd Avenue
Durango, Colorado 81301

**wsp.com**



-LAEmHhHzdJzBITWfa4Hgs7pbKI

May 28, 2021

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

**Subject:** **Interim Report - Delineation Activities Update**
**Hare 15**
**NMOCD Incident Number: NRM2020945060**
**San Juan County, New Mexico**

To Whom It May Concern:

WSP USA Inc. (WSP), on behalf of Hilcorp Energy Company (Hilcorp), presents the following *Delineation Activities Update* for the Hare 15 natural gas production well site (Site). This document details site investigation activities completed to date and proposed actions moving forward to address impacted soil and groundwater resulting from a release of natural gas condensate. The Site is located in Lot Unit M17, Section 3, Township 29 North, Range 10 West, in San Juan County, New Mexico (Figure 1).

# SITE BACKGROUND

On July 15, 2020, vandalism of an aboveground storage tank caused a failure and release of approximately 115 barrels (bbls) of natural gas condensate. The release occurred on location and remained inside the secondary containment. Hilcorp operations removed the remaining liquids from inside of the tank. No released liquids were recovered during initial emergency response efforts. Hilcorp reported the release to the New Mexico Oil Conservation Division (NMOCD) by submitting a *Release Notification and Corrective Action Form C-141* (Form C-141) on July 27, 2020. The release was assigned Incident Number NRM2020945060.

## SITE CHARACTERIZATION

WSP characterized the Site according to "Table 1, Closure Criteria for Soils Impacted by a Release," of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). As measured from in on-Site monitoring wells, depth to groundwater is approximately 32 to 40 feet below ground surface (bgs). The nearest domestic/stock water well is New Mexico Office of the State Engineer (NMOSE) permitted well SJ-00785-S, located approximately 0.59 miles north of the Site. The well has a depth to water of approximately 20 feet bgs and a total depth of approximately 60 feet bgs.

No wellhead protection areas, springs, or domestic/stock wells are located within a half mile from the site (Figure 1). The nearest significant watercourse to the Site is Slane Canyon, located approximately 660 feet to the east. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland. The Site is not within a 100-year floodplain or overlying a subsurface mine and is not located within an area underlain by unstable geology (low potential karst designation area by the Bureau of Land Management, or BLM). No occupied permanent residence or structures, including schools, hospitals, institutions, and/or churches, are located within 300 feet of the Site.

### *CLOSURE CRITERIA*

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

— Benzene: 10 milligrams per kilogram (mg/kg)

WSP USA
848 EAST 2ND AVENUE
DURANGO CO 81301

Tel.: 970-385-1096
wsp.com

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

Additionally, the following New Mexico Groundwater Quality Control Commission (NMWQCC) standards apply to groundwater present at the Site:

- Phase-separated hydrocarbons (PSH): shall not be present, as can be reasonably measured
- Benzene: 5 microgram per liter (µg/L)
- Toluene: 1,000 µg/L
- Ethylbenzene: 700 µg/L
- Xylenes: 620 µg/L

## SITE INVESTIGATION ACTIVITIES AND RESULTS

To date, there have been three separate mobilization events to delineate subsurface impacts: August 17, 2020 to August 25, 2020; February 9, 2021 to February 11, 2021; and May 17, 2021 to May 18, 2021. During each site delineation attempt, WSP personnel advanced boreholes via hollow-stem auger to confirm the presence or absence of petroleum hydrocarbon impacts to soil. Groundwater was encountered in those boreholes and WSP additionally worked to delineate potential impact to groundwater.

### *SOIL ASSESSMENT*

To date, 26 boreholes have been advanced at the Site (shown on Figure 2). Soil samples were collected from boreholes and submitted for laboratory analysis of BTEX (benzene, toluene, ethylbenzene, and xylene compounds) by United States Environmental Protection Agency (EPA) Method 8021, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), TPH-motor oil range organics (MRO) by EPA Method 8015, and chloride by EPA method 300.0. A summary of soil analytical results is presented in Table 1 and Figure 3, with laboratory analytical reports attached as Enclosure A. At this time, WSP is still awaiting soil analytical results from the May 2021 delineation event.

The following soil samples have detections of BTEX, benzene, and/or TPH above NMOCD standards (chloride has not been detected above applicable standards at the Site):

- BH01@20’-24’, BH03@23’-25’, BH04@25’-27’, BH04@30’-35’, BH07@15’-20’, BH08@25’-30’, BH09@25’-27’, BH10@15’-20’, BH11@10’-15’, BH13@25'-27', BH14 @ 25'-27', BH15 @ 25'-30', BH16@25'-30', and BH20 @ 25'-30'

### *GROUNDWATER ASSESSMENT*

During the initial delineation event in August 2020, saturated soils indicative of groundwater were not observed during drilling. Because of this, groundwater-monitoring wells were not installed at the Site; however, boreholes with petroleum impacts were completed as potential soil-vapor extraction (SVE) wells, with the screened intervals placed at depths with the highest observed field screening measurements (using a photoionization detector, or PID). During subsequent site visits, groundwater and phase-separated hydrocarbons (PSH) were observed to have accumulated in several of the SVE wells. Subsequent groundwater sampling activities indicated impacts to groundwater exist at the Site and further delineation was warranted. Additional groundwater monitoring wells were installed at the Site during the follow-up delineation events conducted in February and May, 2021. Groundwater samples were collected from wells BH06, BH09, BH11, BH19, and BH20 in February 2021 and were analyzed for BTEX by EPA Method 8260. Groundwater results from this event are summarized in Table 2 and Figure 4, with laboratory analytical reports also included in Enclosure A. At this time, WSP is still awaiting groundwater analytical results from the May 2021 delineation event.

To date, 23 wells have been installed at the Site. Currently, seven wells contain measurable quantities of PSH: BH03, BH04, BH07, BH10, BH13, BH15, and BH16. Additionally, the following wells contain groundwater with detections above NMWQCC standards for BTEX: BH06, BH09, BH11, BH19, and BH20. Since the discovery of

the PSH, WSP has conducted several PSH-recovery events using a disposable bailer. Additionally, adsorbent socks have been placed in all wells containing PSH and replaced as necessary since October 2020.

## FINDINGS AND RECOMMENDATIONS:

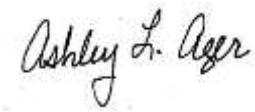
Based on the nature and volume of the recent condensate-vandalism release, impacts from this release are likely confined to the southern borings at the Site. However, while delineating the recent release, it appears that historical impacts have been discovered. The historical impacts are typically confined to a medium, dense sand between 20 and 32 feet bgs. Where groundwater or saturated intervals are encountered, they sit on top of a dense, low permeable, fine sandy silt and then pure silt and clay. Based on field screening and analytical results, there is limited to no observable impacts in the silt/clay layers located below the impacted sand unit.

At this time, WSP is waiting on soil and groundwater analytical results from the most recent May 2021 delineation event. The results will provide data to determine if full delineation has been attained. Based on the information obtained from the Site thus far, Hilcorp will continue Site activities as described below. For the proposed work, Hilcorp is required to obtain permission from the BLM to advance additional borings at the Site. Hilcorp will submit a Sundry notification to the BLM within 7 days of the NMOCD approving this document. Hilcorp will then perform the following actions, to be completed within 60-days of BLM approval:

- Develop newly installed wells and conduct site-wide groundwater sampling.
- Continue to bail PSH from wells and replace adsorbent socks, as necessary, on a monthly basis.
- Upon receipt of laboratory results, continue site delineation and/or prepare a site-characterization report and remediation work plan for the Site.
- Hilcorp will update the NMOCD biweekly regarding Site access and other Site activities, as necessary.

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

Kind regards,



Devin Hencmann
Senior Consultant, Geologist

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

cc: Mitch Killough, Hilcorp Energy Company

**Enclosures:**

| | |
|---|---|
| Figure 1 | Receptor Map |
| Figure 2 | Soil Boring Locations |
| Figure 3 | Soil Analytical Results |
| Figure 4 | Groundwater Analytical Results |
| Table 1 | Soil Analytical Results |
| Table 2 | Groundwater Analytical Results |
| Enclosure A | Laboratory Analytical Reports |

# FIGURES

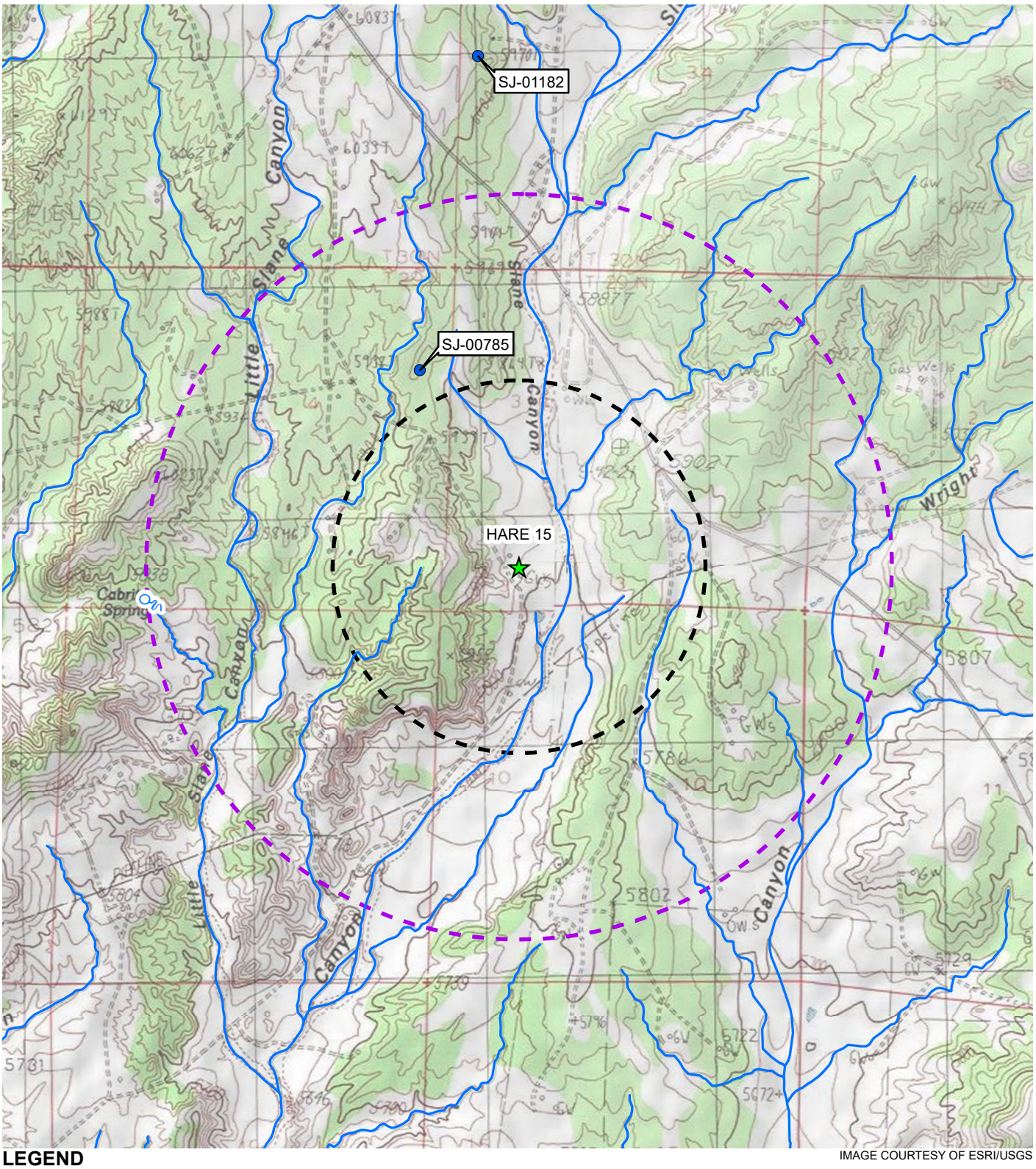



IMAGE COURTESY OF ESRI/USGS

**LEGEND**

- WATER WELL LOCATION
- SPRING/SEEP
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE
- HALF-MILE RADIUS
- 1-MILE RADIUS

