State of New Mexico Energy, Minerals and Natural Resources Department

Michele Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Todd E. Leahy, JD, PhD Deputy Cabinet Secretary Adrienne Sandoval Director, Oil Conservation Division



Kate Kaufman - Sr. Environmental Specialist Hilcorp Energy Company 1111 Travis Street Houston, TX 77002

RE: Conditional Approval of Soil Vapor Extraction (SVE) Remediation Method for <u>Howell M 001</u> (API #: 30-045-09101; Incident #: NRM2022755502; Application ID: 63058)

Ms. Kaufman,

The Oil Conservation Division (OCD) has reviewed and approved the subject work plan with the following conditions;

- 1. Hilcorp's SVE system must be designed to have a minimum of 90% operational runtime, 24/7, start to finish.
- 2. On-site analog or digital runtime counter must be installed and viewable to OCD personnel. Any alternative method must be explained and pre-approved by OCD.
- 3. The following field data measurement parameters will be required and reported (prior to reaching vacuum pump);
 - a. Total Extracted Flow Rate via a Flow Meter
 - b. Flow Rates from each vapor extraction point/well (VEP)
 - c. Volatile Organic Compound (VOC) Concentrations for each VEP and/or VEP cluster being implemented via Handheld Gas Analyzer (e.g. Photo Ionization Detector (PID)
 - d. Record vacuum pressure at each VEP and/or VEP cluster being implemented
 - e. Oxygen (O₂) and carbon di-oxide (CO₂) levels via hand-held analyzers from each VEP and/or VEP cluster being implemented, prior to reaching vacuum pump and at discharge orifice or vent stack
- 4. The following minimum timeline will be required for the above data recordings;
 - a. Daily for the first week
 - b. Weekly during the next three (3) months
 - c. Monthly thereafter for the first calendar year
 - d. Then contingent upon the recorded data output
- 5. Any water condensation will be categorized as oil field waste and must be disposed of accordingly. System modifications to address increased water collection and disposal must be pre-approved by OCD.
- 6. Extracted vapor sampling (prior to reaching vacuum pump) for laboratory testing will be required as follows;
 - a. Approximately 15-30 minutes and 8-10 hours after startup (at the end of the same day if initial sample collected in early morning), one full round of sampling for constituents noted in b, c, & d below
 - b. BTEX per US EPA Method 8021B or 8260B
 - c. TPH per US EPA Method 8015M
 - $d. \quad O_2 \ and \ CO_2$

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RE: <u>Conditional Approval of Soil Vapor Extraction (SVE) Remediation Method for Howell M 001</u> (API #: 30-045-09101; Incident #: NRM2022755502; Application ID: 63058)

- 7. The following timeline will be required for the above laboratory sampling elements;
 - a. Weekly next three (3) weeks (first month)
 - b. Bi-weekly (every other week) next two (2) months (first quarter)
 - c. Bi-Monthly (every other month) next nine (9) months (first year)
 - d. Quarterly Year #2 and beyond until diminishing returns has been consistently documented
- 8. Hilcorp must submit to OCD quarterly reports for the first 2 years of operation, then bi-annual (twice per year) thereafter, detailing the following;
 - a. Summary of remediation activity
 - b. Chart of O_2 & CO_2 levels over time
 - c. SVE runtime
 - d. SVE mass removal
 - e. Product recovery, if applicable
 - f. Laboratory air sample analysis, if applicable
- 9. Hilcorp must notify OCD prior to its initial system startup which is required within 90 days of this approval. If this cannot be achieved, Hilcorp must verify the delay within its request for a time extension.
- 10. Hilcorp must submit to OCD a closure plan prior to initiating confirmation sampling for final remediation termination

These conditions by the OCD does not relieve Hilcorp of responsibility for compliance with any federal, state, or local law.

If you have any questions, please contact Nelson Velez of the Environmental Incident Group at (505) 469-6146 or by email at <u>nelson.velez@emnrd.nm.gov.</u>

Respectfully,

Michael Bratcher Incident Group Supervisor (575) 626-0857

Nelson Velez

Nelson Velez Environmental Specialist – Adv (505) 469-6146

District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised August 24, 2018 Submit to appropriate OCD District office

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Incident ID	
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Release Notification

Responsible Party

Responsible Party Hilcorp Energy	OGRID 372171
Contact Name Clara Cardoza	Contact Telephone 505.564.0733
Contact email ccardoza@hilcorp.com	Incident # (assigned by OCD)
Contact mailing address 382 CR 3100, Aztec NM 87410	

Location of Release Source

Latitude 36.74621

Longitude <u>-107.87812</u>

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Hare 14M	Site Type Well Site
Date Release Discovered 7/16/2020	API# (if applicable) 30-045-33566

Unit Letter	Section	Township	Range	County
D	10	29N	10W	San Juan

Surface Owner: State Federal Tribal Private (Name:

Nature and Volume of Release

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

Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)	
Produced Water Volume Released (bbls)		Volume Recovered (bbls)	
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	Yes No	
Condensate	Volume Released (bbls) 36	Volume Recovered (bbls) 0	
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)	
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)	

Cause of Release

Release was caused by vandalism in the form of a bullet hole to the tank. No volume was recovered but the condensate remained in the bermed area.

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Oil Conservation Division

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Was this a major	If YES, for what reason(s) does the responsible party consider this a major release?
release as defined by 19 15 29 7(A) NMAC?	An unauthorized release of a volume in excess of 25 barrels
19.13.29.7(11)100110.	
Yes 🗌 No	
If YES, was immediate n	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
NMOCD - Cory Smith -	contacted by Clara Cardoza via phone on 7/16/20 at 3:05 p.m. and via email 7/16/20 at 3:18 p.m (copied Jim
Griswold).	
BLM – Emmanuel Adelo	ye – contacted by Clara Cardoza left a voicemail on 7/16/20 at 3:07 p.m. and via email 7/16/20 at 3:18 p.m.
	Initial Response

initial Kesponse

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

 \boxtimes The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: <u>Clara Cardoza</u>	Title: <u>Environmental Specialist</u>
Signature: Uland, Conly	Date: <u>07/30/2020</u>
email: <u>ccardoza@hilcorp.com</u>	Telephone: <u>505.564.0733</u>
OCD Only	
Received by:	Date:

District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised August 24, 2018 Submit to appropriate OCD District office

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Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u><50</u> (ft bgs)
Did this release impact groundwater or surface water?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	🗌 Yes 🛛 No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	🗌 Yes 🛛 No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	🗌 Yes 🛛 No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	🗌 Yes 🛛 No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a wetland?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying a subsurface mine?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying an unstable area such as karst geology?	🗌 Yes 🛛 No
Are the lateral extents of the release within a 100-year floodplain?	🗌 Yes 🛛 No
Did the release impact areas not on an exploration, development, production, or storage site?	🗌 Yes 🛛 No

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

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

Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.