NEW MEXICO

0 2,000 4,000
Feet

N

FIGURE 1
RECEPTOR MAP
HARE 15
LOT 17 SEC 3-T29N-R10W
SAN JUAN COUNTY, NEW MEXICO
**HILCORP ENERGY COMPANY**

wsp

P:\Hilcorp\GIS\MXD\017820018_HARE 15\017820018_FIG01_SL_2020.mxd


IMAGE COURTESY OF ESRI

**LEGEND**

- MONITORING WELL
- SOIL BORING LEGEND
- PROPOSED SOIL BORING
- WELLHEAD
- FLOWLINE
- GAS LINE
- AC LINE
- COMM LINE

0 60 120
Feet

N

FIGURE 2
SOIL BORING LOCATIONS
HARE 15
LOT 17 SEC 3-T29N-R10W
SAN JUAN COUNTY, NEW MEXICO
**HILCORP ENERGY COMPANY**

P:\Hilcorp\GIS\MXD\017820018_HARE 15\017820018_FIG02_BH LOC_05272021.mxd

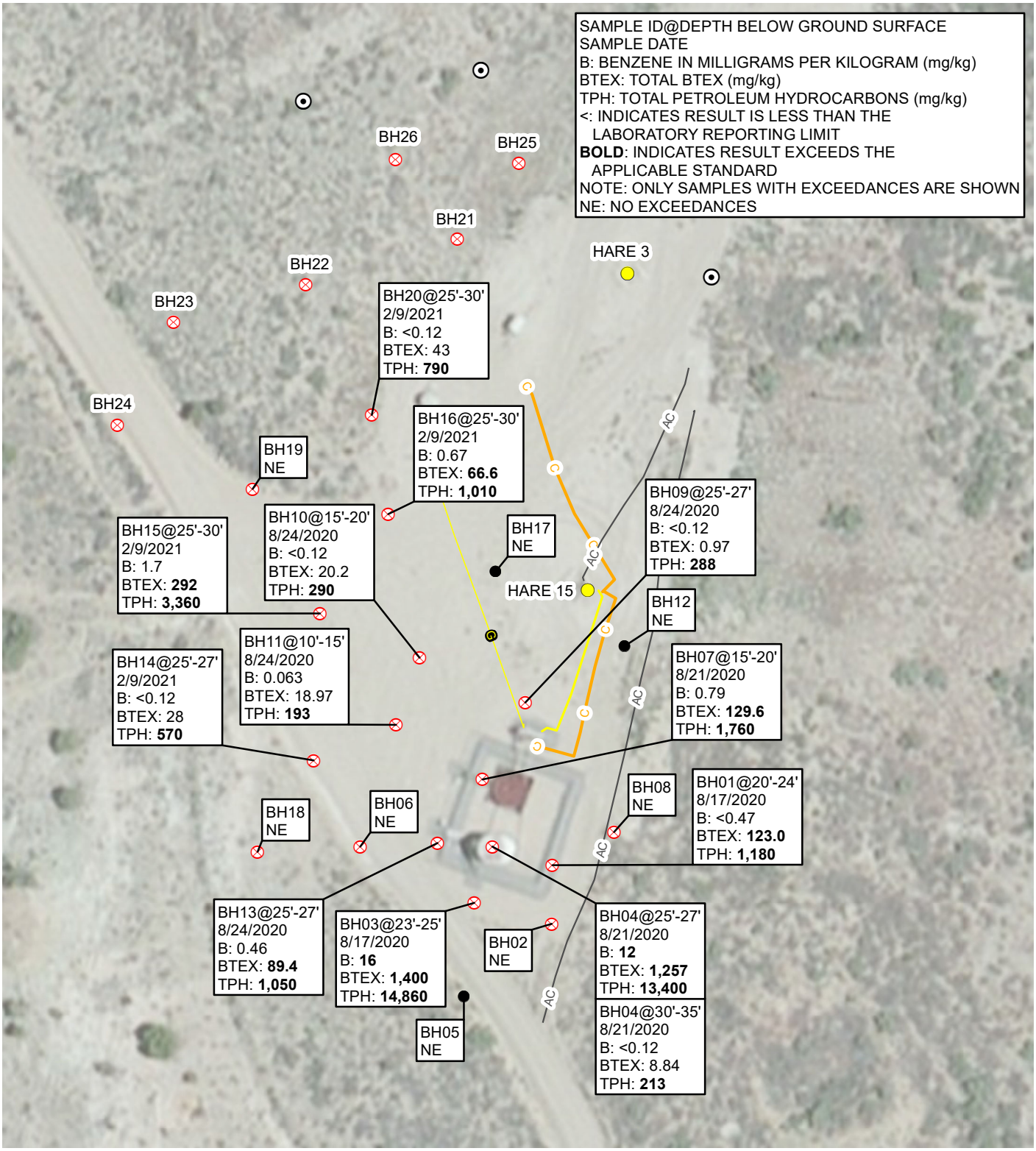



IMAGE COURTESY OF ESRI

**LEGEND**

- MONITORING WELL
- SOIL BORING
- PROPOSED SOIL BORING
- WELLHEAD
- FLOWLINE
- GAS LINE
- AC LINE
- COMM LINE

0 60 120

Feet

N

FIGURE 3
SOIL ANALYTICAL RESULTS
HARE 15
LOT 17 SEC 3-T29N-R10W
SAN JUAN COUNTY, NEW MEXICO
**HILCORP ENERGY COMPANY**

P:\Hilcorp\GIS\MXD\017820018_HARE 15\017820018_FIG03_SOIL ANALYTICAL RESULTS_FEB_2021.mxd

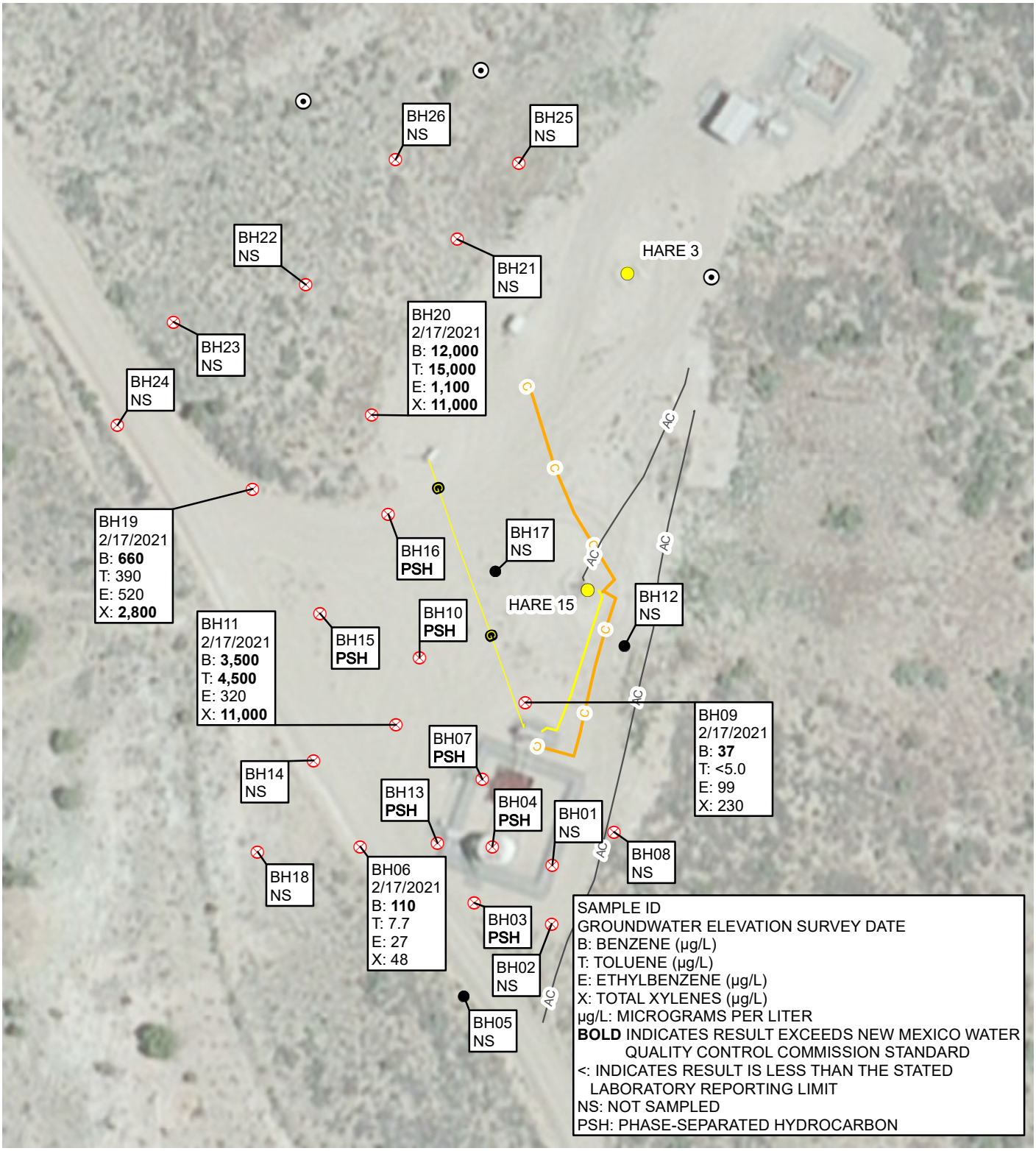



IMAGE COURTESY OF ESRI

**LEGEND**

- MONITORING WELL
- SOIL BORING
- PROPOSED SOIL BORING
- WELLHEAD
- FLOWLINE
- GAS LINE
- AC LINE
- COMM LINE

0 60 120
Feet

N

FIGURE 4
GROUNDWATER ANALYTICAL RESULTS
HARE 15
LOT 17 SEC 3-T29N-R10W
SAN JUAN COUNTY, NEW MEXICO
**HILCORP ENERGY COMPANY**

P:\Hilcorp\GIS\MXD\017820018_HARE 15\017820018_FIG04_GWA_Q1_2021.mxd

# TABLES

**TABLE 1**
**SOIL ANALYTICAL RESULTS**

**HARE 15**
**SAN JUAN COUNTY, NEW MEXICO**
**HILCORP ENERGY COMPANY**

| Soil Sample Identification | Sample Date | PID Reading (ppm) | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | MRO (mg/kg) | TPH (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NMOCD Closure Criteria** | | NE | **10** | NE | NE | NE | **50** | **600** | NE | NE | NE | **100** |
| BH01@20'-24' | 8/17/2020 | 3,118 | <0.47 | <0.94 | 3.0 | 120 | **123** | <60 | 1,000 | 180 | <47 | **1,180** |
| BH01@27'-30' | 8/17/2020 | 41.2 | <0.019 | <0.039 | <0.039 | 0.10 | 0.10 | <60 | <3.9 | <9.8 | <49 | <62.7 |
| BH02@25'-30' | 8/17/2020 | 1,454 | 0.053 | 0.43 | 0.20 | 3.9 | 4.58 | <60 | 48 | 17 | <50 | 65 |
| BH02@35'-38' | 8/17/2020 | 515 | <0.020 | <0.039 | <0.039 | 0.15 | 0.15 | <60 | <3.9 | <9.9 | <50 | <63.8 |
| BH03@10'-15' | 8/17/2020 | 22 | <0.024 | <0.048 | <0.048 | <0.095 | <0.215 | <60 | <4.8 | <9.1 | <45 | <58.9 |
| BH03@15'-18' | 8/17/2020 | 246 | <0.025 | <0.050 | <0.050 | <0.10 | <0.225 | <60 | <5.0 | <9.8 | <49 | <63.8 |
| BH03@23'-25' | 8/20/2020 | 1,238 | **16** | 360 | 64 | 960 | **1,400** | <60 | 14,000 | 860 | <480 | **14,860** |
| BH03@29'-30' | 8/20/2020 | 2,246 | <0.024 | 0.70 | 0.28 | 4.9 | 5.88 | <60 | 76 | 16 | <46 | 92 |
| BH03@35'-38' | 8/20/2020 | 173 | <0.025 | <0.050 | <0.050 | <0.099 | <0.224 | <59 | <5.0 | <9.0 | <45 | <59 |
| BH04@23'-25' | 8/17/2020 | 1,448 | <0.023 | 0.11 | 0.14 | 2.5 | 2.75 | <60 | 43 | 35 | <45 | 78 |
| BH04@25'-27' | 8/21/2020 | 1,499 | **12** | 300 | 55 | 890 | **1,257** | <60 | 12,000 | 1,400 | <450 | **13,400** |
| BH04@28'-30' | 8/21/2020 | 102 | <0.025 | <0.049 | <0.049 | <0.098 | <0.221 | <60 | <4.9 | <9.4 | <47 | <61.3 |
| BH04@30'-35' | 8/21/2020 | 403 | <0.12 | 0.68 | 0.56 | 7.6 | 8.84 | <60 | 130 | 83 | <44 | **213** |
| BH04@35'-38' | 8/21/2020 | 46 | <0.025 | 0.073 | <0.049 | 0.2 | 0.273 | <60 | <4.9 | 10 | <49 | 10 |
| BH05@20'-25' | 8/21/2020 | 62.6 | <0.024 | <0.048 | <0.048 | <0.097 | <0.217 | <59 | <4.8 | <9.9 | <49 | <63.7 |
| BH05@25'-30' | 8/21/2020 | 24.1 | <0.024 | <0.049 | <0.049 | <0.097 | <0.219 | <60 | <4.9 | <9.0 | <45 | <58.9 |
| BH06@15'-20' | 8/21/2020 | 22.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH06@20'-25' | 8/21/2020 | 41.0 | <0.12 | <0.25 | <0.25 | <0.49 | <1.11 | <60 | <25 | <9.5 | <48 | <82.5 |
| BH06@25'-30' | 8/21/2020 | 17.1 | <0.024 | <0.049 | <0.049 | 0.45 | 0.45 | <60 | <4.9 | <8.5 | <43 | <56.4 |
| BH06@30'-35' | 8/21/2020 | 8.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH07@15'-20' | 8/21/2020 | 2,402 | 0.79 | 12 | 6.8 | 110 | 130 | 76 | 1600 | 160 | <48 | **1,760** |
| BH07@28'-30' | 8/21/2020 | 174 | <0.023 | <0.046 | <0.046 | <0.092 | <0.207 | <60 | <4.6 | <8.7 | <43 | <56.3 |
| BH07@30'-35' | 8/21/2020 | 41.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH08@25'-30' | 8/21/2020 | 649 | <0.050 | <0.10 | 0.23 | 1.1 | 1.3 | **610** | 120 | 270 | <45 | **390** |
| BH08@30'-35' | 8/21/2020 | 1,200 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH08@30'-35' | 8/21/2020 | 233 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**TABLE 1**
**SOIL ANALYTICAL RESULTS**

**HARE 15**
**SAN JUAN COUNTY, NEW MEXICO**
**HILCORP ENERGY COMPANY**

| Soil Sample Identification | Sample Date | PID Reading (ppm) | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | MRO (mg/kg) | TPH (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NMOCD Closure Criteria** | | NE | **10** | NE | NE | NE | **50** | **600** | NE | NE | NE | **100** |
| BH09@25'-27' | 8/24/2020 | 3,359 | <0.12 | <0.25 | <0.25 | 0.97 | 0.970 | 120 | 98 | 190 | <43 | **288** |
| BH09@28'-30' | 8/24/2020 | 30.1 | <0.025 | <0.049 | <0.049 | <0.099 | <0.222 | 73 | <4.9 | 11 | <47 | 11 |
| BH09@30'-35' | 8/24/2020 | 6.2 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH10@15'-20' | 8/24/2020 | 3,317 | <0.12 | <0.24 | 1.2 | 19 | 20.2 | <60 | 180 | 110 | <49 | **290** |
| BH10@28'-30' | 8/24/2020 | 193 | 0.044 | 0.11 | <0.048 | 0.53 | 0.684 | <60 | <4.8 | <8.6 | <43 | <56.4 |
| BH11@10'-15' | 8/24/2020 | 1,841 | 0.063 | 0.33 | 0.58 | 18 | 19.0 | 200 | 120 | 73 | <50 | **193** |
| BH11@25'-30' | 8/24/2020 | 686 | 0.039 | 0.14 | 0.079 | 1.0 | 1.3 | <60 | 20 | 19 | <47 | 39 |
| BH12@10'-15' | 8/24/2020 | 6.1 | <0.024 | <0.049 | <0.049 | <0.097 | <0.219 | 98 | <4.9 | <8.9 | <45 | <58.8 |
| BH12@25'-30' | 8/24/2020 | 0.8 | <0.024 | <0.049 | <0.049 | <0.098 | <0.220 | <60 | <4.9 | <9.7 | <49 | <63.6 |
| BH13@25'-27' | 8/24/2020 | 1,912 | 0.46 | 11 | 4.9 | 73 | **89.4** | <60 | 800 | 250 | <45 | **1,050** |
| BH13@28'-30' | 8/24/2020 | 39.4 | <0.024 | <0.048 | <0.048 | <0.096 | <0.216 | <60 | <4.8 | <9.4 | <47 | <61.2 |
| BH13@30'-35' | 8/24/2020 | 174 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BH14 @ 25'-27' | 2/9/2021 | 3,204 | <0.12 | <0.25 | 2.1 | 26 | 28 | <60 | 400 | 170 | <46 | **570** |
| BH14 @ 30'-35' | 2/9/2021 | 20 | <0.023 | <0.046 | <0.046 | <0.092 | <0.207 | <60 | <4.6 | <9.8 | <49 | <63.4 |
| BH15 @ 25'-30' | 2/9/2021 | 3,055 | 1.7 | 23 | 17 | 250 | **292** | <60 | 3,000 | 360 | <47 | **3,360** |
| BH15 @ 30'-35' | 2/9/2021 | 82 | <0.024 | <0.048 | <0.048 | <0.096 | <0.216 | <60 | <4.8 | <9.9 | <49 | <63.7 |
| BH16 @ 25'-30' | 2/9/2021 | 2,332 | 0.67 | 9.6 | 3.3 | 53 | **66.6** | <60 | 800 | 210 | <50 | **1,010** |
| BH16 @ 33'-35' | 2/9/2021 | 212 | 0.074 | 0.19 | <0.047 | 0.42 | 0.684 | <60 | <4.7 | <9.8 | <49 | <63.5 |
| BH17 @ 20'-25' | 2/10/2021 | 1.8 | <0.024 | <0.048 | <0.048 | <0.095 | <0.215 | <60 | <4.8 | <9.4 | <47 | <61.2 |
| BH17 @ 25'-30' | 2/10/2021 | 0.3 | <0.023 | <0.047 | <0.047 | <0.094 | <0.211 | <60 | <4.7 | <10 | <51 | <65.7 |
| BH18 @ 20'-25' | 2/10/2021 | 0.3 | <0.024 | <0.048 | <0.048 | <0.095 | <0.215 | <60 | <4.8 | <9.7 | <48 | <62.5 |
| BH18 @ 25'-30' | 2/10/2021 | 0 | <0.025 | <0.050 | <0.050 | <0.099 | <0.224 | <60 | <5.0 | <8.4 | <42 | <55.4 |
| BH19 @ 30'-35' | 2/10/2021 | 119 | <0.024 | <0.049 | <0.049 | 0.43 | 0.430 | <60 | 9.4 | <9.0 | <45 | 9.4 |
| BH19 @ 35'-40' | 2/10/2021 | 4.8 | 0.050 | 0.12 | 0.14 | 2.1 | 2.41 | <60 | 13 | <10 | <50 | 13 |
| BH20 @ 25'-30' | 2/11/2021 | 2,023 | <0.12 | 2.8 | 2.2 | 38 | 43 | <60 | 600 | 190 | <49 | **790** |
| BH20 @ 33'-35' | 2/11/2021 | 80 | 0.056 | 0.72 | 0.091 | 1.5 | 2.37 | <60 | 9.9 | <9.2 | <46 | 9.9 |
| **NMOCD Closure Criteria** | | NE | **10** | NE | NE | NE | **50** | **600** | NE | NE | NE | **100** |

**TABLE 1**

**SOIL ANALYTICAL RESULTS**

**HARE 15**

**SAN JUAN COUNTY, NEW MEXICO**

**HILCORP ENERGY COMPANY**

| Soil Sample Identification | Sample Date | PID Reading (ppm) | Benzene (mg/kg) | Toluene (mg/kg) | Ethyl-benzene (mg/kg) | Total Xylenes (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) | GRO (mg/kg) | DRO (mg/kg) | MRO (mg/kg) | TPH (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NMOCD Closure Criteria** | | NE | **10** | NE | NE | NE | **50** | **600** | NE | NE | NE | **100** |

**Notes:**

BTEX - benzene, toluene, ethylbenzene, and total xylenes analyzed by US EPA Method 8021B

DRO - diesel range organics analyzed by US EPA Method 8015D

GRO - gasoline range organics analyzed by US EPA Method 8015D

mg/kg - milligrams per kilogram

MRO - motor oil range organics analyzed by US EPA method 8015D

NA - not analyzed

NE - not established

NMOCD - New Mexico Oil Conservation Division

PID - photoionization detector

ppm - parts per million

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

**Bold** - indicates value exceeds stated NMOCD Closure Criteria

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

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**

**HARE 15**
**SAN JUAN COUNTY, NEW MEXICO**
**HILCORP ENERGY COMPANY**

| Groundwater Sample Identification | Sample Date | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) |
|---|---|---|---|---|---|
| BH06 | 2/17/2021 | **110** | 7.7 | 27 | 48 |
| BH09 | 2/17/2021 | **37** | <5.0 | 99 | 230 |
| BH11 | 2/17/2021 | **3,500** | **4,500** | 320 | **11,000** |
| BH19 | 2/17/2021 | **660** | 390 | 520 | **2,800** |
| BH20 | 2/17/2021 | **12,000** | **15,000** | **1,100** | **10,000** |
| **NMWQCC Groundwater Standard** | | **5** | **1,000** | **700** | **620** |

**Notes:**
µg/L - micrograms per liter
NMWQCC - New Mexico Water Quality Control Commision
**Bold** - indicates value exceeds the NMWQCC Standard
< - indicates result is less than the stated laboratory reporting limit

# ENCLOSURE A – LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 25, 2020

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

RE: Hare 15 OrderNo.: 2008906

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/18/2020 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 **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH01@ 20'-24'
**Project:** Hare 15
**Collection Date:** 8/17/2020 9:15:00 AM
**Lab ID:** 2008906-001 **Matrix:** SOIL **Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **CJS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/24/2020 6:09:05 PM | 54629 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | 180 | 9.5 | | mg/Kg | 1 | 8/20/2020 1:07:25 AM | 54513 |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/20/2020 1:07:25 AM | 54513 |
| Surr: DNOP | 100 | 30.4-154 | | %Rec | 1 | 8/20/2020 1:07:25 AM | 54513 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | 1000 | 94 | | mg/Kg | 20 | 8/19/2020 1:31:49 PM | 54505 |
| Surr: BFB | 298 | 75.3-105 | S | %Rec | 20 | 8/19/2020 1:31:49 PM | 54505 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.47 | | mg/Kg | 20 | 8/19/2020 1:31:49 PM | 54505 |
| Toluene | ND | 0.94 | | mg/Kg | 20 | 8/19/2020 1:31:49 PM | 54505 |
| Ethylbenzene | 3.0 | 0.94 | | mg/Kg | 20 | 8/19/2020 1:31:49 PM | 54505 |
| Xylenes, Total | 120 | 1.9 | | mg/Kg | 20 | 8/19/2020 1:31:49 PM | 54505 |
| Surr: 4-Bromofluorobenzene | 110 | 80-120 | | %Rec | 20 | 8/19/2020 1:31:49 PM | 54505 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH01@ 27'-30'
**Project:** Hare 15 **Collection Date:** 8/17/2020 9:45:00 AM
**Lab ID:** 2008906-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **MRA** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/18/2020 11:56:09 AM | 54499 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 8/18/2020 11:13:13 AM | 54497 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/18/2020 11:13:13 AM | 54497 |
| Surr: DNOP | 90.3 | 30.4-154 | | %Rec | 1 | 8/18/2020 11:13:13 AM | 54497 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | ND | 3.9 | | mg/Kg | 1 | 8/18/2020 10:00:33 AM | 54485 |
| Surr: BFB | 95.5 | 75.3-105 | | %Rec | 1 | 8/18/2020 10:00:33 AM | 54485 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.019 | | mg/Kg | 1 | 8/18/2020 10:00:33 AM | 54485 |
| Toluene | ND | 0.039 | | mg/Kg | 1 | 8/18/2020 10:00:33 AM | 54485 |
| Ethylbenzene | ND | 0.039 | | mg/Kg | 1 | 8/18/2020 10:00:33 AM | 54485 |
| Xylenes, Total | 0.10 | 0.077 | | mg/Kg | 1 | 8/18/2020 10:00:33 AM | 54485 |
| Surr: 4-Bromofluorobenzene | 98.6 | 80-120 | | %Rec | 1 | 8/18/2020 10:00:33 AM | 54485 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH02@ 25'-30'
**Project:** Hare 15
**Collection Date:** 8/17/2020 12:00:00 PM
**Lab ID:** 2008906-003 **Matrix:** SOIL **Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **CJS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/24/2020 6:46:18 PM | 54629 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | 17 | 10 | | mg/Kg | 1 | 8/20/2020 1:17:34 AM | 54513 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/20/2020 1:17:34 AM | 54513 |
| Surr: DNOP | 87.7 | 30.4-154 | | %Rec | 1 | 8/20/2020 1:17:34 AM | 54513 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | 48 | 4.8 | | mg/Kg | 1 | 8/20/2020 1:40:55 AM | 54505 |
| Surr: BFB | 204 | 75.3-105 | S | %Rec | 1 | 8/20/2020 1:40:55 AM | 54505 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | 0.053 | 0.024 | | mg/Kg | 1 | 8/20/2020 1:40:55 AM | 54505 |
| Toluene | 0.43 | 0.048 | | mg/Kg | 1 | 8/20/2020 1:40:55 AM | 54505 |
| Ethylbenzene | 0.20 | 0.048 | | mg/Kg | 1 | 8/20/2020 1:40:55 AM | 54505 |
| Xylenes, Total | 3.9 | 0.097 | | mg/Kg | 1 | 8/20/2020 1:40:55 AM | 54505 |
| Surr: 4-Bromofluorobenzene | 114 | 80-120 | | %Rec | 1 | 8/20/2020 1:40:55 AM | 54505 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH02@ 35'-38'
**Project:** Hare 15 **Collection Date:** 8/17/2020 12:30:00 PM
**Lab ID:** 2008906-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/18/2020 12:08:34 PM | 54499 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 8/18/2020 11:37:24 AM | 54497 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/18/2020 11:37:24 AM | 54497 |
| Surr: DNOP | 92.0 | 30.4-154 | | %Rec | 1 | 8/18/2020 11:37:24 AM | 54497 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 3.9 | | mg/Kg | 1 | 8/18/2020 10:24:02 AM | 54485 |
| Surr: BFB | 101 | 75.3-105 | | %Rec | 1 | 8/18/2020 10:24:02 AM | 54485 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.020 | | mg/Kg | 1 | 8/18/2020 10:24:02 AM | 54485 |
| Toluene | ND | 0.039 | | mg/Kg | 1 | 8/18/2020 10:24:02 AM | 54485 |
| Ethylbenzene | ND | 0.039 | | mg/Kg | 1 | 8/18/2020 10:24:02 AM | 54485 |
| Xylenes, Total | 0.15 | 0.079 | | mg/Kg | 1 | 8/18/2020 10:24:02 AM | 54485 |
| Surr: 4-Bromofluorobenzene | 100 | 80-120 | | %Rec | 1 | 8/18/2020 10:24:02 AM | 54485 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH03@ 10'-15'
**Project:** Hare 15
**Collection Date:** 8/17/2020 2:20:00 PM
**Lab ID:** 2008906-005 **Matrix:** SOIL **Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **CJS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/24/2020 6:58:43 PM | 54629 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | ND | 9.1 | | mg/Kg | 1 | 8/20/2020 1:27:44 AM | 54513 |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/20/2020 1:27:44 AM | 54513 |
| Surr: DNOP | 95.7 | 30.4-154 | | %Rec | 1 | 8/20/2020 1:27:44 AM | 54513 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/20/2020 2:04:18 AM | 54505 |
| Surr: BFB | 96.0 | 75.3-105 | | %Rec | 1 | 8/20/2020 2:04:18 AM | 54505 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/20/2020 2:04:18 AM | 54505 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/20/2020 2:04:18 AM | 54505 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/20/2020 2:04:18 AM | 54505 |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/20/2020 2:04:18 AM | 54505 |
| Surr: 4-Bromofluorobenzene | 101 | 80-120 | | %Rec | 1 | 8/20/2020 2:04:18 AM | 54505 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Project:** Hare 15
**Lab ID:** 2008906-006 **Matrix:** SOIL

**Client Sample ID:** BH03@ 15'-18'
**Collection Date:** 8/17/2020 2:30:00 PM
**Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CJS** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/24/2020 7:11:07 PM | 54629 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 8/20/2020 4:28:28 PM | 54549 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/20/2020 4:28:28 PM | 54549 |
| Surr: DNOP | 94.8 | 30.4-154 | | %Rec | 1 | 8/20/2020 4:28:28 PM | 54549 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **RAA** | |
| Gasoline Range Organics (GRO) | ND | 5.0 | | mg/Kg | 1 | 8/20/2020 10:15:11 AM | 54526 |
| Surr: BFB | 94.9 | 75.3-105 | | %Rec | 1 | 8/20/2020 10:15:11 AM | 54526 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **RAA** | |
| Benzene | ND | 0.025 | | mg/Kg | 1 | 8/20/2020 10:15:11 AM | 54526 |
| Toluene | ND | 0.050 | | mg/Kg | 1 | 8/20/2020 10:15:11 AM | 54526 |
| Ethylbenzene | ND | 0.050 | | mg/Kg | 1 | 8/20/2020 10:15:11 AM | 54526 |
| Xylenes, Total | ND | 0.10 | | mg/Kg | 1 | 8/20/2020 10:15:11 AM | 54526 |
| Surr: 4-Bromofluorobenzene | 99.4 | 80-120 | | %Rec | 1 | 8/20/2020 10:15:11 AM | 54526 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008906**
Date Reported: **8/25/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Project:** Hare 15
**Lab ID:** 2008906-007 **Matrix:** SOIL

**Client Sample ID:** BH04@ 23'-25'
**Collection Date:** 8/17/2020 3:15:00 PM
**Received Date:** 8/18/2020 7:55:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **CJS** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/24/2020 7:23:32 PM | 54629 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | 35 | 9.0 | | mg/Kg | 1 | 8/20/2020 4:58:03 PM | 54549 |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/20/2020 4:58:03 PM | 54549 |
| Surr: DNOP | 101 | 30.4-154 | | %Rec | 1 | 8/20/2020 4:58:03 PM | 54549 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **RAA** | |
| Gasoline Range Organics (GRO) | 43 | 4.7 | | mg/Kg | 1 | 8/20/2020 11:25:34 AM | 54526 |
| Surr: BFB | 296 | 75.3-105 | S | %Rec | 1 | 8/20/2020 11:25:34 AM | 54526 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **RAA** | |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 8/20/2020 11:25:34 AM | 54526 |
| Toluene | 0.11 | 0.047 | | mg/Kg | 1 | 8/20/2020 11:25:34 AM | 54526 |
| Ethylbenzene | 0.14 | 0.047 | | mg/Kg | 1 | 8/20/2020 11:25:34 AM | 54526 |
| Xylenes, Total | 2.5 | 0.094 | | mg/Kg | 1 | 8/20/2020 11:25:34 AM | 54526 |
| Surr: 4-Bromofluorobenzene | 117 | 80-120 | | %Rec | 1 | 8/20/2020 11:25:34 AM | 54526 |

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

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**

***25-Aug-20***

**Client:** HILCORP ENERGY

**Project:** Hare 15

Sample ID: **MB-54499** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **54499** RunNo: **71154**

Prep Date: **8/18/2020** Analysis Date: **8/18/2020** SeqNo: **2481784** Units: **mg/Kg**

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

Sample ID: **LCS-54499** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **54499** RunNo: **71154**

Prep Date: **8/18/2020** Analysis Date: **8/18/2020** SeqNo: **2481785** 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-54629** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **54629** RunNo: **71303**

Prep Date: **8/24/2020** Analysis Date: **8/24/2020** SeqNo: **2488391** Units: **mg/Kg**

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

Sample ID: **LCS-54629** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **54629** RunNo: **71303**

Prep Date: **8/24/2020** Analysis Date: **8/24/2020** SeqNo: **2488392** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.4 | 90 | 110 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**

***25-Aug-20***

**Client:** HILCORP ENERGY

**Project:** Hare 15

Sample ID: **MB-54497** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54497** RunNo: **71146**
Prep Date: **8/18/2020** Analysis Date: **8/18/2020** SeqNo: **2480616** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 9.7 | | 10.00 | | 97.2 | 30.4 | 154 | | | |

Sample ID: **LCS-54497** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54497** RunNo: **71146**
Prep Date: **8/18/2020** Analysis Date: **8/18/2020** SeqNo: **2480639** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 53 | 10 | 50.00 | 0 | 106 | 70 | 130 | | | |
| Surr: DNOP | 4.8 | | 5.000 | | 96.1 | 30.4 | 154 | | | |

Sample ID: **LCS-54468** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54468** RunNo: **71149**
Prep Date: **8/17/2020** Analysis Date: **8/19/2020** SeqNo: **2482200** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 4.9 | | 5.000 | | 97.1 | 30.4 | 154 | | | |

Sample ID: **MB-54468** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54468** RunNo: **71149**
Prep Date: **8/17/2020** Analysis Date: **8/19/2020** SeqNo: **2482202** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 10 | | 10.00 | | 103 | 30.4 | 154 | | | |

Sample ID: **LCS-54512** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54512** RunNo: **71197**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483610** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 4.7 | | 5.000 | | 93.2 | 30.4 | 154 | | | |

Sample ID: **LCS-54513** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54513** RunNo: **71197**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483611** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 54 | 10 | 50.00 | 0 | 108 | 70 | 130 | | | |
| Surr: DNOP | 4.7 | | 5.000 | | 93.8 | 30.4 | 154 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**
***25-Aug-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

| Sample ID: **MB-54512** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **54512** | RunNo: **71197** | | | | | | | |
| Prep Date: **8/18/2020** | Analysis Date: **8/19/2020** | SeqNo: **2483614** | Units: **%Rec** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Surr: DNOP | 10 | | 10.00 | | 102 | 30.4 | 154 | | | |

| Sample ID: **MB-54513** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **54513** | RunNo: **71197** | | | | | | | |
| Prep Date: **8/18/2020** | Analysis Date: **8/19/2020** | SeqNo: **2483615** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 11 | | 10.00 | | 115 | 30.4 | 154 | | | |

| Sample ID: **2008906-006AMS** | SampType: **MS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **BH03@ 15'-18'** | Batch ID: **54549** | RunNo: **71237** | | | | | | | |
| Prep Date: **8/19/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485416** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 48 | 9.1 | 45.41 | 5.403 | 93.0 | 47.4 | 136 | | | |
| Surr: DNOP | 4.8 | | 4.541 | | 105 | 30.4 | 154 | | | |

| Sample ID: **2008906-006AMSD** | SampType: **MSD** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **BH03@ 15'-18'** | Batch ID: **54549** | RunNo: **71237** | | | | | | | |
| Prep Date: **8/19/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485417** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 47 | 9.5 | 47.53 | 5.403 | 86.8 | 47.4 | 136 | 2.11 | 43.4 | |
| Surr: DNOP | 4.5 | | 4.753 | | 93.8 | 30.4 | 154 | 0 | 0 | |

| Sample ID: **LCS-54549** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **54549** | RunNo: **71237** | | | | | | | |
| Prep Date: **8/19/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485497** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 59 | 10 | 50.00 | 0 | 119 | 70 | 130 | | | |
| Surr: DNOP | 5.6 | | 5.000 | | 113 | 30.4 | 154 | | | |

| Sample ID: **MB-54549** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **54549** | RunNo: **71237** | | | | | | | |
| Prep Date: **8/19/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485499** | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**
***25-Aug-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **MB-54549** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54549** RunNo: **71237**
Prep Date: **8/19/2020** Analysis Date: **8/20/2020** SeqNo: **2485499** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 11 | | 10.00 | | 111 | 30.4 | 154 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**
***25-Aug-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **mb-54485** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54485** RunNo: **71140**
Prep Date: **8/17/2020** Analysis Date: **8/18/2020** SeqNo: **2481489** 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 | 1000 | | 1000 | | 99.6 | 75.3 | 105 | | | |

Sample ID: **lcs-54485** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54485** RunNo: **71140**
Prep Date: **8/17/2020** Analysis Date: **8/18/2020** SeqNo: **2481490** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 22 | 5.0 | 25.00 | 0 | 88.6 | 72.5 | 106 | | | |
| Surr: BFB | 1100 | | 1000 | | 110 | 75.3 | 105 | | | S |

Sample ID: **mb-54505** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54505** RunNo: **71173**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483097** 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 | 1000 | | 1000 | | 102 | 75.3 | 105 | | | |

Sample ID: **lcs-54505** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54505** RunNo: **71173**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483098** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 23 | 5.0 | 25.00 | 0 | 90.9 | 72.5 | 106 | | | |
| Surr: BFB | 1100 | | 1000 | | 105 | 75.3 | 105 | | | S |

Sample ID: **2008906-007ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH04@ 23'-25'** Batch ID: **54526** RunNo: **71246**
Prep Date: **8/18/2020** Analysis Date: **8/20/2020** SeqNo: **2485750** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 59 | 4.8 | 24.15 | 42.60 | 65.9 | 61.3 | 114 | | | |
| Surr: BFB | 2600 | | 966.2 | | 273 | 75.3 | 105 | | | S |

Sample ID: **2008906-007amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH04@ 23'-25'** Batch ID: **54526** RunNo: **71246**
Prep Date: **8/18/2020** Analysis Date: **8/20/2020** SeqNo: **2485751** 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**
***25-Aug-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **2008906-007amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH04@ 23'-25'** Batch ID: **54526** RunNo: **71246**
Prep Date: **8/18/2020** Analysis Date: **8/20/2020** SeqNo: **2485751** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 52 | 4.9 | 24.63 | 42.60 | 39.9 | 61.3 | 114 | 11.0 | 20 | S |
| Surr: BFB | 2400 | | 985.2 | | 242 | 75.3 | 105 | 0 | 0 | S |

Sample ID: **lcs-54526** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54526** RunNo: **71246**
Prep Date: **8/18/2020** Analysis Date: **8/20/2020** SeqNo: **2485797** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 22 | 5.0 | 25.00 | 0 | 88.4 | 72.5 | 106 | | | |
| Surr: BFB | 1100 | | 1000 | | 108 | 75.3 | 105 | | | S |

Sample ID: **mb-54526** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54526** RunNo: **71246**
Prep Date: **8/18/2020** Analysis Date: **8/20/2020** SeqNo: **2485801** 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 | 1000 | | 1000 | | 101 | 75.3 | 105 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**
***25-Aug-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **mb-54485** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54485** RunNo: **71140**
Prep Date: **8/17/2020** Analysis Date: **8/18/2020** SeqNo: **2481537** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 80 | 120 | | | |

Sample ID: **LCS-54485** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54485** RunNo: **71140**
Prep Date: **8/17/2020** Analysis Date: **8/18/2020** SeqNo: **2481538** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.92 | 0.025 | 1.000 | 0 | 92.0 | 80 | 120 | | | |
| Toluene | 0.93 | 0.050 | 1.000 | 0 | 93.3 | 80 | 120 | | | |
| Ethylbenzene | 0.94 | 0.050 | 1.000 | 0 | 93.5 | 80 | 120 | | | |
| Xylenes, Total | 2.8 | 0.10 | 3.000 | 0 | 93.9 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 80 | 120 | | | |

Sample ID: **mb-54505** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54505** RunNo: **71173**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483124** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 105 | 80 | 120 | | | |

Sample ID: **LCS-54505** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54505** RunNo: **71173**
Prep Date: **8/18/2020** Analysis Date: **8/19/2020** SeqNo: **2483125** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 1.000 | 0 | 93.0 | 80 | 120 | | | |
| Toluene | 0.95 | 0.050 | 1.000 | 0 | 95.0 | 80 | 120 | | | |
| Ethylbenzene | 0.95 | 0.050 | 1.000 | 0 | 95.0 | 80 | 120 | | | |
| Xylenes, Total | 2.9 | 0.10 | 3.000 | 0 | 96.4 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 106 | 80 | 120 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008906**

***25-Aug-20***

**Client:** HILCORP ENERGY

**Project:** Hare 15

| Sample ID: **2008906-006ams** | SampType: **MS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **BH03@ 15'-18'** | Batch ID: **54526** | RunNo: **71246** |
| Prep Date: **8/18/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485953** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.89 | 0.024 | 0.9579 | 0 | 92.8 | 76.3 | 120 | | | |
| Toluene | 0.90 | 0.048 | 0.9579 | 0 | 93.7 | 78.5 | 120 | | | |
| Ethylbenzene | 0.91 | 0.048 | 0.9579 | 0 | 95.5 | 78.1 | 124 | | | |
| Xylenes, Total | 2.7 | 0.096 | 2.874 | 0 | 95.5 | 79.3 | 125 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 0.9579 | | 105 | 80 | 120 | | | |

| Sample ID: **2008906-006amsd** | SampType: **MSD** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **BH03@ 15'-18'** | Batch ID: **54526** | RunNo: **71246** |
| Prep Date: **8/18/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485954** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.87 | 0.024 | 0.9542 | 0 | 90.7 | 76.3 | 120 | 2.67 | 20 | |
| Toluene | 0.88 | 0.048 | 0.9542 | 0 | 92.1 | 78.5 | 120 | 2.11 | 20 | |
| Ethylbenzene | 0.89 | 0.048 | 0.9542 | 0 | 93.5 | 78.1 | 124 | 2.57 | 20 | |
| Xylenes, Total | 2.7 | 0.095 | 2.863 | 0 | 92.8 | 79.3 | 125 | 3.23 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.98 | | 0.9542 | | 103 | 80 | 120 | 0 | 0 | |

| Sample ID: **LCS-54526** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **54526** | RunNo: **71246** |
| Prep Date: **8/18/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485989** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.90 | 0.025 | 1.000 | 0 | 90.4 | 80 | 120 | | | |
| Toluene | 0.91 | 0.050 | 1.000 | 0 | 90.6 | 80 | 120 | | | |
| Ethylbenzene | 0.91 | 0.050 | 1.000 | 0 | 90.5 | 80 | 120 | | | |
| Xylenes, Total | 2.7 | 0.10 | 3.000 | 0 | 91.6 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 103 | 80 | 120 | | | |

| Sample ID: **mb-54526** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **54526** | RunNo: **71246** |
| Prep Date: **8/18/2020** | Analysis Date: **8/20/2020** | SeqNo: **2485991** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 100 | 80 | 120 | | | |

**Qualifiers:**

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

# Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2008906** RcptNo: **1**

Received By: **Cheyenne Cason** **8/18/2020 7:55:00 AM**

Completed By: **Isaiah Ortiz** **8/18/2020 8:26:26 AM** I.O.