Field data

Data table of soil contaminant concentration data

 \boxtimes 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

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roim C-141		;	Incident ID	
Page 2	Oil Conservation Divisi	10n		NRM2028852747
			District RP	
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If the site character	ization non-out door not include commisted offe	ute at normadiation of the	Application ID	
proposed remediati The closure criteria specific parameters	on technique, proposed sampling plan and me a for a release are contained in Table 1 of 19.1.	ethods, anticipated timel 5.29.12 NMAC, howeve	ines for beginning and er, use of the table is 1	l completing the remediation. nodified by site- and release-
regulations all open public health or the failed to adequately addition, OCD acco and/or regulations.	rators are required to report and/or file certain release e environment. The acceptance of a C-141 report by y investigate and remediate contamination that pose a eptance of a C-141 report does not relieve the operat	e notifications and perform the OCD does not relieve t a threat to groundwater, sui tor of responsibility for con	corrective actions for rel the operator of liability sl rface water, human health ppliance with any other for	eases which may endanger nould their operations have n or the environment. In ederal, state, or local laws
Printed Name:	Kathryn Kaufman	Title:Environmen	ntal Specialist	
Signature:	tjattafor	Date:12.23.2	021	
email:kkaufm	an@hilcorp.com	Telephone:346-	237-2275	
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Oil Conservation Division

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Remediation Plan

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

 Detailed description of proposed remediation technique Scaled sitemap with GPS coordinates showing delineation points Estimated volume of material to be remediated Closure criteria is to Table 1 specifications subject to 19.15.29.12 Proposed schedule for remediation (note if remediation plan time 	C(C)(4) NMAC line is more than 90 days OCD approval is required)							
Deferral Requests Only: Each of the following items must be cont	irmed as part of any request for deferral of remediation.							
Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.								
Extents of contamination must be fully delineated.								
Contamination does not cause an imminent risk to human health,	the environment, or groundwater.							
I hereby certify that the information given above is true and complete rules and regulations all operators are required to report and/or file ce which may endanger public health or the environment. The acceptan liability should their operations have failed to adequately investigate a surface water, human health or the environment. In addition, OCD ac responsibility for compliance with any other federal, state, or local lat Printed Name:Kathryn Kaufman Signature:kkaufman@hilcorp.com	to the best of my knowledge and understand that pursuant to OCD rtain release notifications and perform corrective actions for releases ce of a C-141 report by the OCD does not relieve the operator of and remediate contamination that pose a threat to groundwater, ceptance of a C-141 report does not relieve the operator of ws and/or regulations. Title:Environmental Specialist Date: _12.23.2021 Telephone:346-237-2275							
<u>OCD Only</u>								
Received by:	Date:							
Approved Approved with Attached Conditions of A	pproval Denied Deferral Approved							
Signature: <u>Nelson Velez</u> I	Date: 11/07/2022							

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From:	Smith, Cory, EMNRD
To:	Kate Kaufman
Cc:	Hyde, Stuart; Hencmann, Devin
Subject:	RE: [EXTERNAL] Hilcorp Energy, Hare 14M (Incident ID NRM2028852747)
Date:	Thursday, November 4, 2021 3:46:57 PM

Kate,

Thank you for the update.. as we discussed on the phone I am going to go ahead and reject the October 2020 remediation work plan as we discussed because its going to be outdated with the new one that your proposing to submit.

Please include this email chain and submit your updated remediation plan to the OCD Permitting portal no later than December 24, 2021.

Thank you.

Cory Smith • Environmental Specialist Supervisor Environmental Bureau EMNRD - Oil Conservation Division 5200 Oakland Avenue N.E Suite 100 | Albuquerque, NM 87113 505.419.2687 | <u>Cory.Smith@state.nm.us</u> http://www.emnrd.state.nm.us/OCD/

From: Kate Kaufman <kkaufman@hilcorp.com>
Sent: Thursday, November 4, 2021 9:03 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Hyde, Stuart <Stuart.Hyde@wsp.com>; Hencmann, Devin <Devin.Hencmann@wsp.com>
Subject: [EXTERNAL] Hilcorp Energy, Hare 14M (Incident ID NRM2028852747)

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

Good morning Cory,

I wanted to provide you an update on the Hare 14M site (Incident ID NRM2028852747). Hilcorp submitted a site characterization and remediation work plan to OCD in October 2020. At this time, the NMOCD has not commented or approved the October 2020 report. Since that time, a site visit conducted during regular quarterly monitoring of sites in the area revealed that two of the proposed SVE wells had product in them. Hilcorp and WSP has conducted manual product recovery in these two wells and have documented a substantial decrease in product thickness over time. Additionally, groundwater has not been encountered during drilling and has not accumulated in any of the SVE wells installed at the site. Based on this discovery, Hilcorp drilled additional borings at the location in September 2021 to fully delineate the release. Based on the additional delineation results and reduction in product levels by manual bailing, SVE remains the proposed remedial technology for the Site. As such, we plan to conduct an SVE pilot test at the site next week. Once that is complete, we will prepare an updated remediation work plan and submit to the NMOCD within 45 days after completion of the pilot test.

Please let me know if you have any questions or require additional information.

Thank you, Kate

Kate Kaufman | Environmental Specialist | Hilcorp Energy Company O: 346-237-2275 | C: 907-244-8292 | <u>kkaufman@hilcorp.com</u> 1111 Travis St. | Houston | TX | 77002

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December 23, 2021

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

Subject: Site Characterization Report and Remediation Work Plan Hare 14M San Juan County, New Mexico NMOCD Incident Number: NRM2028852747

To Whom It May Concern:

On behalf of Hilcorp Energy Company (Hilcorp), WSP USA Inc. (WSP) has prepared this *Site Characterization Report and Remediation Work Plan* for a release at the Hare 14M production well (Site). The Site is located on Bureau of Land Management (BLM) surface, approximately 460 feet west of Slane Canyon in Unit D of Section 10 of Township 29 North, Range 10 West, San Juan County, New Mexico. The Site is approximately 3.3 miles northwest of Blanco, New Mexico, west of New Mexico State Road 575 (Figure 1).