Reviewed By: JO 8/18/20

## Chain of Custody

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

## Log In

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

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: CMC 8/18/20

## 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 | 1.5 | Good | Not Present | | | |

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Jennifer Deal
Mailing Address:
Phone #:
email or Fax#: jdeal@hilcorp.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type) PDF

Turn-Around Time: 48 hr TAT on BH02 @ 35-38' + BH01 @ 27'-30'
☒ Standard ☒ Rush
Project Name: Hare 15
Project #:
Project Manager: LTE- Danny Burns 701-570-4727
Sampler: D. Burns
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp (including CF): 1.6 -0.1 = 1.5

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

**Analysis Request**

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2008906 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8-17-20 | 0915 | soil | BH01 @ 20'-24' | 1-4oz | cool | 001 | X | X | | | | | X | | | |
| | 0945 | | BH01@27'-30' | | | 002 | | | | | | | | | | |
| | 1200 | | BH02@25'-30' | | | 003 | | | | | | | | | | |
| | 1230 | | BH02@35'-38' | | | 004 | | | | | | | | | | |
| | 1420 | | BH03@10'-15' | | | 005 | | | | | | | | | | |
| | 1430 | | BH03@15'-18' | | | 006 | | | | | | | | | | |
| | 1515 | | BH04@23'-25' | | | 007 | | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 8-17-20 | 1611 | | | | 8/17/2020 | 1611 |
| 8/17/2020 | 1803 | | | courier | 8/18/20 | 0755 |

Remarks: cc: dhencmann@ltenv.com dburns@ltenv.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 01, 2020

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

RE: Hare 15 OrderNo.: 2008C46

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 19 sample(s) on 8/22/2020 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 **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH03@23'-25'
**Project:** Hare 15 **Collection Date:** 8/20/2020 3:15:00 PM
**Lab ID:** 2008C46-001 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | 860 | 95 | | mg/Kg | 10 | 8/27/2020 2:28:25 PM |
| Motor Oil Range Organics (MRO) | ND | 480 | D | mg/Kg | 10 | 8/27/2020 2:28:25 PM |
| Surr: DNOP | 0 | 30.4-154 | S | %Rec | 10 | 8/27/2020 2:28:25 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 9:08:55 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | 16 | 0.49 | | mg/Kg | 20 | 8/26/2020 5:14:52 AM |
| Toluene | 360 | 9.8 | | mg/Kg | 200 | 8/27/2020 5:51:33 AM |
| Ethylbenzene | 64 | 0.98 | | mg/Kg | 20 | 8/26/2020 5:14:52 AM |
| Xylenes, Total | 960 | 20 | | mg/Kg | 200 | 8/27/2020 5:51:33 AM |
| Surr: 1,2-Dichloroethane-d4 | 112 | 70-130 | | %Rec | 20 | 8/26/2020 5:14:52 AM |
| Surr: 4-Bromofluorobenzene | 86.2 | 70-130 | | %Rec | 20 | 8/26/2020 5:14:52 AM |
| Surr: Dibromofluoromethane | 109 | 70-130 | | %Rec | 20 | 8/26/2020 5:14:52 AM |
| Surr: Toluene-d8 | 103 | 70-130 | | %Rec | 20 | 8/26/2020 5:14:52 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | 14000 | 980 | | mg/Kg | 200 | 8/27/2020 5:51:33 AM |
| Surr: BFB | 106 | 70-130 | | %Rec | 200 | 8/27/2020 5:51:33 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH03@29-30'
**Project:** Hare 15
**Collection Date:** 8/20/2020 3:45:00 PM
**Lab ID:** 2008C46-002 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | 16 | 9.2 | | mg/Kg | 1 | 8/26/2020 8:31:45 PM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 8/26/2020 8:31:45 PM |
| Surr: DNOP | 74.4 | 30.4-154 | | %Rec | 1 | 8/26/2020 8:31:45 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 9:45:56 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 5:43:40 AM |
| Toluene | 0.70 | 0.049 | | mg/Kg | 1 | 8/26/2020 5:43:40 AM |
| Ethylbenzene | 0.28 | 0.049 | | mg/Kg | 1 | 8/26/2020 5:43:40 AM |
| Xylenes, Total | 4.9 | 0.097 | | mg/Kg | 1 | 8/26/2020 5:43:40 AM |
| Surr: 1,2-Dichloroethane-d4 | 102 | 70-130 | | %Rec | 1 | 8/26/2020 5:43:40 AM |
| Surr: 4-Bromofluorobenzene | 95.1 | 70-130 | | %Rec | 1 | 8/26/2020 5:43:40 AM |
| Surr: Dibromofluoromethane | 112 | 70-130 | | %Rec | 1 | 8/26/2020 5:43:40 AM |
| Surr: Toluene-d8 | 101 | 70-130 | | %Rec | 1 | 8/26/2020 5:43:40 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | 76 | 4.9 | | mg/Kg | 1 | 8/26/2020 5:43:40 AM |
| Surr: BFB | 114 | 70-130 | | %Rec | 1 | 8/26/2020 5:43:40 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH04@25'-27'
**Project:** Hare 15
**Collection Date:** 8/21/2020 8:45:00 AM
**Lab ID:** 2008C46-004 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | 1400 | 90 | | mg/Kg | 10 | 8/27/2020 2:52:26 PM |
| Motor Oil Range Organics (MRO) | ND | 450 | D | mg/Kg | 10 | 8/27/2020 2:52:26 PM |
| Surr: DNOP | 0 | 30.4-154 | S | %Rec | 10 | 8/27/2020 2:52:26 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 9:58:17 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | 12 | 0.49 | | mg/Kg | 20 | 8/26/2020 6:12:14 AM |
| Toluene | 300 | 9.9 | | mg/Kg | 200 | 8/27/2020 6:20:01 AM |
| Ethylbenzene | 55 | 0.99 | | mg/Kg | 20 | 8/26/2020 6:12:14 AM |
| Xylenes, Total | 890 | 20 | | mg/Kg | 200 | 8/27/2020 6:20:01 AM |
| Surr: 1,2-Dichloroethane-d4 | 109 | 70-130 | | %Rec | 20 | 8/26/2020 6:12:14 AM |
| Surr: 4-Bromofluorobenzene | 92.7 | 70-130 | | %Rec | 20 | 8/26/2020 6:12:14 AM |
| Surr: Dibromofluoromethane | 112 | 70-130 | | %Rec | 20 | 8/26/2020 6:12:14 AM |
| Surr: Toluene-d8 | 98.7 | 70-130 | | %Rec | 20 | 8/26/2020 6:12:14 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | 12000 | 990 | | mg/Kg | 200 | 8/27/2020 6:20:01 AM |
| Surr: BFB | 107 | 70-130 | | %Rec | 200 | 8/27/2020 6:20:01 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH04@28-30'
**Project:** Hare 15
**Collection Date:** 8/21/2020 8:50:00 AM
**Lab ID:** 2008C46-005 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 9.4 | | mg/Kg | 1 | 8/26/2020 8:52:09 PM |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/26/2020 8:52:09 PM |
| Surr: DNOP | 90.4 | 30.4-154 | | %Rec | 1 | 8/26/2020 8:52:09 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 10:10:36 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.025 | | mg/Kg | 1 | 8/26/2020 6:40:42 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 6:40:42 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 6:40:42 AM |
| Xylenes, Total | ND | 0.098 | | mg/Kg | 1 | 8/26/2020 6:40:42 AM |
| Surr: 1,2-Dichloroethane-d4 | 96.8 | 70-130 | | %Rec | 1 | 8/26/2020 6:40:42 AM |
| Surr: 4-Bromofluorobenzene | 103 | 70-130 | | %Rec | 1 | 8/26/2020 6:40:42 AM |
| Surr: Dibromofluoromethane | 110 | 70-130 | | %Rec | 1 | 8/26/2020 6:40:42 AM |
| Surr: Toluene-d8 | 96.8 | 70-130 | | %Rec | 1 | 8/26/2020 6:40:42 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 6:40:42 AM |
| Surr: BFB | 101 | 70-130 | | %Rec | 1 | 8/26/2020 6:40:42 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH05@20-25'
**Project:** Hare 15
**Collection Date:** 8/21/2020 10:30:00 AM
**Lab ID:** 2008C46-008 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 8/26/2020 9:02:15 PM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/26/2020 9:02:15 PM |
| Surr: DNOP | 75.6 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:02:15 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 59 | | mg/Kg | 20 | 8/29/2020 10:22:57 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 7:09:13 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/26/2020 7:09:13 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/26/2020 7:09:13 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/26/2020 7:09:13 AM |
| Surr: 1,2-Dichloroethane-d4 | 103 | 70-130 | | %Rec | 1 | 8/26/2020 7:09:13 AM |
| Surr: 4-Bromofluorobenzene | 102 | 70-130 | | %Rec | 1 | 8/26/2020 7:09:13 AM |
| Surr: Dibromofluoromethane | 114 | 70-130 | | %Rec | 1 | 8/26/2020 7:09:13 AM |
| Surr: Toluene-d8 | 96.7 | 70-130 | | %Rec | 1 | 8/26/2020 7:09:13 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/26/2020 7:09:13 AM |
| Surr: BFB | 102 | 70-130 | | %Rec | 1 | 8/26/2020 7:09:13 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH05@25-30'
**Project:** Hare 15
**Collection Date:** 8/21/2020 10:40:00 AM
**Lab ID:** 2008C46-009 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 9.0 | | mg/Kg | 1 | 8/26/2020 9:12:24 PM |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/26/2020 9:12:24 PM |
| Surr: DNOP | 97.5 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:12:24 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 10:35:18 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 7:37:51 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 7:37:51 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 7:37:51 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/26/2020 7:37:51 AM |
| Surr: 1,2-Dichloroethane-d4 | 96.2 | 70-130 | | %Rec | 1 | 8/26/2020 7:37:51 AM |
| Surr: 4-Bromofluorobenzene | 99.8 | 70-130 | | %Rec | 1 | 8/26/2020 7:37:51 AM |
| Surr: Dibromofluoromethane | 108 | 70-130 | | %Rec | 1 | 8/26/2020 7:37:51 AM |
| Surr: Toluene-d8 | 102 | 70-130 | | %Rec | 1 | 8/26/2020 7:37:51 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 7:37:51 AM |
| Surr: BFB | 100 | 70-130 | | %Rec | 1 | 8/26/2020 7:37:51 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH06@20'-25'
**Project:** Hare 15
**Collection Date:** 8/21/2020 11:40:00 AM
**Lab ID:** 2008C46-011 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 9.5 | | mg/Kg | 1 | 8/26/2020 9:22:34 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/26/2020 9:22:34 PM |
| Surr: DNOP | 75.2 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:22:34 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 10:47:38 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.12 | | mg/Kg | 5 | 8/26/2020 8:06:35 AM |
| Toluene | ND | 0.25 | | mg/Kg | 5 | 8/26/2020 8:06:35 AM |
| Ethylbenzene | ND | 0.25 | | mg/Kg | 5 | 8/26/2020 8:06:35 AM |
| Xylenes, Total | ND | 0.49 | | mg/Kg | 5 | 8/26/2020 8:06:35 AM |
| Surr: 1,2-Dichloroethane-d4 | 99.6 | 70-130 | | %Rec | 5 | 8/26/2020 8:06:35 AM |
| Surr: 4-Bromofluorobenzene | 102 | 70-130 | | %Rec | 5 | 8/26/2020 8:06:35 AM |
| Surr: Dibromofluoromethane | 110 | 70-130 | | %Rec | 5 | 8/26/2020 8:06:35 AM |
| Surr: Toluene-d8 | 104 | 70-130 | | %Rec | 5 | 8/26/2020 8:06:35 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 25 | | mg/Kg | 5 | 8/26/2020 8:06:35 AM |
| Surr: BFB | 106 | 70-130 | | %Rec | 5 | 8/26/2020 8:06:35 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH06@25-30'
**Project:** Hare 15
**Collection Date:** 8/21/2020 11:50:00 AM
**Lab ID:** 2008C46-012 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 8.5 | | mg/Kg | 1 | 8/26/2020 9:32:46 PM |
| Motor Oil Range Organics (MRO) | ND | 43 | | mg/Kg | 1 | 8/26/2020 9:32:46 PM |
| Surr: DNOP | 75.8 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:32:46 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 10:59:59 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 8:35:12 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 8:35:12 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 8:35:12 AM |
| Xylenes, Total | 0.45 | 0.098 | | mg/Kg | 1 | 8/26/2020 8:35:12 AM |
| Surr: 1,2-Dichloroethane-d4 | 100 | 70-130 | | %Rec | 1 | 8/26/2020 8:35:12 AM |
| Surr: 4-Bromofluorobenzene | 102 | 70-130 | | %Rec | 1 | 8/26/2020 8:35:12 AM |
| Surr: Dibromofluoromethane | 110 | 70-130 | | %Rec | 1 | 8/26/2020 8:35:12 AM |
| Surr: Toluene-d8 | 100 | 70-130 | | %Rec | 1 | 8/26/2020 8:35:12 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 8:35:12 AM |
| Surr: BFB | 104 | 70-130 | | %Rec | 1 | 8/26/2020 8:35:12 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH07@15'-20'
**Project:** Hare 15
**Collection Date:** 8/21/2020 12:35:00 PM
**Lab ID:** 2008C46-014 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | 160 | 9.5 | | mg/Kg | 1 | 8/26/2020 9:42:50 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/26/2020 9:42:50 PM |
| Surr: DNOP | 81.2 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:42:50 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | 76 | 60 | | mg/Kg | 20 | 8/29/2020 11:12:19 PM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | 0.79 | 0.25 | | mg/Kg | 10 | 8/26/2020 9:03:41 AM |
| Toluene | 12 | 0.49 | | mg/Kg | 10 | 8/26/2020 9:03:41 AM |
| Ethylbenzene | 6.8 | 0.49 | | mg/Kg | 10 | 8/26/2020 9:03:41 AM |
| Xylenes, Total | 110 | 0.98 | | mg/Kg | 10 | 8/26/2020 9:03:41 AM |
| Surr: 1,2-Dichloroethane-d4 | 109 | 70-130 | | %Rec | 10 | 8/26/2020 9:03:41 AM |
| Surr: 4-Bromofluorobenzene | 98.9 | 70-130 | | %Rec | 10 | 8/26/2020 9:03:41 AM |
| Surr: Dibromofluoromethane | 109 | 70-130 | | %Rec | 10 | 8/26/2020 9:03:41 AM |
| Surr: Toluene-d8 | 96.5 | 70-130 | | %Rec | 10 | 8/26/2020 9:03:41 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | 1600 | 49 | | mg/Kg | 10 | 8/26/2020 9:03:41 AM |
| Surr: BFB | 108 | 70-130 | | %Rec | 10 | 8/26/2020 9:03:41 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH07@28'-30'
**Project:** Hare 15
**Collection Date:** 8/21/2020 12:50:00 PM
**Lab ID:** 2008C46-015 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** |
| Diesel Range Organics (DRO) | ND | 8.7 | | mg/Kg | 1 | 8/26/2020 9:52:55 PM |
| Motor Oil Range Organics (MRO) | ND | 43 | | mg/Kg | 1 | 8/26/2020 9:52:55 PM |
| Surr: DNOP | 84.7 | 30.4-154 | | %Rec | 1 | 8/26/2020 9:52:55 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 9:50:15 AM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **JMR** |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 8/26/2020 9:32:14 AM |
| Toluene | ND | 0.046 | | mg/Kg | 1 | 8/26/2020 9:32:14 AM |
| Ethylbenzene | ND | 0.046 | | mg/Kg | 1 | 8/26/2020 9:32:14 AM |
| Xylenes, Total | ND | 0.092 | | mg/Kg | 1 | 8/26/2020 9:32:14 AM |
| Surr: 1,2-Dichloroethane-d4 | 101 | 70-130 | | %Rec | 1 | 8/26/2020 9:32:14 AM |
| Surr: 4-Bromofluorobenzene | 101 | 70-130 | | %Rec | 1 | 8/26/2020 9:32:14 AM |
| Surr: Dibromofluoromethane | 113 | 70-130 | | %Rec | 1 | 8/26/2020 9:32:14 AM |
| Surr: Toluene-d8 | 95.8 | 70-130 | | %Rec | 1 | 8/26/2020 9:32:14 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **JMR** |
| Gasoline Range Organics (GRO) | ND | 4.6 | | mg/Kg | 1 | 8/26/2020 9:32:14 AM |
| Surr: BFB | 100 | 70-130 | | %Rec | 1 | 8/26/2020 9:32:14 AM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C46**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH08@25-30'
**Project:** Hare 15 **Collection Date:** 8/21/2020 3:15:00 PM
**Lab ID:** 2008C46-017 **Matrix:** SOIL **Received Date:** 8/22/2020 9:23:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **mb** |
| Diesel Range Organics (DRO) | 270 | 9.1 | | mg/Kg | 1 | 8/31/2020 9:07:35 PM |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/31/2020 9:07:35 PM |
| Surr: DNOP | 74.8 | 30.4-154 | | %Rec | 1 | 8/31/2020 9:07:35 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** |
| Chloride | 610 | 60 | | mg/Kg | 20 | 8/29/2020 10:02:36 AM |
| **EPA METHOD 8260B: VOLATILES SHORT LIST** | | | | | | Analyst: **DJF** |
| Benzene | ND | 0.050 | | mg/Kg | 2 | 8/30/2020 4:37:03 AM |
| Toluene | ND | 0.10 | | mg/Kg | 2 | 8/30/2020 4:37:03 AM |
| Ethylbenzene | 0.23 | 0.10 | | mg/Kg | 2 | 8/30/2020 4:37:03 AM |
| Xylenes, Total | 1.1 | 0.20 | | mg/Kg | 2 | 8/30/2020 4:37:03 AM |
| Surr: 1,2-Dichloroethane-d4 | 102 | 70-130 | | %Rec | 2 | 8/30/2020 4:37:03 AM |
| Surr: 4-Bromofluorobenzene | 80.4 | 70-130 | | %Rec | 2 | 8/30/2020 4:37:03 AM |
| Surr: Dibromofluoromethane | 112 | 70-130 | | %Rec | 2 | 8/30/2020 4:37:03 AM |
| Surr: Toluene-d8 | 97.7 | 70-130 | | %Rec | 2 | 8/30/2020 4:37:03 AM |
| **EPA METHOD 8015D MOD: GASOLINE RANGE** | | | | | | Analyst: **DJF** |
| Gasoline Range Organics (GRO) | 120 | 10 | | mg/Kg | 2 | 8/30/2020 4:37:03 AM |
| Surr: BFB | 121 | 70-130 | | %Rec | 2 | 8/30/2020 4:37:03 AM |

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

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C46**
***01-Sep-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **MB-54776** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **54776** RunNo: **71475**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495781** Units: **mg/Kg**

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

Sample ID: **LCS-54776** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **54776** RunNo: **71475**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495782** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 96.5 | 90 | 110 | | | |

Sample ID: **MB-54771** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **54771** RunNo: **71475**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495821** Units: **mg/Kg**

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

Sample ID: **LCS-54771** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **54771** RunNo: **71475**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495822** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 95.3 | 90 | 110 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C46**
***01-Sep-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

| Sample ID: **LCS-54670** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **54670** | RunNo: **71390** |
| Prep Date: **8/25/2020** | Analysis Date: **8/26/2020** | SeqNo: **2492006** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 51 | 10 | 50.00 | 0 | 102 | 70 | 130 | | | |
| Surr: DNOP | 4.1 | | 5.000 | | 81.6 | 30.4 | 154 | | | |

| Sample ID: **MB-54670** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **54670** | RunNo: **71390** |
| Prep Date: **8/25/2020** | Analysis Date: **8/26/2020** | SeqNo: **2492010** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 9.6 | | 10.00 | | 96.1 | 30.4 | 154 | | | |

| Sample ID: **MB-54770** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **54770** | RunNo: **71494** |
| Prep Date: **8/28/2020** | Analysis Date: **8/31/2020** | SeqNo: **2496848** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 11 | | 10.00 | | 105 | 30.4 | 154 | | | |

| Sample ID: **LCS-54770** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **54770** | RunNo: **71494** |
| Prep Date: **8/28/2020** | Analysis Date: **8/31/2020** | SeqNo: **2496851** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 54 | 10 | 50.00 | 0 | 108 | 70 | 130 | | | |
| Surr: DNOP | 4.9 | | 5.000 | | 98.3 | 30.4 | 154 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C46**
***01-Sep-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **lcs-54644** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **54644** RunNo: **71358**
Prep Date: **8/24/2020** Analysis Date: **8/25/2020** SeqNo: **2490933** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 1.000 | 0 | 92.9 | 80 | 120 | | | |
| Toluene | 0.96 | 0.050 | 1.000 | 0 | 95.6 | 80 | 120 | | | |
| Ethylbenzene | 0.99 | 0.050 | 1.000 | 0 | 98.8 | 80 | 120 | | | |
| Xylenes, Total | 3.1 | 0.10 | 3.000 | 0 | 102 | 80 | 120 | | | |
| Surr: 1,2-Dichloroethane-d4 | 0.49 | | 0.5000 | | 97.4 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.51 | | 0.5000 | | 102 | 70 | 130 | | | |
| Surr: Dibromofluoromethane | 0.55 | | 0.5000 | | 110 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.49 | | 0.5000 | | 97.0 | 70 | 130 | | | |

Sample ID: **mb-54644** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **54644** RunNo: **71358**
Prep Date: **8/24/2020** Analysis Date: **8/25/2020** SeqNo: **2490934** 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: 1,2-Dichloroethane-d4 | 0.52 | | 0.5000 | | 104 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.49 | | 0.5000 | | 99.0 | 70 | 130 | | | |
| Surr: Dibromofluoromethane | 0.57 | | 0.5000 | | 115 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.50 | | 0.5000 | | 100 | 70 | 130 | | | |

Sample ID: **mb-54766** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **54766** RunNo: **71470**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495418** 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: 1,2-Dichloroethane-d4 | 0.49 | | 0.5000 | | 98.6 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.48 | | 0.5000 | | 96.3 | 70 | 130 | | | |
| Surr: Dibromofluoromethane | 0.57 | | 0.5000 | | 114 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.52 | | 0.5000 | | 104 | 70 | 130 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C46**
***01-Sep-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **lcs-54766** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **54766** RunNo: **71470**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495419** 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 | 95.2 | 80 | 120 | | | |
| Toluene | 1.0 | 0.050 | 1.000 | 0 | 103 | 80 | 120 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 104 | 80 | 120 | | | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 108 | 80 | 120 | | | |
| Surr: 1,2-Dichloroethane-d4 | 0.50 | | 0.5000 | | 101 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.51 | | 0.5000 | | 101 | 70 | 130 | | | |
| Surr: Dibromofluoromethane | 0.55 | | 0.5000 | | 110 | 70 | 130 | | | |
| Surr: Toluene-d8 | 0.51 | | 0.5000 | | 101 | 70 | 130 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C46**
***01-Sep-20***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **lcs-54644** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **54644** RunNo: **71358**
Prep Date: **8/24/2020** Analysis Date: **8/25/2020** SeqNo: **2490993** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 22 | 5.0 | 25.00 | 0 | 86.3 | 70 | 130 | | | |
| Surr: BFB | 500 | | 500.0 | | 100 | 70 | 130 | | | |

Sample ID: **mb-54644** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **54644** RunNo: **71358**
Prep Date: **8/24/2020** Analysis Date: **8/25/2020** SeqNo: **2490994** 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 | 500 | | 500.0 | | 99.2 | 70 | 130 | | | |

Sample ID: **mb-54766** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **54766** RunNo: **71470**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495454** 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 | 510 | | 500.0 | | 103 | 70 | 130 | | | |

Sample ID: **lcs-54766** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **54766** RunNo: **71470**
Prep Date: **8/28/2020** Analysis Date: **8/29/2020** SeqNo: **2495455** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 22 | 5.0 | 25.00 | 0 | 89.3 | 70 | 130 | | | |
| Surr: BFB | 520 | | 500.0 | | 104 | 70 | 130 | | | |

**Qualifiers:**

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

# Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2008C46 RcptNo: 1

Received By: **Juan Rojas** 8/22/2020 9:23:00 AM

Completed By: **Juan Rojas** 8/24/2020 8:10:02 AM

Reviewed By: JD 8/24/20

## 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 MC 8/24/20

## Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 2.8 | Good | | | | |

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Jennifer Deal
Mailing Address:
Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hare 15
Project #: 2
Project Manager: LTE-Danny Burns
Sampler: D. Burns
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 2.8-0=2.8

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

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2008C46 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8-20-20 | 1515 | Soil | BH03@23'-25' | 1-4oz | Cool | -001 | X | X | | | | | X | | | |
| | 1545 | | BH03@29'-30' | | | -002 | | | | | | | | | | |
| | 1620 | | BH03@35-38' | | | -003 | | | | | | | | | | |
| 8-21-20 | 0845 | | BH04@25'-27' | | | -004 | | | | | | | | | | |
| | 0850 | | BH04@28'-30' | | | -005 | | | | | | | | | | |
| | 0900 | | BH04@30'-35' | | | -006 | | | | | | | | | | |
| | 0910 | | BH04@35'-38' | | | -007 | | | | | | | | | | |
| | 1030 | | BH05@20'-25' | | | -008 | | | | | | | | | | |
| | 1040 | | BH05@25'-30' | | | -009 | | | | | | | | | | |
| | 1130 | | BH06@15'-20' | | | -010 | | | | | | | | | | |
| | 1140 | | BH06@20'-25' | | | -011 | | | | | | | | | | |
| | 1150 | | BH06@25'-30' | | | | | | | | | | | | | |

| Date | Time | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 8/21/20 | 1725 | | | | 8/21/20 | 1725 |
| 8/22/20 | 923 | | | courier | 8/22/20 | 9:23 |

Remarks:
see email for HOLD list
cc: dburns@ltenv.com
dhencmann@ltenv.com

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Jennifer Deal
Mailing Address:
Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hare 15
Project #:
Project Manager: LTE- Danny Burns
Sampler: DB
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 2.8-0=2.8 (°C)

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

**Analysis Request**

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 200FC46 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8-21 | 1150 | Soil | BH06@25'-30' | 1-4oz | Cool | -012 | X | X | | | | | X | | | |
| | 1200 | | BH06@30'-35' | | | -013 | | | | | | | | | | |
| | 1235 | | BH07@15'-20' | | | -014 | | | | | | | | | | |
| | 1250 | | BH07@25'-30' | | | -015 | | | | | | | | | | |
| | 1300 | | BH07@30'-35' | | | -016 | | | | | | | | | | |
| | 1515 | | BH08@25'-30' | | | -017 | | | | | | | | | | |
| | 1540 | | BH08@30'-35' | | | -018 | | | | | | | | | | |
| ↓ | 1545 | ↓ | BH08@35'-40' | ↓ | ↓ | -019 | ↓ | ↓ | | | | | ↓ | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 8/21/20 | 1725 | DB | | | 8/21/20 | 1725 |
| 8/22/2020 | 923 | | | courier | 8/22/20 | 9:23 |

Remarks: see pg. 1

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.

2 of 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 01, 2020

Jennifer Deal

Hilcorp Energy
PO Box 61529
Houston, TX 77208-1529
TEL: (337) 276-7676
FAX

RE: Hare 15 OrderNo.: 2008C94

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 12 sample(s) on 8/25/2020 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 **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-001 **Matrix:** SOIL

**Client Sample ID:** BH09@ 25'-27'
**Collection Date:** 8/24/2020 9:35:00 AM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** | |
| Chloride | 120 | 60 | | mg/Kg | 20 | 8/29/2020 7:07:45 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | 190 | 8.6 | | mg/Kg | 1 | 8/27/2020 2:22:29 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 43 | | mg/Kg | 1 | 8/27/2020 2:22:29 PM | 54694 |
| Surr: DNOP | 84.8 | 30.4-154 | | %Rec | 1 | 8/27/2020 2:22:29 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 98 | 25 | | mg/Kg | 5 | 8/26/2020 1:11:40 PM | 54684 |
| Surr: BFB | 319 | 75.3-105 | S | %Rec | 5 | 8/26/2020 1:11:40 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.12 | | mg/Kg | 5 | 8/26/2020 1:11:40 PM | 54684 |
| Toluene | ND | 0.25 | | mg/Kg | 5 | 8/26/2020 1:11:40 PM | 54684 |
| Ethylbenzene | ND | 0.25 | | mg/Kg | 5 | 8/26/2020 1:11:40 PM | 54684 |
| Xylenes, Total | 0.97 | 0.50 | | mg/Kg | 5 | 8/26/2020 1:11:40 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 109 | 80-120 | | %Rec | 5 | 8/26/2020 1:11:40 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-002 **Matrix:** SOIL

**Client Sample ID:** BH09@ 28'-30'
**Collection Date:** 8/24/2020 9:40:00 AM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** | |
| Chloride | 73 | 60 | | mg/Kg | 20 | 8/29/2020 7:20:10 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | 11 | 9.4 | | mg/Kg | 1 | 8/27/2020 2:52:19 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/27/2020 2:52:19 PM | 54694 |
| Surr: DNOP | 97.4 | 30.4-154 | | %Rec | 1 | 8/27/2020 2:52:19 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 6:17:41 PM | 54684 |
| Surr: BFB | 100 | 75.3-105 | | %Rec | 1 | 8/26/2020 6:17:41 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.025 | | mg/Kg | 1 | 8/26/2020 6:17:41 PM | 54684 |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 6:17:41 PM | 54684 |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 6:17:41 PM | 54684 |
| Xylenes, Total | ND | 0.099 | | mg/Kg | 1 | 8/26/2020 6:17:41 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 102 | 80-120 | | %Rec | 1 | 8/26/2020 6:17:41 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-004 **Matrix:** SOIL

**Client Sample ID:** BH10@ 15'-20'
**Collection Date:** 8/24/2020 10:30:00 AM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **JMT** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 7:32:34 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | 110 | 9.8 | | mg/Kg | 1 | 8/27/2020 3:02:13 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/27/2020 3:02:13 PM | 54694 |
| Surr: DNOP | 81.5 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:02:13 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | 180 | 24 | | mg/Kg | 5 | 8/26/2020 1:35:07 PM | 54684 |
| Surr: BFB | 295 | 75.3-105 | S | %Rec | 5 | 8/26/2020 1:35:07 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.12 | | mg/Kg | 5 | 8/26/2020 1:35:07 PM | 54684 |
| Toluene | ND | 0.24 | | mg/Kg | 5 | 8/26/2020 1:35:07 PM | 54684 |
| Ethylbenzene | 1.2 | 0.24 | | mg/Kg | 5 | 8/26/2020 1:35:07 PM | 54684 |
| Xylenes, Total | 19 | 0.48 | | mg/Kg | 5 | 8/26/2020 1:35:07 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 115 | 80-120 | | %Rec | 5 | 8/26/2020 1:35:07 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-005 **Matrix:** SOIL

**Client Sample ID:** BH10@ 28'-30'
**Collection Date:** 8/24/2020 10:45:00 AM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 7:44:59 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | ND | 8.6 | | mg/Kg | 1 | 8/27/2020 3:12:06 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 43 | | mg/Kg | 1 | 8/27/2020 3:12:06 PM | 54694 |
| Surr: DNOP | 89.0 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:12:06 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/26/2020 6:41:11 PM | 54684 |
| Surr: BFB | 106 | 75.3-105 | S | %Rec | 1 | 8/26/2020 6:41:11 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | 0.044 | 0.024 | | mg/Kg | 1 | 8/26/2020 6:41:11 PM | 54684 |
| Toluene | 0.11 | 0.048 | | mg/Kg | 1 | 8/26/2020 6:41:11 PM | 54684 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/26/2020 6:41:11 PM | 54684 |
| Xylenes, Total | 0.53 | 0.097 | | mg/Kg | 1 | 8/26/2020 6:41:11 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 105 | 80-120 | | %Rec | 1 | 8/26/2020 6:41:11 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-006 **Matrix:** SOIL

**Client Sample ID:** BH11@ 10'-15'
**Collection Date:** 8/24/2020 11:50:00 AM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** | |
| Chloride | 200 | 60 | | mg/Kg | 20 | 8/29/2020 7:57:24 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | 73 | 10 | | mg/Kg | 1 | 8/27/2020 3:21:59 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/27/2020 3:21:59 PM | 54694 |
| Surr: DNOP | 76.0 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:21:59 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 120 | 4.9 | | mg/Kg | 1 | 8/26/2020 7:04:38 PM | 54684 |
| Surr: BFB | 284 | 75.3-105 | S | %Rec | 1 | 8/26/2020 7:04:38 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | 0.063 | 0.024 | | mg/Kg | 1 | 8/26/2020 7:04:38 PM | 54684 |
| Toluene | 0.33 | 0.049 | | mg/Kg | 1 | 8/26/2020 7:04:38 PM | 54684 |
| Ethylbenzene | 0.58 | 0.049 | | mg/Kg | 1 | 8/26/2020 7:04:38 PM | 54684 |
| Xylenes, Total | 18 | 0.98 | | mg/Kg | 10 | 8/27/2020 9:00:32 AM | 54684 |
| Surr: 4-Bromofluorobenzene | 149 | 80-120 | S | %Rec | 1 | 8/26/2020 7:04:38 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-007 **Matrix:** SOIL