On July 16, 2020, a release of natural-gas condensate was discovered at the Site during routine maintenance. The release was caused by a bullet hole near the bottom of the condensate aboveground storage tank. Approximately 36 barrels (bbls) of condensate were released from the tank but retained inside of the secondary containment berm. Upon discovery, Hilcorp gave notice to the New Mexico Oil Conservation Division (NMOCD) and the United States Bureau of Land Management (BLM) via telephone and email communication on July 16, 2020. Hilcorp subsequently submitted a Release Notification Form C-141 to the NMOCD on July 30, 2020. The NMOCD has assigned the Site incident number NRM2028852747.

SITE CHARACTERIZATION

As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were accessed in accordance with 19.15.29.11 of the New Mexico Administrative Code (NMAC). This information is further discussed below.

GEOLOGY AND HYDROGEOLOGY

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

SITE RECEPTORS

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

Borings at the Site indicate groundwater is not present at depths up to 45 feet below ground surface (bgs). However, based on the proximity and elevation difference to Slane Canyon, as well as depth-to-groundwater information at the

WSP USA 848 EAST 2ND AVENUE DURANGO CO 81301

Tel.: 970-385-1096 wsp.com

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nearby Hare 15 natural gas production well (25 feet bgs, located 1,000 feet north of the Site), groundwater is potentially present near the site at depths less than 50 feet bgs. No wellhead protection areas, springs, or domestic/stock wells are located within a half mile from the site (Figure 2). The nearest significant watercourse to the Site is Slane Canyon, located approximately 460 feet to the east (Figures 2 and 3). The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland (Figure 3).

SITE CLOSURE CRITERIA

WSP characterized the Site according to *Table 1*, *Closure Criteria for Soils Impacted by a Release* in 19.15.29.12 NMAC. Due to the Site having a depth to groundwater potentially less than 50 feet, the following NMOCD Table 1 Closure Criteria apply to the Site:

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

SITE INVESTIGATION ACTIVITIES

After the discovery of the release, Hilcorp retained WSP to conduct site investigations to define the vertical and lateral extent of the impacts to soil. WSP conducted drilling and soil sampling activities using a 75 Central Mining Equipment (CME) hollow-stem auger drilling rig. Boring locations were recorded using a handheld Global Positing System (GPS) unit.

Soil lithology was logged by a WSP geologist and described based on the Unified Soil Classification System (USCS) as specified in American Society for Testing and Materials (ASTM) D2488. Soil also was inspected for visual staining and the presence or absence of odor. The soil was characterized by visually inspecting the soil samples and field screening the soil headspace using a photoionization detector (PID) to monitor for the presence of organic vapors. Drilling and sampling equipment were decontaminated prior to each use.

Figure 4 presents the delineation boring locations. In total, 13 borings were advanced at the Site ranging in depth from 40 to 45 feet bgs. Delineation activities and results are further described below.

SOIL BORING RESULTS

In general, brown, poorly sorted, medium grained sand and silty sand were encountered between the ground surface and approximately 20 feet bgs. The sand/silty sand was underlain by interbedded layers of gray silty sand/sandy silt grading to sandstone and siltstone to the terminal depths of each boring. Groundwater and/or saturated soils were not encountered in any of the borings during drilling. Boring logs are attached as Enclosure A.

SOIL SAMPLING ACTIVITIES AND RESULTS

Based on field screening of soils, at least two soil samples from each boring were submitted for laboratory analysis (with the exception of BH08). For borings BH01 through BH09, one soil sample was collected for laboratory analysis from the most impacted soil interval based on field screening results. One additional sample was collected for analysis near the terminus of each borehole. Additional samples were collected from borings BH02, BH05, and BH06 to obtain better resolution of concentrations at depth intervals between 35 and 45 feet bgs. Additionally, only one sample was analyzed from boring BH08 at a depth interval of 35 to 40 feet bgs. This was the only sample analyzed because it obtained the highest field screening result from that boring and was also near the terminus of the boring (analytical results from sample BH08@35'-40' indicated that BTEX, TPH, and chloride concentrations were all below NMOCD Table 1 Closure Criteria. Because of these results, sample BH08@40'-45' was not analyzed by the laboratory).

For borings BH10 through BH13, soil samples were collected every 5 feet from ground surface to the terminus of each boring. Soil samples were 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.

Laboratory analytical results indicate that soil collected from borings BH01 and BH06 contained concentrations of total BTEX and/or TPH that exceeded the NMOCD Table 1 Closure Criteria. All other samples collected during the site investigation were either detected below the Table 1 Closure Criteria or were below laboratory detection limits for the listed parameters. The soil analytical results, as compared to the NMOCD closure criteria, are summarized in Table 1 and presented on Figure 4. The laboratory analytical reports are included as Enclosure B.

INTERIM PSH RECOVERY

After the initial investigation in August 2020, phase separated hydrocarbon (PSH) was discovered accumulating in remediation wells installed at borings BH02 (well SVE03 and BH06 (well SVE08). Since the discovery of the PSH, WSP has conducted several PSH-recovery events using a disposable bailer. Additionally, absorbent product recovery socks have been placed in these wells and replaced as necessary, since October 2020. To date, 28.425 gallons of PSH have been removed from the two remediation wells via manual bailing and disposable product-recovery socks. No other Site remediation wells have accumulated PSH as of the last Site visit on December 8, 2021. Table 2 presents a summary of PSH recovered.

CONCLUSIONS

Petroleum-hydrocarbon impacted soil has been delineated at the Site. Figure 4 presents soil sample results, in which all outer lateral points are compliant with the NMOCD closure criteria and the total vertical depth of impact in all boring locations have been determined. Additionally, Figures 5A and 5B presents cross sections for the Site that display vertical impacts at the Site. Field screening and elevated PID results in borings BH05 and BH11 suggest that soil may be impacted near these areas. However, analytical results indicate that TPH and BTEX concentrations in these borings are below the NMOCD Table 1 Closure Criteria. Based on these results, it is believed that the edge of soil impacts extend to areas near BH05 and BH11 and that elevated PID readings are a result of soil-vapors migrating from the edge of the plume into the pore space of surrounding soil (as opposed to residual petroleum hydrocarbons entrained in the soil matrix).

Impacted soil appears to be primarily located to the east of the AST and along the southeastern edge of the well pad. Additionally, soil impacts are present at depths between ground surface and 40 feet bgs near the release representing a shallow subsurface impacted area. With distance from the AST, impacts are restricted to a deeper interval near 35 feet to 40 feet bgs, which is likely representative of potential subsurface migration. Based on the above conclusions, approximately 1,700 cubic yards of subsurface soil are estimated to have been impacted by the release.

REMEDIATION WORK PLAN

Based on the depths of soil impacts and site lithology, WSP proposes remediation by soil vapor extraction (SVE). SVE technology remediates petroleum-hydrocarbon impacts in situ by applying a vacuum to wells drilled into the impacted area. The applied vacuum initiates air flow from the subsurface and into the SVE wells. The subsurface air flow enhances petroleum-hydrocarbon volatilization and the vapors are pulled out by a blower/vacuum pump on the surface. The removed petroleum hydrocarbons are typically emitted directly into the atmosphere unless air permitting thresholds or sensitive receptors require air treatment with petroleum hydrocarbon removal. SVE wells are drilled into the subsurface and screened to provide air flow evenly throughout the impacted interval. When determining the number of wells and screen intervals, heterogeneities in the geology are considered to prevent air being pulled only through the most permeable zones. SVE systems typically operate for 1 to 10 years until cleanup goals are achieved.

SVE SYSTEM INSTALLATION AND PILOT TESTING

At the completion of drilling, 14 borings were completed as permanent SVE wells at the Site, as shown on Figures 6A and 6B. Table 3 presents SVE well-construction information including total depth of the boring and the depth of the screened interval for each SVE well. SVE wells were constructed by installing screened casing at depths with the

highest TPH impact (based on analytical results and/or field PID results) and solid casing to the ground surface. In addition, nested SVE wells were installed in borings BH01, BH05, and BH06 to target multiple depth intervals in these areas. In general, SVE wells were installed at different depth intervals to target "shallow zone" impacted soil (ground surface up to 25 feet bgs) and "deep zone" impacted soil (soil up to 43 feet bgs).

SVE wells were constructed out of 2-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 2-inch Schedule 40 PVC 0.010-inch slotted screen. Wells were completed with 10-20 silica sand pack to three feet above the screened interval, then two feet of hydrated bentonite seal, and then grouted to ground surface. SVE well locations are depicted on Figures 6A and 6B. Boring logs with well completion diagrams are included as Enclosure A.

SVE SYSTEM PILOT TEST

To evaluate the design of an SVE system, WSP conducted a pilot test to determine the flow rate and applied vacuum required to influence the subsurface and cause volatilization of the petroleum hydrocarbons entrained in the soil. Pilot test data was also used to determine specific site design radius-of-influence (ROI) and radius-of-effect (ROE). Further information regarding the pilot test procedures and results are presented below.

PILOT TEST PROCEDURES

SVE01, screened from 5 to 15 feet bgs in the silty sand encountered onsite, was used as the extraction well during the pilot test. A vacuum truck was used to apply a negative pressure to the pilot testing well. The existing equipment manifold was used to control the vacuum being applied and to collect flow, vacuum, and PID measurements at the extraction well. Observation wells (SVE02, SVE05, SVE07, and SVE09), having similar screened intervals, were used to collect SVE pilot test monitoring data. The SVE well locations are presented on Figures 6A and 6B. The following list summarizes the procedure of the SVE pilot test:

- Measured the distances from the extraction well to each observation well.
- Collected background VOCs measurements using a PID at the SVE and observation wells.
- Connected the vacuum truck to the extraction well via a flexible hose and manifold. Slowly opened the valve
 and monitored the vacuum and flow.
- Applied a low vacuum at approximately 20 inches water column (IWC). Then increasing the vacuum/flow rate until influence is observed.
- Tested several vacuums in increasing magnitude based on site response observed. Tested at least three different vacuums for the pilot test.
- Collected at least two rounds of stabilized measurements per vacuum/flow rate. Measured the vacuum and the PID headspace at the observation wells. Recorded readings approximately 15 minutes apart.
- All test forms and calculations are provided as Enclosure C.

SVE TEST RESULTS AND CONCLUSIONS

Pilot test data indicates that SVE is a viable technology to remediate the Site if equipment is sized correctly. The vacuum response from the pilot test well SVE01 and observation wells SVE02, SVE05, SVE07, and SVE09 is shown below. Observation wells ranged in distance of 0 feet to 38 feet from the SVE test well (SVE01). Vacuum influence was observed at SVE02 and SVE09 at a distance of 15 feet as shown on the figure below.

wsp



The above figure illustrates that vacuum influence was observed at a distance of 15 feet at 136 IWC at 46 standard cubic feet per minute (scfm). Vacuum response was not observed at 21 feet. Based on the vacuum observations a ROI of 15 to 20 feet can be assumed.

Additional calculations were performed to determine the ROE. These calculations are included in Enclosure C. To determine a ROE the annual pore volume exchange was calculated assuming an ROI of 20 feet at a flow rate of 46 scfm. The pore volumes calculated indicated an annual pore volume exchange of 3,207. The pore volume exchange meets literature values of at least 500 pore volume exchanges annually. To further verify that the ROE corresponds with the ROI, the pore velocity was calculated at the ROI of 20 feet. The calculated pore velocity was 88 feet per day (ft/day), which is above a recommended velocity of 3 ft/day. Current SVE research indicates that it is desirable to achieve pore-gas velocities throughout the treatment zone in excess of 0.001 cm/sec or ~3 ft/day (DiGiulo and Ravi, 1999).

A blower capable of significant vacuum is required for site remediation. Specifically, the blower chosen for the Site will need to produce at least 136 IWC of vacuum with at least 150 scfm. Based on pilot test results, a relatively high vacuum is required per well to achieve influence in the subsurface. The advantage to the high vacuum requirement is the vacuum would be significant enough to remove any PSH present in any of the SVE wells that are in operation. The blower has not been specified and will be determined based on electrical availability or electrical generation capacity available at this location. The system may also need to rotate wells in order to achieve the required pore volume exchange to remediate the Site. Vacuum applied to wells could be cycled on a monthly or quarterly basis to target different impacted areas of the Site. The need for rotating wells will be determined once the permanent system is installed at the Site.

Additionally, WSP recommends re-testing of ROI and ROE when the SVE system is installed at the Site to determine an optimal operational plan. With the new blower, WSP will test if a lower flow rate can achieve at least a 20-foot ROI and ROE over a longer time period. The ROI and ROE for the shallow and deep zones are presented on Figures 6A and 6B, respectively. Pilot test information is presented in Enclosure C.