**Client Sample ID:** BH11@ 25'-30'
**Collection Date:** 8/24/2020 12:20:00 PM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **JMT** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/29/2020 8:09:49 PM | 54781 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | 19 | 9.3 | | mg/Kg | 1 | 8/27/2020 3:31:51 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/27/2020 3:31:51 PM | 54694 |
| Surr: DNOP | 88.3 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:31:51 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 20 | 4.7 | | mg/Kg | 1 | 8/26/2020 7:28:06 PM | 54684 |
| Surr: BFB | 163 | 75.3-105 | S | %Rec | 1 | 8/26/2020 7:28:06 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | 0.039 | 0.024 | | mg/Kg | 1 | 8/26/2020 7:28:06 PM | 54684 |
| Toluene | 0.14 | 0.047 | | mg/Kg | 1 | 8/26/2020 7:28:06 PM | 54684 |
| Ethylbenzene | 0.079 | 0.047 | | mg/Kg | 1 | 8/26/2020 7:28:06 PM | 54684 |
| Xylenes, Total | 1.0 | 0.094 | | mg/Kg | 1 | 8/26/2020 7:28:06 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 105 | 80-120 | | %Rec | 1 | 8/26/2020 7:28:06 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-008 **Matrix:** SOIL

**Client Sample ID:** BH12@ 10'-15'
**Collection Date:** 8/24/2020 1:45:00 PM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **MRA** |
| Chloride | 98 | 60 | | mg/Kg | 20 | 8/30/2020 9:14:17 AM | 54784 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | ND | 8.9 | | mg/Kg | 1 | 8/27/2020 3:41:44 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/27/2020 3:41:44 PM | 54694 |
| Surr: DNOP | 105 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:41:44 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 7:51:39 PM | 54684 |
| Surr: BFB | 98.2 | 75.3-105 | | %Rec | 1 | 8/26/2020 7:51:39 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 7:51:39 PM | 54684 |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 7:51:39 PM | 54684 |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 7:51:39 PM | 54684 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/26/2020 7:51:39 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 102 | 80-120 | | %Rec | 1 | 8/26/2020 7:51:39 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-009 **Matrix:** SOIL

**Client Sample ID:** BH12@ 25'-30'
**Collection Date:** 8/24/2020 2:00:00 PM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **MRA** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/30/2020 9:51:18 AM | 54784 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 8/27/2020 3:51:36 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/27/2020 3:51:36 PM | 54694 |
| Surr: DNOP | 87.9 | 30.4-154 | | %Rec | 1 | 8/27/2020 3:51:36 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/26/2020 8:15:07 PM | 54684 |
| Surr: BFB | 102 | 75.3-105 | | %Rec | 1 | 8/26/2020 8:15:07 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 8:15:07 PM | 54684 |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 8:15:07 PM | 54684 |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/26/2020 8:15:07 PM | 54684 |
| Xylenes, Total | ND | 0.098 | | mg/Kg | 1 | 8/26/2020 8:15:07 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 105 | 80-120 | | %Rec | 1 | 8/26/2020 8:15:07 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-010 **Matrix:** SOIL

**Client Sample ID:** BH13@ 25'-27'
**Collection Date:** 8/24/2020 2:45:00 PM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: | **MRA** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/30/2020 10:03:38 AM | 54784 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: | **BRM** |
| Diesel Range Organics (DRO) | 250 | 8.9 | | mg/Kg | 1 | 8/27/2020 4:01:29 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/27/2020 4:01:29 PM | 54694 |
| Surr: DNOP | 82.8 | 30.4-154 | | %Rec | 1 | 8/27/2020 4:01:29 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: | **NSB** |
| Gasoline Range Organics (GRO) | 800 | 47 | | mg/Kg | 10 | 8/26/2020 8:38:32 PM | 54684 |
| Surr: BFB | 375 | 75.3-105 | S | %Rec | 10 | 8/26/2020 8:38:32 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: | **NSB** |
| Benzene | 0.46 | 0.24 | | mg/Kg | 10 | 8/26/2020 8:38:32 PM | 54684 |
| Toluene | 11 | 0.47 | | mg/Kg | 10 | 8/26/2020 8:38:32 PM | 54684 |
| Ethylbenzene | 4.9 | 0.47 | | mg/Kg | 10 | 8/26/2020 8:38:32 PM | 54684 |
| Xylenes, Total | 73 | 0.95 | | mg/Kg | 10 | 8/26/2020 8:38:32 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 122 | 80-120 | S | %Rec | 10 | 8/26/2020 8:38:32 PM | 54684 |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2008C94**
Date Reported: **9/1/2020**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Hilcorp Energy
**Project:** Hare 15
**Lab ID:** 2008C94-011 **Matrix:** SOIL

**Client Sample ID:** BH13@ 28'-30'
**Collection Date:** 8/24/2020 2:50:00 PM
**Received Date:** 8/25/2020 8:00:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed | Batch |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/30/2020 10:15:59 AM | 54784 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **BRM** | |
| Diesel Range Organics (DRO) | ND | 9.4 | | mg/Kg | 1 | 8/27/2020 4:11:21 PM | 54694 |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/27/2020 4:11:21 PM | 54694 |
| Surr: DNOP | 80.2 | 30.4-154 | | %Rec | 1 | 8/27/2020 4:11:21 PM | 54694 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/26/2020 10:12:14 PM | 54684 |
| Surr: BFB | 99.4 | 75.3-105 | | %Rec | 1 | 8/26/2020 10:12:14 PM | 54684 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/26/2020 10:12:14 PM | 54684 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/26/2020 10:12:14 PM | 54684 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/26/2020 10:12:14 PM | 54684 |
| Xylenes, Total | ND | 0.096 | | mg/Kg | 1 | 8/26/2020 10:12:14 PM | 54684 |
| Surr: 4-Bromofluorobenzene | 103 | 80-120 | | %Rec | 1 | 8/26/2020 10:12:14 PM | 54684 |

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

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C94**
***01-Sep-20***

**Client:** Hilcorp Energy
**Project:** Hare 15

Sample ID: **MB-54781** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **54781** RunNo: **71481**
Prep Date: **8/29/2020** Analysis Date: **8/29/2020** SeqNo: **2496084** Units: **mg/Kg**

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

Sample ID: **LCS-54781** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **54781** RunNo: **71481**
Prep Date: **8/29/2020** Analysis Date: **8/29/2020** SeqNo: **2496085** 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-54784** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **54784** RunNo: **71487**
Prep Date: **8/30/2020** Analysis Date: **8/30/2020** SeqNo: **2496319** Units: **mg/Kg**

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

Sample ID: **LCS-54784** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **54784** RunNo: **71487**
Prep Date: **8/30/2020** Analysis Date: **8/30/2020** SeqNo: **2496320** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 94.7 | 90 | 110 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C94**
***01-Sep-20***

**Client:** Hilcorp Energy
**Project:** Hare 15

Sample ID: **2008C94-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH09@ 25'-27'** Batch ID: **54694** RunNo: **71442**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494229** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 260 | 8.5 | 42.30 | 190.8 | 157 | 47.4 | 136 | | | S |
| Surr: DNOP | 3.9 | | 4.230 | | 92.7 | 30.4 | 154 | | | |

Sample ID: **2008C94-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH09@ 25'-27'** Batch ID: **54694** RunNo: **71442**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494230** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 270 | 8.6 | 43.18 | 190.8 | 189 | 47.4 | 136 | 5.72 | 43.4 | S |
| Surr: DNOP | 4.0 | | 4.318 | | 92.3 | 30.4 | 154 | 0 | 0 | |

Sample ID: **LCS-54694** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **54694** RunNo: **71442**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494270** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 44 | 10 | 50.00 | 0 | 87.6 | 70 | 130 | | | |
| Surr: DNOP | 4.0 | | 5.000 | | 80.5 | 30.4 | 154 | | | |

Sample ID: **MB-54694** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **54694** RunNo: **71442**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494272** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 7.5 | | 10.00 | | 75.1 | 30.4 | 154 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C94**
***01-Sep-20***

**Client:** Hilcorp Energy
**Project:** Hare 15

Sample ID: **mb-54684** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54684** RunNo: **71387**
Prep Date: **8/25/2020** Analysis Date: **8/26/2020** SeqNo: **2491806** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 980 | | 1000 | | 98.4 | 75.3 | 105 | | | |

Sample ID: **lcs-54684** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54684** RunNo: **71387**
Prep Date: **8/25/2020** Analysis Date: **8/26/2020** SeqNo: **2491807** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 20 | 5.0 | 25.00 | 0 | 80.2 | 72.5 | 106 | | | |
| Surr: BFB | 1100 | | 1000 | | 110 | 75.3 | 105 | | | S |

Sample ID: **lcs-54699** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54699** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494653** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 1000 | | 111 | 75.3 | 105 | | | S |

Sample ID: **lcs-54720** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **54720** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494654** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 1000 | | 110 | 75.3 | 105 | | | S |

Sample ID: **MB-54699** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54699** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494655** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 930 | | 1000 | | 93.5 | 75.3 | 105 | | | |

Sample ID: **mb-54720** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **54720** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494656** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 980 | | 1000 | | 97.9 | 75.3 | 105 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C94**
***01-Sep-20***

**Client:** Hilcorp Energy
**Project:** Hare 15

Sample ID: **mb-54684** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54684** RunNo: **71387**
Prep Date: **8/25/2020** Analysis Date: **8/26/2020** SeqNo: **2491855** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 80 | 120 | | | |

Sample ID: **LCS-54684** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54684** RunNo: **71387**
Prep Date: **8/25/2020** Analysis Date: **8/26/2020** SeqNo: **2491856** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.84 | 0.025 | 1.000 | 0 | 83.7 | 80 | 120 | | | |
| Toluene | 0.86 | 0.050 | 1.000 | 0 | 85.6 | 80 | 120 | | | |
| Ethylbenzene | 0.86 | 0.050 | 1.000 | 0 | 86.2 | 80 | 120 | | | |
| Xylenes, Total | 2.6 | 0.10 | 3.000 | 0 | 87.1 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 106 | 80 | 120 | | | |

Sample ID: **LCS-54699** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54699** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494691** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 103 | 80 | 120 | | | |

Sample ID: **LCS-54720** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **54720** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494692** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 104 | 80 | 120 | | | |

Sample ID: **MB-54699** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54699** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494693** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 0.99 | | 1.000 | | 98.6 | 80 | 120 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2008C94**
***01-Sep-20***

**Client:** Hilcorp Energy
**Project:** Hare 15

Sample ID: **mb-54720** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **54720** RunNo: **71413**
Prep Date: **8/26/2020** Analysis Date: **8/27/2020** SeqNo: **2494694** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 101 | 80 | 120 | | | |

**Qualifiers:**

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

# Sample Log-In Check List

Client Name: **Hilcorp Energy** Work Order Number: **2008C94** RcptNo: **1**

Received By: **Cheyenne Cason** **8/25/2020 8:00:00 AM**

Completed By: **Isaiah Ortiz** **8/25/2020 9:02:54 AM** I-OK

Reviewed By: JR 8/25/20

## 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: CM 8/25/20

## Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 2.5 | Good | Not Present | | | |

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Jennifer Deal
Mailing Address:
Phone #:
email or Fax#: jdeal@hilcorp.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hare 15
Project #:
Project Manager: LTE - Danny Burns
Sampler: D. Burns
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp (including CF): 2.4 +0.1 = 2.5c

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

Analysis Request

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2008944 | 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, $NO_3$, $NO_2$, $PO_4$, $SO_4$ by 300.0) | 8260 (VOA) | 8270 (Semi-VOA) | Total Coliform (Present/Absent) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8-24-20 | 0935 | soil | BH09@25'-27' | 1-4oz | cool | 001 | X | X | | | | X | | | |
| | 0940 | | BH09@28'-30' | | | 002 | | | | | | | | | |
| | 0950 | | BH09@30'-35' ★ | | | 003 | | | | | | | | | |
| | 1030 | | BH10@15'-20' | | | 004 | | | | | | | | | |
| | 1045 | | BH10@28'-30' | | | 005 | | | | | | | | | |
| | 1150 | | BH11@10'-15' | | | 006 | | | | | | | | | |
| | 1220 | | BH11@25'-30' | | | 007 | | | | | | | | | |
| | 1345 | | BH12@10'-15' | | | 008 | | | | | | | | | |
| | 1400 | | BH12@25'-30' | | | 009 | | | | | | | | | |
| | 1445 | | BH13@25'-27' | | | 010 | | | | | | | | | |
| | 1450 | | BH13@28'-30' | | | 011 | | | | | | | | | |
| | 1500 | | BH13@30'-35' ★ | | | 012 | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 8-24-20 | 1619 | | Mint Vault | | 8/24/20 | 1619 |
| 8/24/2020 | 1751 | | Cvc courier | | 8/25/20 | 0800 |

Remarks: ★ = Hold
cc: dhencmann@ltenv.com
dburns@ltenv.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 19, 2021

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

RE: Hare 15 OrderNo.: 2102671

Dear Danny Burns:

Hall Environmental Analysis Laboratory received 14 sample(s) on 2/12/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 14 @ 25'-27'
**Project:** Hare 15
**Collection Date:** 2/9/2021 10:15:00 AM
**Lab ID:** 2102671-001 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | 170 | 9.2 | | mg/Kg | 1 | 2/18/2021 7:35:46 AM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 2/18/2021 7:35:46 AM |
| Surr: DNOP | 93.7 | 70-130 | | %Rec | 1 | 2/18/2021 7:35:46 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **CCM** |
| Gasoline Range Organics (GRO) | 400 | 25 | | mg/Kg | 5 | 2/18/2021 12:42:00 PM |
| Surr: BFB | 227 | 75.3-105 | S | %Rec | 5 | 2/18/2021 12:42:00 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | ND | 0.12 | | mg/Kg | 5 | 2/18/2021 12:42:00 PM |
| Toluene | ND | 0.25 | | mg/Kg | 5 | 2/18/2021 12:42:00 PM |
| Ethylbenzene | 2.1 | 0.25 | | mg/Kg | 5 | 2/18/2021 12:42:00 PM |
| Xylenes, Total | 26 | 0.49 | | mg/Kg | 5 | 2/18/2021 12:42:00 PM |
| Surr: 4-Bromofluorobenzene | 157 | 80-120 | S | %Rec | 5 | 2/18/2021 12:42:00 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 12:28:10 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 14 @ 30'-35'
**Project:** Hare 15
**Collection Date:** 2/9/2021 10:30:00 AM
**Lab ID:** 2102671-002 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 2/17/2021 10:53:40 PM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 2/17/2021 10:53:40 PM |
| Surr: DNOP | 147 | 70-130 | S | %Rec | 1 | 2/17/2021 10:53:40 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **CCM** |
| Gasoline Range Organics (GRO) | ND | 4.6 | | mg/Kg | 1 | 2/17/2021 12:40:00 AM |
| Surr: BFB | 88.3 | 75.3-105 | | %Rec | 1 | 2/17/2021 12:40:00 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 2/17/2021 12:40:00 AM |
| Toluene | ND | 0.046 | | mg/Kg | 1 | 2/17/2021 12:40:00 AM |
| Ethylbenzene | ND | 0.046 | | mg/Kg | 1 | 2/17/2021 12:40:00 AM |
| Xylenes, Total | ND | 0.092 | | mg/Kg | 1 | 2/17/2021 12:40:00 AM |
| Surr: 4-Bromofluorobenzene | 85.5 | 80-120 | | %Rec | 1 | 2/17/2021 12:40:00 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 1:05:24 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 15 @ 25'-30'
**Project:** Hare 15
**Collection Date:** 2/9/2021 12:45:00 PM
**Lab ID:** 2102671-003 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | 360 | 9.4 | | mg/Kg | 1 | 2/15/2021 9:01:28 AM |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 2/15/2021 9:01:28 AM |
| Surr: DNOP | 92.9 | 70-130 | | %Rec | 1 | 2/15/2021 9:01:28 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 3000 | 230 | | mg/Kg | 50 | 2/17/2021 9:05:19 AM |
| Surr: BFB | 233 | 75.3-105 | S | %Rec | 50 | 2/17/2021 9:05:19 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 1.7 | 1.2 | | mg/Kg | 50 | 2/17/2021 9:05:19 AM |
| Toluene | 23 | 2.3 | | mg/Kg | 50 | 2/17/2021 9:05:19 AM |
| Ethylbenzene | 17 | 2.3 | | mg/Kg | 50 | 2/17/2021 9:05:19 AM |
| Xylenes, Total | 250 | 4.7 | | mg/Kg | 50 | 2/17/2021 9:05:19 AM |
| Surr: 4-Bromofluorobenzene | 108 | 80-120 | | %Rec | 50 | 2/17/2021 9:05:19 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 1:42:39 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 15 @ 30'-35'
**Project:** Hare 15
**Collection Date:** 2/9/2021 1:00:00 PM
**Lab ID:** 2102671-004 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 2/15/2021 10:11:52 AM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 2/15/2021 10:11:52 AM |
| Surr: DNOP | 95.1 | 70-130 | | %Rec | 1 | 2/15/2021 10:11:52 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 2/17/2021 10:16:41 AM |
| Surr: BFB | 98.2 | 75.3-105 | | %Rec | 1 | 2/17/2021 10:16:41 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 2/17/2021 10:16:41 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 10:16:41 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 10:16:41 AM |
| Xylenes, Total | ND | 0.096 | | mg/Kg | 1 | 2/17/2021 10:16:41 AM |
| Surr: 4-Bromofluorobenzene | 94.4 | 80-120 | | %Rec | 1 | 2/17/2021 10:16:41 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 1:55:03 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 16 @ 25'-30'
**Project:** Hare 15
**Collection Date:** 2/9/2021 4:00:00 PM
**Lab ID:** 2102671-005 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | 210 | 10 | | mg/Kg | 1 | 2/15/2021 10:36:25 AM |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 2/15/2021 10:36:25 AM |
| Surr: DNOP | 94.2 | 70-130 | | %Rec | 1 | 2/15/2021 10:36:25 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 800 | 96 | | mg/Kg | 20 | 2/17/2021 9:29:07 AM |
| Surr: BFB | 176 | 75.3-105 | S | %Rec | 20 | 2/17/2021 9:29:07 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 0.67 | 0.48 | | mg/Kg | 20 | 2/17/2021 9:29:07 AM |
| Toluene | 9.6 | 0.96 | | mg/Kg | 20 | 2/17/2021 9:29:07 AM |
| Ethylbenzene | 3.3 | 0.96 | | mg/Kg | 20 | 2/17/2021 9:29:07 AM |
| Xylenes, Total | 53 | 1.9 | | mg/Kg | 20 | 2/17/2021 9:29:07 AM |
| Surr: 4-Bromofluorobenzene | 102 | 80-120 | | %Rec | 20 | 2/17/2021 9:29:07 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 2:07:27 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 16 @ 33'-35'
**Project:** Hare 15
**Collection Date:** 2/9/2021 4:15:00 PM
**Lab ID:** 2102671-006 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 2/15/2021 10:59:56 AM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 2/15/2021 10:59:56 AM |
| Surr: DNOP | 92.1 | 70-130 | | %Rec | 1 | 2/15/2021 10:59:56 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 2/17/2021 11:27:28 AM |
| Surr: BFB | 105 | 75.3-105 | S | %Rec | 1 | 2/17/2021 11:27:28 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 0.074 | 0.024 | | mg/Kg | 1 | 2/17/2021 11:27:28 AM |
| Toluene | 0.19 | 0.047 | | mg/Kg | 1 | 2/17/2021 11:27:28 AM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 2/17/2021 11:27:28 AM |
| Xylenes, Total | 0.42 | 0.095 | | mg/Kg | 1 | 2/17/2021 11:27:28 AM |
| Surr: 4-Bromofluorobenzene | 101 | 80-120 | | %Rec | 1 | 2/17/2021 11:27:28 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 2:44:40 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 17 @ 20'-25'
**Project:** Hare 15
**Collection Date:** 2/10/2021 9:15:00 AM
**Lab ID:** 2102671-007 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.4 | | mg/Kg | 1 | 2/15/2021 11:23:31 AM |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 2/15/2021 11:23:31 AM |
| Surr: DNOP | 92.9 | 70-130 | | %Rec | 1 | 2/15/2021 11:23:31 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 2/17/2021 11:51:04 AM |
| Surr: BFB | 101 | 75.3-105 | | %Rec | 1 | 2/17/2021 11:51:04 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 2/17/2021 11:51:04 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 11:51:04 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 11:51:04 AM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 2/17/2021 11:51:04 AM |
| Surr: 4-Bromofluorobenzene | 99.4 | 80-120 | | %Rec | 1 | 2/17/2021 11:51:04 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 2:57:05 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 | Value above quantitation range |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of range due to dilution or matrix |

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 17 @ 25'-30'
**Project:** Hare 15
**Collection Date:** 2/10/2021 9:30:00 AM
**Lab ID:** 2102671-008 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 2/15/2021 11:47:13 AM |
| Motor Oil Range Organics (MRO) | ND | 51 | | mg/Kg | 1 | 2/15/2021 11:47:13 AM |
| Surr: DNOP | 94.4 | 70-130 | | %Rec | 1 | 2/15/2021 11:47:13 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 2/17/2021 12:14:48 PM |
| Surr: BFB | 102 | 75.3-105 | | %Rec | 1 | 2/17/2021 12:14:48 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 2/17/2021 12:14:48 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 2/17/2021 12:14:48 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 2/17/2021 12:14:48 PM |
| Xylenes, Total | ND | 0.094 | | mg/Kg | 1 | 2/17/2021 12:14:48 PM |
| Surr: 4-Bromofluorobenzene | 99.5 | 80-120 | | %Rec | 1 | 2/17/2021 12:14:48 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 3:09:30 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 18 @ 20'-25'
**Project:** Hare 15
**Collection Date:** 2/10/2021 12:00:00 PM
**Lab ID:** 2102671-009 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 2/15/2021 12:10:50 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 2/15/2021 12:10:50 PM |
| Surr: DNOP | 93.7 | 70-130 | | %Rec | 1 | 2/15/2021 12:10:50 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 2/17/2021 12:38:34 PM |
| Surr: BFB | 101 | 75.3-105 | | %Rec | 1 | 2/17/2021 12:38:34 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 2/17/2021 12:38:34 PM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 12:38:34 PM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 2/17/2021 12:38:34 PM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 2/17/2021 12:38:34 PM |
| Surr: 4-Bromofluorobenzene | 98.7 | 80-120 | | %Rec | 1 | 2/17/2021 12:38:34 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 3:21:55 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 18 @ 25'-30'
**Project:** Hare 15
**Collection Date:** 2/10/2021 12:15:00 PM
**Lab ID:** 2102671-010 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 8.4 | | mg/Kg | 1 | 2/15/2021 12:34:26 PM |
| Motor Oil Range Organics (MRO) | ND | 42 | | mg/Kg | 1 | 2/15/2021 12:34:26 PM |
| Surr: DNOP | 94.0 | 70-130 | | %Rec | 1 | 2/15/2021 12:34:26 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | ND | 5.0 | | mg/Kg | 1 | 2/17/2021 1:02:14 PM |
| Surr: BFB | 101 | 75.3-105 | | %Rec | 1 | 2/17/2021 1:02:14 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.025 | | mg/Kg | 1 | 2/17/2021 1:02:14 PM |
| Toluene | ND | 0.050 | | mg/Kg | 1 | 2/17/2021 1:02:14 PM |
| Ethylbenzene | ND | 0.050 | | mg/Kg | 1 | 2/17/2021 1:02:14 PM |
| Xylenes, Total | ND | 0.099 | | mg/Kg | 1 | 2/17/2021 1:02:14 PM |
| Surr: 4-Bromofluorobenzene | 99.2 | 80-120 | | %Rec | 1 | 2/17/2021 1:02:14 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 3:34:20 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 19 @ 30'-35'
**Project:** Hare 15
**Collection Date:** 2/10/2021 3:15:00 PM
**Lab ID:** 2102671-011 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.0 | | mg/Kg | 1 | 2/15/2021 12:58:11 PM |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 2/15/2021 12:58:11 PM |
| Surr: DNOP | 92.6 | 70-130 | | %Rec | 1 | 2/15/2021 12:58:11 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 9.4 | 4.9 | | mg/Kg | 1 | 2/18/2021 10:29:46 AM |
| Surr: BFB | 139 | 75.3-105 | S | %Rec | 1 | 2/18/2021 10:29:46 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 2/18/2021 10:29:46 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 2/18/2021 10:29:46 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 2/18/2021 10:29:46 AM |
| Xylenes, Total | 0.43 | 0.098 | | mg/Kg | 1 | 2/18/2021 10:29:46 AM |
| Surr: 4-Bromofluorobenzene | 103 | 80-120 | | %Rec | 1 | 2/18/2021 10:29:46 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/17/2021 3:46:45 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 19 @ 35'-40'
**Project:** Hare 15
**Collection Date:** 2/10/2021 3:30:00 PM
**Lab ID:** 2102671-012 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 2/15/2021 1:21:55 PM |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 2/15/2021 1:21:55 PM |
| Surr: DNOP | 94.5 | 70-130 | | %Rec | 1 | 2/15/2021 1:21:55 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 13 | 4.8 | | mg/Kg | 1 | 2/17/2021 3:00:22 PM |
| Surr: BFB | 124 | 75.3-105 | S | %Rec | 1 | 2/17/2021 3:00:22 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 0.050 | 0.024 | | mg/Kg | 1 | 2/17/2021 3:00:22 PM |
| Toluene | 0.12 | 0.048 | | mg/Kg | 1 | 2/17/2021 3:00:22 PM |
| Ethylbenzene | 0.14 | 0.048 | | mg/Kg | 1 | 2/17/2021 3:00:22 PM |
| Xylenes, Total | 2.1 | 0.096 | | mg/Kg | 1 | 2/17/2021 3:00:22 PM |
| Surr: 4-Bromofluorobenzene | 102 | 80-120 | | %Rec | 1 | 2/17/2021 3:00:22 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/18/2021 2:57:38 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 20 @ 25'-30'
**Project:** Hare 15
**Collection Date:** 2/11/2021 9:45:00 AM
**Lab ID:** 2102671-013 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | 190 | 9.8 | | mg/Kg | 1 | 2/15/2021 1:45:39 PM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 2/15/2021 1:45:39 PM |
| Surr: DNOP | 94.8 | 70-130 | | %Rec | 1 | 2/15/2021 1:45:39 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 600 | 24 | | mg/Kg | 5 | 2/17/2021 3:24:01 PM |
| Surr: BFB | 507 | 75.3-105 | S | %Rec | 5 | 2/17/2021 3:24:01 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | ND | 0.12 | | mg/Kg | 5 | 2/17/2021 3:24:01 PM |
| Toluene | 2.8 | 0.24 | | mg/Kg | 5 | 2/17/2021 3:24:01 PM |
| Ethylbenzene | 2.2 | 0.24 | | mg/Kg | 5 | 2/17/2021 3:24:01 PM |
| Xylenes, Total | 38 | 0.47 | | mg/Kg | 5 | 2/17/2021 3:24:01 PM |
| Surr: 4-Bromofluorobenzene | 121 | 80-120 | S | %Rec | 5 | 2/17/2021 3:24:01 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/18/2021 3:10:02 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102671**
Date Reported: **2/19/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH 20 @ 33'-35'
**Project:** Hare 15
**Collection Date:** 2/11/2021 10:00:00 AM
**Lab ID:** 2102671-014 **Matrix:** SOIL **Received Date:** 2/12/2021 7:30:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **JME** |
| Diesel Range Organics (DRO) | ND | 9.2 | | mg/Kg | 1 | 2/15/2021 2:09:25 PM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 2/15/2021 2:09:25 PM |
| Surr: DNOP | 94.5 | 70-130 | | %Rec | 1 | 2/15/2021 2:09:25 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** |
| Gasoline Range Organics (GRO) | 9.9 | 4.9 | | mg/Kg | 1 | 2/17/2021 3:47:32 PM |
| Surr: BFB | 105 | 75.3-105 | S | %Rec | 1 | 2/17/2021 3:47:32 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** |
| Benzene | 0.056 | 0.024 | | mg/Kg | 1 | 2/17/2021 3:47:32 PM |
| Toluene | 0.72 | 0.049 | | mg/Kg | 1 | 2/17/2021 3:47:32 PM |
| Ethylbenzene | 0.091 | 0.049 | | mg/Kg | 1 | 2/17/2021 3:47:32 PM |
| Xylenes, Total | 1.5 | 0.098 | | mg/Kg | 1 | 2/17/2021 3:47:32 PM |
| Surr: 4-Bromofluorobenzene | 100 | 80-120 | | %Rec | 1 | 2/17/2021 3:47:32 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **VP** |
| Chloride | ND | 60 | | mg/Kg | 20 | 2/18/2021 3:22:27 PM |

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

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **MB-58160** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **58160** RunNo: **75345**
Prep Date: **2/17/2021** Analysis Date: **2/17/2021** SeqNo: **2663499** Units: **mg/Kg**

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

Sample ID: **LCS-58160** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **58160** RunNo: **75345**
Prep Date: **2/17/2021** Analysis Date: **2/17/2021** SeqNo: **2663500** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 93.8 | 90 | 110 | | | |

Sample ID: **MB-58190** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **58190** RunNo: **75398**
Prep Date: **2/18/2021** Analysis Date: **2/18/2021** SeqNo: **2664555** Units: **mg/Kg**

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

Sample ID: **LCS-58190** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **58190** RunNo: **75398**
Prep Date: **2/18/2021** Analysis Date: **2/18/2021** SeqNo: **2664556** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 96.2 | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **MB-58108** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **58108** RunNo: **75307**
Prep Date: **2/13/2021** Analysis Date: **2/15/2021** SeqNo: **2660760** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 9.3 | | 10.00 | | 93.3 | 70 | 130 | | | |

Sample ID: **LCS-58108** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **58108** RunNo: **75307**
Prep Date: **2/13/2021** Analysis Date: **2/15/2021** SeqNo: **2660763** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 46 | 10 | 50.00 | 0 | 92.8 | 68.9 | 141 | | | |
| Surr: DNOP | 4.3 | | 5.000 | | 87.0 | 70 | 130 | | | |

Sample ID: **2102671-003AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH 15 @ 25'-30'** Batch ID: **58108** RunNo: **75307**
Prep Date: **2/13/2021** Analysis Date: **2/15/2021** SeqNo: **2660769** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 340 | 9.6 | 47.76 | 358.5 | -30.0 | 15 | 184 | | | S |
| Surr: DNOP | 4.5 | | 4.776 | | 94.4 | 70 | 130 | | | |

Sample ID: **2102671-003AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH 15 @ 25'-30'** Batch ID: **58108** RunNo: **75307**
Prep Date: **2/13/2021** Analysis Date: **2/15/2021** SeqNo: **2660770** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 320 | 9.1 | 45.33 | 358.5 | -95.4 | 15 | 184 | 8.77 | 23.9 | S |
| Surr: DNOP | 4.3 | | 4.533 | | 94.6 | 70 | 130 | 0 | 0 | |

Sample ID: **MB-58107** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **58107** RunNo: **75362**
Prep Date: **2/13/2021** Analysis Date: **2/17/2021** SeqNo: **2663323** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 13 | | 10.00 | | 134 | 70 | 130 | | | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **MB-58130** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **58130** RunNo: **75362**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663324** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 11 | | 10.00 | | 112 | 70 | 130 | | | |

Sample ID: **LCS-58107** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **58107** RunNo: **75362**
Prep Date: **2/13/2021** Analysis Date: **2/17/2021** SeqNo: **2663326** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 60 | 10 | 50.00 | 0 | 119 | 68.9 | 141 | | | |
| Surr: DNOP | 6.8 | | 5.000 | | 136 | 70 | 130 | | | S |

Sample ID: **LCS-58130** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **58130** RunNo: **75362**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663327** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 5.7 | | 5.000 | | 115 | 70 | 130 | | | |

Sample ID: **2102698-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC** Batch ID: **58130** RunNo: **75362**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663364** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 5.2 | | 4.766 | | 108 | 70 | 130 | | | |

Sample ID: **2102698-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC** Batch ID: **58130** RunNo: **75362**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663365** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: DNOP | 4.9 | | 4.955 | | 99.8 | 70 | 130 | 0 | 0 | |

Sample ID: **2102662-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC** Batch ID: **58107** RunNo: **75367**
Prep Date: **2/13/2021** Analysis Date: **2/18/2021** SeqNo: **2663963** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 300 | 9.3 | 46.60 | 301.4 | -6.88 | 15 | 184 | | | S |
| Surr: DNOP | 5.2 | | 4.660 | | 112 | 70 | 130 | | | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **2102662-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BatchQC** Batch ID: **58107** RunNo: **75367**
Prep Date: **2/13/2021** Analysis Date: **2/18/2021** SeqNo: **2663964** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 330 | 9.7 | 48.59 | 301.4 | 51.8 | 15 | 184 | 9.09 | 23.9 | |
| Surr: DNOP | 5.1 | | 4.859 | | 106 | 70 | 130 | 0 | 0 | |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **LCS-58099** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662785** 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 | 98.9 | 80 | 120 | | | |
| Surr: BFB | 1000 | | 1000 | | 99.6 | 75.3 | 105 | | | |

Sample ID: **MB-58099** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662786** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 890 | | 1000 | | 88.6 | 75.3 | 105 | | | |

Sample ID: **2102662-001ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BatchQC** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662788** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 22 | 4.9 | 24.73 | 0 | 87.3 | 61.3 | 114 | | | |
| Surr: BFB | 990 | | 989.1 | | 100 | 75.3 | 105 | | | |

Sample ID: **2102662-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BatchQC** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662790** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 23 | 5.0 | 24.83 | 0 | 91.0 | 61.3 | 114 | 4.57 | 20 | |
| Surr: BFB | 970 | | 993.0 | | 97.7 | 75.3 | 105 | 0 | 0 | |

Sample ID: **mb-58102** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663391** 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 | 990 | | 1000 | | 99.0 | 75.3 | 105 | | | |

Sample ID: **lcs-58102** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663392** 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **lcs-58102** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663392** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 29 | 5.0 | 25.00 | 0 | 114 | 80 | 120 | | | |
| Surr: BFB | 1100 | | 1000 | | 112 | 75.3 | 105 | | | S |

Sample ID: **mb-58120** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663411** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 980 | | 1000 | | 98.5 | 75.3 | 105 | | | |

Sample ID: **lcs-58120** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663412** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 1000 | | 112 | 75.3 | 105 | | | S |

Sample ID: **2102698-001ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BatchQC** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663414** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 979.4 | | 110 | 75.3 | 105 | | | S |

Sample ID: **2102698-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BatchQC** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663415** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: BFB | 1100 | | 969.9 | | 114 | 75.3 | 105 | 0 | 0 | S |

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **LCS-58099** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662841** 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 | 88.3 | 80 | 120 | | | |
| Toluene | 0.86 | 0.050 | 1.000 | 0 | 86.4 | 80 | 120 | | | |
| Ethylbenzene | 0.86 | 0.050 | 1.000 | 0 | 85.5 | 80 | 120 | | | |
| Xylenes, Total | 2.6 | 0.10 | 3.000 | 0 | 85.6 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 0.86 | | 1.000 | | 85.9 | 80 | 120 | | | |