SYSTEM INSTALLATION, STARTUP, AND MONITORING

Operation of wells SVE01, SVE02, SVE03, SVE08, and SVE09 is recommended to influence both the observed deep and shallow impacts. The other SVE wells are outside of the area of known impact and do not need to operate at this time. The cross sections provided as Figures 5A and 5B illustrate the vertical coverage of the SVE wells to influence the impact at depth. A full scale SVE system should be sized to supply a minimum of 136 IWC vacuum

and flow rate of 150 scfm. The system will be able to operate between three and five wells at a time and can be cycled as necessary between groups of wells. A general schematic of the proposed SVE system (including piping, manifold, knockout tank, vacuum blower, gauges, etc.) is presented in Enclosure D. Figures 6A and 6B present the estimated ROI/ROE for the Site based on the pilot testing performed.

Based on the measurements collected during the SVE pilot test, SVE equipment will be installed at the Site including piping, a manifold, knockout tank, and vacuum blower. After system startup, an air sample will be collected and submitted for laboratory analysis monthly for the first quarter of SVE operation, then quarterly thereafter, to monitor the effective reduction and remediation of soil impacts. Air samples will be collected quarterly submitted for analysis of volatile organic compounds (VOCs, including BTEX), TVPH, and fixed gases oxygen and carbon dioxide. WSP will submit a summary report of the first six months of operation to include analytical results and effective runtime, then quarterly reports thereafter. Quarterly reporting will document hydrocarbon mass recovery, system runtime, and air sample analysis.

OPERATIONS AND MAINTENANCE PLAN

During the operation of the SVE system, regular operation and maintenance (O&M) visits will be conducted semimonthly (twice per month) by WSP and/or Hilcorp personnel. During O&M visits, personnel will ensure that the generator and SVE system are operating within normal working temperature, pressure, and vacuum range. System runtime will be recorded and vapor concentrations will be measured from a sampling port located on the inlet side of the blower motor using a PID. Vacuum, temperature, and flow measurements indicated on the SVE system gauges will also be recorded. An initial operational schedule for cycling operations between the wells will be established by evaluating the first quarter of system operational results. Changes to operating wells will be completed during O&M visits. Any deviations from normal operating parameters will be recorded and corrected by onsite personnel, if possible. In addition to routine O&M visits, the SVE system will be connected to Hilcorp's telemetry network. If the system experiences downtime, a Hilcorp environmental specialist will be notified via email immediately. Immediate notification will allow for quick response to maximize system runtime. An O&M form to be used during semimonthly visits is attached in Enclosure E. A general Operations and Maintenance Manual is also attached in Enclosure E, to be used as guidance for performing O&M.

FUTURE RUN TIME CALCULATIONS AND PROPOSED REMEDIATION TIMELINE

The SVE system will be connected to on-Site power (either an electrical drop or natural gas generator) and able to run 24 hours per day. Based on 24 hours of available run time, to maintain a 90% runtime, the system will have to operate a minimum of 7,884 hours per year. Using an installed run-time meter on the SVE unit, Hilcorp will report system run time quarterly. The 90% runtime accounts for downtime related to regular maintenance of the SVE system. Downtime outside of Hilcorp's control (i.e., equipment failure) will be accounted for and the total available annual runtime hours will be adjusted. This information will be reported in the quarterly reports.

The US Army Corps of Engineers, Soil Vapor Extraction and Bioventing – Engineer Manual, dated June 3, 2002 states "Unless target cleanup goals are low or initial concentrations are very high, 1,000 to 1,500 pore volumes would be a good estimate of the required air exchanges". WSP recommends a minimum of 3,000 pore volume exchanges due to the presence of PSH in two wells at the Site. It is recommended to operate all wells at once, but the wells can be rotated if the system air flow capabilities are lower than anticipated during operation. The system will be able to achieve 3,000 pore volume exchanges over the entire site within 12 months if the system is rotated between two zones (isolating shallow and deep zones). With the presence of PSH, a conservative estimate of 12 to 24 months is estimated due to high TPH concentrations and potential operational constraints (i.e., equipment sizing). WSP will also assess air concentrations of TVPH from the system and if these become asymptotic before the anticipated closure date, then sampling will commence per the schedule below. The SVE system will remain at the Site full time until remediation is complete.

Based on the above assumptions, WSP anticipates that the system will operate at the Site for approximately one to two years to remediate soils impacted by TPH to below NMOCD Table 1 Closure Criteria. As air samples are collected, Hilcorp may present an updated remediation timeline after four quarters of monitoring and sampling of the system. However, the following general timeline is proposed with day 0 being the day this document is approved

by the NMOCD. Additionally, quarterly reporting will be conducted to keep the NMOCD informed on major site advancements and SVE system operations.

- Months 0 to 3 System acquisition and installation;
- Months 4, 5, and 6 Air sample collection monthly, perform system maintenance, and optimize system operation, as necessary;
- Month 6 through Year 1 Semi-monthly O&M visits, quarterly air sample collection to monitor system efficacy, and quarterly system monitoring. Quarterly reporting;
- Years 1 to 1.5 Assess system performance and collect quarterly air samples to assess system efficacy. Update remediation timeline based on quarterly sampling analytical results after one year of operation. At any point, if air concentrations of TVPH collected from the system become asymptotic and/or are below 1.0 milligrams per liter (mg/L), soil samples will be collected as described below to determine if concentrations are below NMOCD Table 1 Closure Criteria. If soil concentrations are above Closure Criteria, the system will be adjusted to maximize performance and address areas with remaining soil impacts. Continue quarterly air sample collection, monitoring, and reporting as necessary;
- Year 2 Soil confirmation sampling. Prepare request for site closure if soil sample results are below NMOCD Table 1 Closure Criteria. If soil concentrations are above Closure Criteria, the system will be adjusted to maximize performance and address areas with remaining soil impacts. Continue quarterly air sample collection, monitoring, and reporting as necessary.

ONGOING PSH MONITORING AND RECOVERY

During SVE system operation, wells SVE03 and SVE08 will be monitored at least monthly for the presence of PSH. If present during O&M visits, recoverable volumes of PSH will be manually removed using a disposable bailer. The presence and volume removed over time will also be used to assess the SVE system performance.

CONFIRMATION SOIL SAMPLING

When a significant decline in air sample concentrations is observed, indicating sufficient mass source removal (air concentrations of TVPH collected from the system become asymptotic and/or are below 1.0 milligrams per liter), at least four borings will be advanced via hollow-stem auger drill rig in the vicinity of borings BH01, BH02, and BH06. Soil samples will be collected at 5-foot intervals from the ground surface to a depth of 40 feet bgs and submitted for TPH and BTEX. If the soil samples indicate hydrocarbon impacts have been reduced to below Table 1 Closure Criteria, WSP will present the confirmation laboratory analysis data in a report and request closure of the release. Should the results indicate that analytes in the soil exceed Table 1 Closure Criteria, WSP will continue to operate the system and make operational adjustments based on results of the sampling.

REFERENCES

DiGiulio, D., Ravi, V., & Brusseau, M., 1999. Evaluation of mass flux to and from ground water using a vertical flux model (VFLUX): application to the soil vacuum extraction closure problem. Ground water monitoring & remediation, 19, 96-104. doi: 10.1111/j.1745-6592.1999.tb00210.x

United States Army Corps of Engineers (USACE), 2002. Engineering and Design, Soil Vapor Extraction and Bioventing - Engineer Manual, Document EM 1110-1-4001. June 3.



If you have any questions or comments, please do not hesitate to contact Mr. Stuart Hyde at stuart.hyde@wsp.com, or at (970) 385-1096, or Kate Kaufman at kkaufman@hilcorp.com or at (346) 237-2275.

Kind regards,

Stuart Hyde, L.G. Senior Geologist

obert T Rebel

Robert Rebel, P.E. Technical Principal, Lead Consultant

cc: Kate Kaufman, Hilcorp Energy Company

Enclosures

Figure 1:	Site Location Map
Figure 2:	Site Receptor Map
Figure 3:	Proximity to Watercourse, Lakebed, Sinkhole, or Playa Lake
Figure 4:	Soil Analytical Results
Figure 5A:	A to A' Cross Section
Figure 5B:	B to B' Cross Section
Figure 6A:	Shallow Zone Radius of Effect
Figure 6B:	Deep Zone Radius of Effect
Table 1.	Soil Analytical Results
Table 2:	PSH Recovery Summary
Table 3:	SVE Well Construction Information
Enclosure A:	Boring Logs
Enclosure B:	Laboratory Analytical Reports
Enclosure C:	Pilot Test Data

Enclosure D: SVE System Diagram

Enclosure E: SVE O&M Forms and Operations and Maintenance Manual

Ashley L. ager

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

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FIGURES



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LEGEND

ML	SILT
SC	CLAYEY SAND
SLTST	SILTSTONE
SM	SILTY SAND
SW	POORLY SORTED SAND
SST	SANDSTONE

- APPROXIMATE RELEASE EXTENT
- LITHOLOGIC CONTACT

(

- SOIL ANALYTICAL RESULTS BELOW NMOCD CLOSURE CRITERIA
- SOIL ANALYTICAL RESULTS EXCEED NMOCD CLOSURE CRITERIA
- PHOTOIONIZATION DETECTOR FIELD-SCREEN MEASUREMENTS, RESULTS LISTED IN PARTS PER MILLION (PPM)
- SVE WELL SCREEN INTERVAL

Southeast

	5,810'
,	5,800'
	5,790'
	5,780'
	5,770'
	5,760'
	5,750'
	5.740'



FIGURE 5A A TO A' CROSS SECTION HARE 14M LOT 4 SEC 10-T29N-R10W SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY





LEGEND

ML	SILT
SC	CLAYEY SAND
SLTST	SILTSTONE
SM	SILTY SAND
SW	POORLY SORTED SAND
SST	SANDSTONE

- APPROXIMATE RELEASE EXTENT

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- SOIL ANALYTICAL RESULTS BELOW NMOCD CLOSURE CRITERIA
- SOIL ANALYTICAL RESULTS EXCEED NMOCD CLOSURE CRITERIA
- PHOTOIONIZATION DETECTOR FIELD-SCREEN MEASUREMENTS, RESULTS LISTED IN PARTS PER MILLION (PPM)
- SVE WELL SCREEN INTERVAL

FIGURE 5B B TO B' CROSS SECTION HARE 14M LOT 4 SEC 10-T29N-R10W SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY





5,810'
5,800'
5,790'
 5,780'
 5,770'
 5,760'
 5,750'
 5,740'

North



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TABLES

TABLE 1SOIL ANALYTICAL RESULTS

HARE 14M 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 Table 1 Cl	osure Criteria	NE	10	NE	NE	NE	50	600	NE	NE	NE	100
BH01@0'-5'	8/18/2020	9,118	3.8	120	33	490	647	<60	8,600	1,500	<500	10,100
BH01@38'-40'	8/18/2020	25.1	< 0.025	0.10	< 0.050	0.16	0.26	<60	<5.0	<9.7	<49	<49
BH02@30'-35'	8/18/2020	107	< 0.019	0.054	< 0.039	0.096	0.150	<59	<3.9	<9.0	<45	<45
BH02@38'-40'	8/18/2020	46.1	< 0.018	< 0.036	< 0.036	< 0.073	< 0.073	<59	<3.6	<9.9	<49	<49
BH02@40'-45'	8/18/2020	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH03@5'-10'	8/19/2020	47.3	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	<59	<4.9	<9.0	<45	<45
BH03@35'-40'	8/19/2020	0.3	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	<60	<5.0	<9.8	<49	<49
BH04@10'-15'	8/19/2020	36.4	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	<60	<4.9	<9.4	<47	<47
BH04@35'-40'	8/19/2020	0.1	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<59	<5.0	<9.0	<45	<45
BH05@25'-30'	8/19/2020	2,268	< 0.025	0.061	< 0.049	0.36	0.421	<60	14	<9.6	<48	14
BH05@38'-40'	8/19/2020	174	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<60	<5.0	<9.7	<49	<49
BH05@40'-45'	8/19/2020	23.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH06@35'-38'	8/19/2020	1,732	< 0.12	0.68	0.56	7.6	8.84	<60	130	83	<44	213
BH06@38'-40'	8/19/2020	682	< 0.025	0.073	< 0.049	0.2	0.273	<60	<4.9	10	<49	10
BH06@40'-45'	8/19/2020	22.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH07@15'-20'	8/20/2020	7.8	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<60	<5.0	<9.5	<47	<47
BH07@35'-40'	8/20/2020	0.3	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<60	<5.0	<9.9	<49	<49
BH08@35'-40'	8/20/2020	141.2	< 0.024	0.14	< 0.049	0.48	0.62	<59	12	<9.3	<47	12
BH08@40'-45'	8/20/2020	38.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH09@30'-35'	8/20/2020	0.0	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	<60	<4.9	<9.4	<47	<47
BH09@35'-40'	8/20/2020	0.0	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<60	<5.0	<9.4	<47	<47
BH10@0'-5'	9/14/2021	1.2	< 0.024	< 0.049	< 0.049	< 0.098	< 0.098	<59	<4.9	<9.7	<48	<48
BH10@5'-10'	9/14/2021	2.0	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	<60	<4.9	<9.7	<48	<48
BH10@10'-15'	9/14/2021	0.9	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	72	<4.9	<9.7	<48	<48
BH10@15'-20'	9/14/2021	0.5	< 0.025	< 0.049	< 0.049	< 0.098	< 0.098	<60	<4.9	<10	<50	<50
BH10@20'-25'	9/14/2021	0.7	< 0.025	< 0.049	< 0.049	< 0.098	< 0.098	<59	<4.9	<8.5	<42	<42
BH10@25'-30'	9/14/2021	1.2	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	<60	<4.8	<9.2	<46	<46
BH10@30'-35'	9/14/2021	0.8	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	<61	<4.9	<9.6	<48	<48
BH10@35'-40'	9/14/2021	0.7	< 0.00025	< 0.00049	< 0.00049	< 0.00099	< 0.00099	<60	< 0.049	<9.7	<48	<48