Sample ID: **MB-58099** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662842** 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 | 0.86 | | 1.000 | | 85.6 | 80 | 120 | | | |

Sample ID: **2102662-002ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662845** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.79 | 0.025 | 0.9833 | 0 | 80.7 | 76.3 | 120 | | | |
| Toluene | 0.78 | 0.049 | 0.9833 | 0 | 79.7 | 78.5 | 120 | | | |
| Ethylbenzene | 0.78 | 0.049 | 0.9833 | 0 | 79.3 | 78.1 | 124 | | | |
| Xylenes, Total | 2.3 | 0.098 | 2.950 | 0 | 79.3 | 79.3 | 125 | | | S |
| Surr: 4-Bromofluorobenzene | 0.83 | | 0.9833 | | 84.3 | 80 | 120 | | | |

Sample ID: **2102662-002amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC** Batch ID: **58099** RunNo: **75347**
Prep Date: **2/12/2021** Analysis Date: **2/16/2021** SeqNo: **2662846** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.79 | 0.024 | 0.9766 | 0 | 81.1 | 76.3 | 120 | 0.189 | 20 | |
| Toluene | 0.78 | 0.049 | 0.9766 | 0 | 80.3 | 78.5 | 120 | 0.00802 | 20 | |
| Ethylbenzene | 0.78 | 0.049 | 0.9766 | 0 | 79.9 | 78.1 | 124 | 0.0365 | 20 | |
| Xylenes, Total | 2.3 | 0.098 | 2.930 | 0 | 79.9 | 79.3 | 125 | 0.0622 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.81 | | 0.9766 | | 83.4 | 80 | 120 | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **mb-58102** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663437** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.97 | | 1.000 | | 96.7 | 80 | 120 | | | |

Sample ID: **LCS-58102** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663438** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.0 | 0.025 | 1.000 | 0 | 100 | 80 | 120 | | | |
| Toluene | 1.0 | 0.050 | 1.000 | 0 | 101 | 80 | 120 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 100 | 80 | 120 | | | |
| Xylenes, Total | 3.0 | 0.10 | 3.000 | 0 | 99.9 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 0.99 | | 1.000 | | 99.0 | 80 | 120 | | | |

Sample ID: **2102671-004ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH 15 @ 30'-35'** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663441** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 0.9930 | 0.01367 | 92.2 | 76.3 | 120 | | | |
| Toluene | 0.97 | 0.050 | 0.9930 | 0.02050 | 96.0 | 78.5 | 120 | | | |
| Ethylbenzene | 0.97 | 0.050 | 0.9930 | 0.01347 | 96.4 | 78.1 | 124 | | | |
| Xylenes, Total | 3.0 | 0.099 | 2.979 | 0.08345 | 96.7 | 79.3 | 125 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 0.9930 | | 101 | 80 | 120 | | | |

Sample ID: **2102671-004amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH 15 @ 30'-35'** Batch ID: **58102** RunNo: **75364**
Prep Date: **2/12/2021** Analysis Date: **2/17/2021** SeqNo: **2663442** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 0.9872 | 0.01367 | 92.8 | 76.3 | 120 | 0.0132 | 20 | |
| Toluene | 0.98 | 0.049 | 0.9872 | 0.02050 | 96.7 | 78.5 | 120 | 0.117 | 20 | |
| Ethylbenzene | 0.96 | 0.049 | 0.9872 | 0.01347 | 96.2 | 78.1 | 124 | 0.789 | 20 | |
| Xylenes, Total | 3.0 | 0.099 | 2.962 | 0.08345 | 96.9 | 79.3 | 125 | 0.400 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.97 | | 0.9872 | | 98.2 | 80 | 120 | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102671**
***19-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **mb-58120** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663454** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 0.97 | | 1.000 | | 97.3 | 80 | 120 | | | |

Sample ID: **LCS-58120** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663455** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 80 | 120 | | | |

Sample ID: **2102698-002ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663458** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 0.97 | | 0.9662 | | 100 | 80 | 120 | | | |

Sample ID: **2102698-002amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BatchQC** Batch ID: **58120** RunNo: **75364**
Prep Date: **2/15/2021** Analysis Date: **2/17/2021** SeqNo: **2663459** Units: **%Rec**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-Bromofluorobenzene | 0.97 | | 0.9804 | | 98.5 | 80 | 120 | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

# Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2102671** RcptNo: **1**

Received By: **Desiree Dominguez** **2/12/2021 7:30:00 AM** DD

Completed By: **Desiree Dominguez** **2/12/2021 10:21:51 AM** DD

Reviewed By: ENM 2/12/21

## Chain of Custody

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

## Log In

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

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

Adjusted?

Checked by: DAD 2/12/21

## Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 1.8 | Good | Yes | | | |

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn. Jennifer Deal
Mailing Address:
Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Hare 15
Project #:
Project Manager: WSP-Danny Burns
Sampler: D. Burns
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 1.8-0.0=1.8 (°C)

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

Analysis Request

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2102671 | 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, $NO_3$, $NO_2$, $PO_4$, $SO_4$ by 300.0 | 8260 (VOA) | 8270 (Semi-VOA) | Total Coliform (Present/Absent) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-9-21 | 1015 | SOIL | BH 14 @ 25'-27' | 1-4oz | COOL | -001 | X | X | | | | | X | | | |
| | 1030 | | BH 14 @ 30'-35' | | | -002 | | | | | | | | | | |
| | 1245 | | BH 15 @ 25'-30' | | | -003 | | | | | | | | | | |
| | 1300 | | BH 15 @ 30'-35' | | | -004 | | | | | | | | | | |
| | 1600 | | BH 16 @ 25'-30' | | | -005 | | | | | | | | | | |
| ↓ | 1615 | | BH 16 @ 33'-35' | | | -006 | | | | | | | | | | |
| 2-10-21 | 0915 | | BH 17 @ 20'-25' | | | -007 | | | | | | | | | | |
| | 0930 | | BH 17 @ 25'-30' | | | -008 | | | | | | | | | | |
| | 1200 | | BH 18 @ 20'-25' | | | -009 | | | | | | | | | | |
| | 1215 | | BH 18 @ 25'-30' | | | -010 | | | | | | | | | | |
| | 1515 | | BH 19 @ 30'-35' | | | -011 | | | | | | | | | | |
| ↓ | 1530 | | BH 19 @ 35'-40' | | | -012 | ↓ | ↓ | | | | | ↓ | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 2-11-21 | 1327 | | | | 2/11/21 | 1327 |
| 2/11/21 | 1817 | | | Courier | 2/12/21 | 7:30 |

Remarks:
cc: danny.burns@wsp.com
devin.hencmann@wsp.com

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

# Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Jennifer Deal
Mailing Address:
Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: Hare 15
Project #:
Project Manager: WSP- Danny Burns
Sampler: D Burns
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 1.8-0.0=1.8 (°C)

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

Analysis Request

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2102671 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-11-21 | 0945 | soil | BH20@25'-30' | 1-4oz | cool | -013 | X | X | | | | | X | | | |
| ↓ | 1000 | ↓ | BH20@33'-35' | ↓ | ↓ | -014 | X | X | | | | | X | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 2-11-21 | 1327 | | Christen Walls | | 2/11/21 | 1327 |
| 2/11/21 | 1817 | Christen Waller | | Courier | 2/12/21 | 7:30 |

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 23, 2021

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

RE: Hare 15 OrderNo.: 2102809

Dear Jennifer Deal:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/18/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **2102809**
Date Reported: **2/23/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH06
**Project:** Hare 15
**Collection Date:** 2/17/2021 1:55:00 PM
**Lab ID:** 2102809-001 **Matrix:** AQUEOUS **Received Date:** 2/18/2021 7:50:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | 110 | 5.0 | | µg/L | 5 | 2/19/2021 5:05:00 PM |
| Toluene | 7.7 | 5.0 | | µg/L | 5 | 2/19/2021 5:05:00 PM |
| Ethylbenzene | 27 | 5.0 | | µg/L | 5 | 2/19/2021 5:05:00 PM |
| Xylenes, Total | 48 | 10 | | µg/L | 5 | 2/19/2021 5:05:00 PM |
| Surr: 4-Bromofluorobenzene | 92.2 | 80-120 | | %Rec | 5 | 2/19/2021 5:05:00 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102809**
Date Reported: **2/23/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH09
**Project:** Hare 15 **Collection Date:** 2/17/2021 1:23:00 PM
**Lab ID:** 2102809-002 **Matrix:** AQUEOUS **Received Date:** 2/18/2021 7:50:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | 37 | 5.0 | P | µg/L | 5 | 2/19/2021 6:16:00 PM |
| Toluene | ND | 5.0 | P | µg/L | 5 | 2/19/2021 6:16:00 PM |
| Ethylbenzene | 99 | 5.0 | P | µg/L | 5 | 2/19/2021 6:16:00 PM |
| Xylenes, Total | 230 | 10 | P | µg/L | 5 | 2/19/2021 6:16:00 PM |
| Surr: 4-Bromofluorobenzene | 91.0 | 80-120 | P | %Rec | 5 | 2/19/2021 6:16:00 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102809**
Date Reported: **2/23/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH11
**Project:** Hare 15 **Collection Date:** 2/17/2021 2:17:00 PM
**Lab ID:** 2102809-003 **Matrix:** AQUEOUS **Received Date:** 2/18/2021 7:50:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | 3500 | 50 | P | µg/L | 50 | 2/20/2021 12:25:00 PM |
| Toluene | 4500 | 100 | | µg/L | 100 | 2/23/2021 11:43:00 AM |
| Ethylbenzene | 320 | 50 | P | µg/L | 50 | 2/20/2021 12:25:00 PM |
| Xylenes, Total | 11000 | 100 | P | µg/L | 50 | 2/20/2021 12:25:00 PM |
| Surr: 4-Bromofluorobenzene | 92.4 | 80-120 | P | %Rec | 50 | 2/20/2021 12:25:00 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102809**
Date Reported: **2/23/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY
**Client Sample ID:** BH19
**Project:** Hare 15
**Collection Date:** 2/17/2021 12:25:00 PM
**Lab ID:** 2102809-004 **Matrix:** AQUEOUS **Received Date:** 2/18/2021 7:50:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | 660 | 10 | P | µg/L | 10 | 2/20/2021 1:13:00 PM |
| Toluene | 390 | 10 | P | µg/L | 10 | 2/20/2021 1:13:00 PM |
| Ethylbenzene | 520 | 10 | P | µg/L | 10 | 2/20/2021 1:13:00 PM |
| Xylenes, Total | 2800 | 200 | P | µg/L | 100 | 2/20/2021 12:49:00 PM |
| Surr: 4-Bromofluorobenzene | 109 | 80-120 | P | %Rec | 10 | 2/20/2021 1:13:00 PM |

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

**Qualifiers:**

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

**Analytical Report**
Lab Order **2102809**
Date Reported: **2/23/2021**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** BH20
**Project:** Hare 15 **Collection Date:** 2/17/2021 1:00:00 PM
**Lab ID:** 2102809-005 **Matrix:** AQUEOUS **Received Date:** 2/18/2021 7:50:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **CCM** |
| Benzene | 12000 | 200 | P | µg/L | 200 | 2/20/2021 2:00:00 PM |
| Toluene | 15000 | 200 | P | µg/L | 200 | 2/20/2021 2:00:00 PM |
| Ethylbenzene | 1100 | 200 | P | µg/L | 200 | 2/20/2021 2:00:00 PM |
| Xylenes, Total | 10000 | 400 | P | µg/L | 200 | 2/20/2021 2:00:00 PM |
| Surr: 4-Bromofluorobenzene | 91.7 | 80-120 | P | %Rec | 200 | 2/20/2021 2:00:00 PM |

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

**Qualifiers:**

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

# QC SUMMARY REPORT
## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102809**
***23-Feb-21***

**Client:** HILCORP ENERGY
**Project:** Hare 15

Sample ID: **100ng BTEX lcs** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW** Batch ID: **R75423** RunNo: **75423**
Prep Date: Analysis Date: **2/19/2021** SeqNo: **2665200** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 18 | 1.0 | 20.00 | 0 | 90.4 | 80 | 120 | | | |
| Toluene | 18 | 1.0 | 20.00 | 0 | 89.6 | 80 | 120 | | | |
| Ethylbenzene | 18 | 1.0 | 20.00 | 0 | 89.1 | 80 | 120 | | | |
| Xylenes, Total | 54 | 2.0 | 60.00 | 0 | 89.6 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 18 | | 20.00 | | 92.1 | 80 | 120 | | | |

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW** Batch ID: **R75423** RunNo: **75423**
Prep Date: Analysis Date: **2/19/2021** SeqNo: **2665201** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | |
| Xylenes, Total | ND | 2.0 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 18 | | 20.00 | | 90.9 | 80 | 120 | | | |

Sample ID: **2102809-001ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH06** Batch ID: **R75423** RunNo: **75423**
Prep Date: Analysis Date: **2/19/2021** SeqNo: **2665204** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 210 | 5.0 | 100.0 | 113.7 | 93.7 | 80 | 120 | | | |
| Toluene | 100 | 5.0 | 100.0 | 7.695 | 96.6 | 80 | 120 | | | |
| Ethylbenzene | 120 | 5.0 | 100.0 | 26.64 | 93.9 | 80 | 120 | | | |
| Xylenes, Total | 330 | 10 | 300.0 | 47.60 | 94.9 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 90 | | 100.0 | | 90.2 | 80 | 120 | | | |

Sample ID: **2102809-001amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH06** Batch ID: **R75423** RunNo: **75423**
Prep Date: Analysis Date: **2/19/2021** SeqNo: **2665205** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 220 | 5.0 | 100.0 | 113.7 | 105 | 80 | 120 | 5.37 | 20 | |
| Toluene | 120 | 5.0 | 100.0 | 7.695 | 117 | 80 | 120 | 18.0 | 20 | |
| Ethylbenzene | 140 | 5.0 | 100.0 | 26.64 | 114 | 80 | 120 | 15.7 | 20 | |
| Xylenes, Total | 400 | 10 | 300.0 | 47.60 | 117 | 80 | 120 | 18.1 | 20 | |
| Surr: 4-Bromofluorobenzene | 85 | | 100.0 | | 85.5 | 80 | 120 | 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 |
| B | Analyte detected in the associated Method Blank |
| E | Value above quantitation range |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2102809**

***23-Feb-21***

**Client:** HILCORP ENERGY

**Project:** Hare 15

Sample ID: **100ng BTEX lcs** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSW** Batch ID: **R75442** RunNo: **75442**

Prep Date: Analysis Date: **2/20/2021** SeqNo: **2665923** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 18 | 1.0 | 20.00 | 0 | 92.4 | 80 | 120 | | | |
| Toluene | 18 | 1.0 | 20.00 | 0 | 91.3 | 80 | 120 | | | |
| Ethylbenzene | 18 | 1.0 | 20.00 | 0 | 90.6 | 80 | 120 | | | |
| Xylenes, Total | 55 | 2.0 | 60.00 | 0 | 91.2 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 18 | | 20.00 | | 90.3 | 80 | 120 | | | |

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBW** Batch ID: **R75442** RunNo: **75442**

Prep Date: Analysis Date: **2/20/2021** SeqNo: **2665924** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 1.0 | | | | | | | | |
| Toluene | ND | 1.0 | | | | | | | | |
| Ethylbenzene | ND | 1.0 | | | | | | | | |
| Xylenes, Total | ND | 2.0 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 18 | | 20.00 | | 90.9 | 80 | 120 | | | |

Sample ID: **MB** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBW** Batch ID: **R75471** RunNo: **75471**

Prep Date: Analysis Date: **2/23/2021** SeqNo: **2667158** Units: **µg/L**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Toluene | ND | 1.0 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 18 | | 20.00 | | 87.8 | 80 | 120 | | | |

**Qualifiers:**

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

# Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2102809** RcptNo: **1**

Received By: **Cheyenne Cason** **2/18/2021 7:50:00 AM**

Completed By: **Cheyenne Cason** **2/18/2021 8:12:10 AM**

Reviewed By: ENM 2/18/21

## Chain of Custody

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

## Log In

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

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

Adjusted?

Checked by: SPA 2.18.21

## Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 2.1 | Good | Yes | | | |

# Chain-of-Custody Record

Client: Hilcorp

Jennifer Deal

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Have 15

Project #:

Project Manager: Danny Burns

Sampler: EC / DB

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.0 +0.1 = 2.1 (°C)

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

Analysis Request

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2102809 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/17/21 | 1355 | Aqueous | BH06 | 3 VOA | HCl | 001 | X | | | | | | | | | |
| " | 1323 | " | BH09 | " | " | 002 | X | | | | | | | | | |
| " | 1417 | " | BH11 | " | " | 003 | X | | | | | | | | | |
| " | 1225 | " | BH19 | " | " | 004 | X | | | | | | | | | |
| " | 1300 | " | BH20 | " | " | 005 | X | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| 2/17 | 1575 | Eric Carroll | Chris Walker | | 2/17/21 | 1525 |
| 2/17/21 | 1811 | Chris Walker | Eric Carroll | | 2/18/21 | 0750 |

Remarks:
Please cc: Danny_Burns@wsp.com
Eric.Carroll@wsp.com

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

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

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

CONDITIONS

Action 29935

## CONDITIONS

| | |
|---|---|
| Operator:<br>HILCORP ENERGY COMPANY<br>1111 Travis Street<br>Houston, TX 77002 | OGRID:<br>372171 |
| | Action Number:<br>29935 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| csmith | Extension request approved until Aug 13, 2021. please submit the full site characterization and remediation plan at that time. Please include the BLM Request and approval for offsite Delineation in the report and The Report should be a complete report even if the data was included in this interim report. | 5/28/2021 |