TABLE 1SOIL ANALYTICAL RESULTS

HARE 14M 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)
BH11@0'-5'	9/14/2021	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH11@5'-10'	9/14/2021	0.5	< 0.025	< 0.049	< 0.049	< 0.098	< 0.098	<59	<4.9	<9.6	<48	<48
BH11@10'-15'	9/14/2021	0.4	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	88	<4.9	<9.7	<48	<48
BH11@15'-20'	9/14/2021	0.2	< 0.024	< 0.048	< 0.048	< 0.096	< 0.096	61	<4.8	<9.8	<49	<49
BH11@20'-25'	9/14/2021	0.4	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	68	<5.0	<9.6	<48	<48
BH11@25'-30'	9/14/2021	2.3	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	73	<4.8	<9.3	<46	<46
BH11@30'-35'	9/14/2021	780.0	0.052	0.750	0.260	3.200	4.262	<60	49	16	<47	65
BH11@35'-40'	9/14/2021	99.0	< 0.024	0.078	< 0.049	0.270	0.348	<59	<4.9	<9.8	<49	<49
BH11@40'-42'	9/14/2021	18.0	< 0.017	< 0.034	< 0.034	< 0.067	< 0.067	<60	<3.4	<9.9	<50	<50
BH12@0'-5'	9/15/2021	0.8	< 0.023	< 0.046	< 0.046	< 0.092	< 0.092	<60	<4.6	<9.4	<47	<47
BH12@5'-10'	9/15/2021	0.0	< 0.023	< 0.047	< 0.047	< 0.093	< 0.093	<60	<4.7	<9.3	<47	<47
BH12@10'-15'	9/15/2021	0.0	< 0.024	< 0.047	< 0.047	< 0.094	< 0.094	<60	<4.7	<9.3	<46	<46
BH12@15'-20'	9/15/2021	0.0	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	<60	<4.9	<9.6	<48	<48
BH12@20'-25'	9/15/2021	0.0	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	<60	<4.8	<9.4	<47	<47
BH12@25'-30'	9/15/2021	0.0	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	70	<4.8	<9.7	<48	<48
BH12@30'-35'	9/15/2021	96.0	< 0.023	< 0.046	< 0.046	< 0.092	< 0.092	<61	<4.6	<9.1	<46	<46
BH12@35'-40'	9/15/2021	109.0	< 0.024	< 0.048	< 0.048	< 0.095	< 0.095	<60	<4.8	<9.0	<45	<45
BH12@40'-43'	9/15/2021	32.0	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	<60	<5.0	<8.9	<44	<44
BH13@0'-5'	9/15/2021	8.7	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	<60	<4.8	<10	<50	<50
BH13@5'-10'	9/15/2021	3.9	< 0.023	< 0.047	< 0.047	< 0.093	< 0.093	<60	<4.7	<9.5	<48	<48
BH13@10'-15'	9/15/2021	2.0	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	64	<4.9	<9.4	<47	<47
BH13@15'-20'	9/15/2021	2.2	< 0.024	< 0.047	< 0.047	< 0.095	< 0.095	68	<4.7	<9.5	<47	<47
BH13@20'-25'	9/15/2021	0.7	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	<60	<5.0	<9.1	<45	<45
BH13@25'-30'	9/15/2021	0.5	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	<59	<4.9	<8.8	<44	<44
BH13@30'-35'	9/15/2021	6.5	< 0.024	< 0.048	< 0.048	< 0.096	< 0.096	<59	<4.8	<9.2	<46	<46
BH13@35'-40'	9/15/2021	8.1	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	<60	<5.0	<9.8	<49	<49
BH13@40'-44'	9/15/2021	1.7	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	<60	<5.0	< 9.8	<49	<49

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 $8015\mathrm{D}$

mg/kg - milligrams per kilogram

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

NA - not analyzed

NE - not established NMOCD - New Mexico Oil Conservation Division PID - photo-ionization detector

ppm - parts per million

TPH - total petroleum hydrocarbon (sum of GRO, DRO, and MRO) < - indicates result is less than the stated laboratory reporting limit **Bold** - indicates value exceeds stated NMOCD Closure Criteria

TABLE 2PSH RECOVERY SUMMARY

HARE 14M SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Boring/Well Number	Date	Product Thickness (feet)	Product Recovered (gallons)		
	9/30/2020	1.20	3.50		
	10/2/2020	1.24	0.25		
BH02 / SVE03	7/16/2021	3.35	3.00		
	7/30/2021	NM	0.125		
	9/2/2021	1.01	1.50		
	11/12/2021	0.21	0.50		
	11/24/2021	0.17	0.50		
	12/8/2021	0.07	0.50		
	9/30/2020	7.33	5.00		
	10/2/2020	3.06	1.25		
	7/16/2021	3.91	4.00		
DUOC / SVEA9	7/30/2021	NM	1.50		
BH00/SVE08	9/2/2021	1.92	2.30		
	11/12/2021	3.13	1.25		
	11/24/2021	3.05	1.25		
	12/8/2021	1.88	2.00		
	Total Rec	overed (gallons)	28.425		

Notes:

NM - not measured

.

TABLE 3SVE WELL CONSTRUCTION INFORMATION

HARE 14M SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Boring/Well Name	Impacted Depth (bgs)	SVE Well Screened Interval (bgs)	Total Well Depth (BTOC)
BH01 / SVE01	0'-38'	5'-15'	17.01'
BH01 / SVE02	0'-38'	25'-35'	37.25'
BH02 / SVE03	30'-40'	30'-40'	42.63'
BH03 / SVE04	ND	7.5'-17.5'	19.30'
BH04 / SVE05	ND	5'-20'	22.05'
BH05 / SVE06	ND	30'-40'	42.22'
BH05 / SVE07	ND	10'-20'	22.33'
BH06 / SVE08	30'-40'	33'-43'	45.30'
BH06 / SVE09	15'-20'	15'-25'	27.25'
BH07	ND		
BH08 / SVE10	ND	35'-40'	42.65'
BH09	ND		
BH10 / SVE11	ND	28' - 38'	40'
BH11 / SVE12	ND	32' - 42'	45'
BH12 / SVE13	ND	32' - 42'	43'
BH13 / SVE14	ND	33' - 43'	44'

NOTES:

bgs - below ground surface

BTOC - below top of casing

ND - impacts above Table 1 Closure Criteria not detected

' - feet

ENCLOSURE A – BORING LOGS

Advancing OpportunityAdvancing Opportunity848 E. 2nd Ave Durango, Colorado 81301BORING LOG/MONITORING WELL COMPLETION DIA Boring/Well Number:BH 01Project: Boring/Well Number:BH 01Project Number: 017820017Date: Boring/Well Number:BH 01Project Number: 017820017Date: Boring ProjectDate: Boring ProjectDetector: 5,815PIDDate: Danny BurnsMO-TE Drilling MO-TE DrillingGravel Pack: 10-20 Silica Sand36'-24', 16'-4'Date: Bentonite 24'-24', 16'-4'Date: Bentonite 24'-24', 16'-4'Date: Bentonite 24'-24', 16'-4'Date: Bentonite 24'-24', 16'-4'Date: Bentonite 24'-24', 16'-4'Diameter: Date: 2"Length: 2"Diameter: 2"Length: 2"Dot 100Diameter: 2"Length: 2"Diameter: 2"Length: 2"Diameter: 2"Length: 2"Diameter: 2"Length: 2"Diameter: 2"Length: 2									ON DIAGRAM 14M 0017 Drilling 1000S Depth to Liquid: Depth to Water:
Penetration Resistance Moisture Content Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Ren	narks	Kith Well Completion
SL- Morist. 9,118 Diy 2,906	Mod. Yes MoD.	BHOI Q'-5' 0820	0 1 2 3 4 5 6 7 8 9 10 11 12			SW- SM SM	Brown. med sand w/ silt. W Mod. stain/odor. SAA, Brown. In-mee W/ silt. We Mod s/0.	* (med. fn. ne ll graded. HC, gassy. d. saved U. g.r.	
* Dry 2,399	Yes Not.		13 14 15	-	X	SW- SM.	SAA. Mod. 5/0.		

\sim									Boring/Well # BHO				
Advancing Opportunity									Project:	Hare 14M			
Auvancing Opportunity							port	Project #	017820017				
								Date	8-18-2	.0			
Penetratior Resistance	Moisture Content	Vapor (mm)	(m.J.A)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	Well Completion		
						15					-	ES	
				NIPC		16	-		SW -SM	SAA.	-		Chr. C.
	014	1.395	,	sl.		17		M		Brown med sandw/sitt. mod. 5/6			
	X · (A ()	18	18 -	-						H
	D. e	A 200	-9			19	-		SNY	Gray & ma	room mix of -		1
	קיע	2,50		,00		20		T	/ML	sandy silt slightly deve	t silly sound. No se. Mode odor. Stain	//	1
	Dry	6,24	ч	NO		21 22	-	X	ML	Gray silt ston fully comente	e w/sand, some lenses d. Mod. color. No stain		
	ingen 1			No.		23		X	ML	- Ketusal, tryini HSA w/o corrit of string.	to continue concerning - tomous sampler at bottom -		MIL
	Day	3,05	9			24	-			-Gray w/ w fossile, No	stain, incol, odor.		N. H. W.
						25	-				-		
				No		27		V	ML	(From same	w silt. some		14.00
	Nov	3,17	6			28				cemented 1	enses, other mostly -		-: -:
	Ϋ́				-	29	-	$\left(\right)$		Fissile. Mo	stain, moch odor.		
						30	-	-				2]	ſ
						31			SMY ML				
	D	0.1.0		No		32 33		X		Gray silty	sand and		
	DIM	12,13	8				-			sandy silt	Harton. Fissile		(
					35		-			others. No	stain, Mod oder.		
	De				N	36	-		ML	SAA. No	stain/sl_dv odor.		11
	214	12	l	N 0.		37	-						2

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									Boring/Well # BHOI			
	11		Ad	vanci	ina Ol	nonti	Project:	Hare 14M				
	I I I I I I I I I I I I I I I I I I I									017820017		
E D	T	1	i		1			(Date	8-18-2		
Penetratio	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion	
	-				37	Щ	I					
				BHOI	38	-	V	SM/	Dark gray Mustly ren	silty sandstone	-	
	Dq	25.1	No	38:40'	40	-	1	/ 1/12	No stain	lodor.	-	
					41							
					42						-	
					43						-	
					44						-	
					45					-		
					46					-		
					47							
					48					-		
					49					-		
					50							
					51							
					52					-		
					53					-		
					54					-		
					55					-		
					56					-		
					57					-		
					58					+		
					59					-		

Elevation: 5,815 Gravel Pack: 10-20 Silica Casing Type: Schedule 40 Screen Type: Schedule 40	Sand PVC	Detector: 391- 23	- 22 ¹ - 5.40 Slot:	PID			Advancing Opportunity 848 E. 2nd Ave Durango, Colorado 81301 BORING LOG/MONITORING WELL COMPLETION DIAGRAM Boring/Well Number: BH02 Project: Boring/Well Number: BH02 Project: Date: 8-18-2.0 Dilled By: Date: 8-18-2.0 Dilled By: Date: 8-18-2.0 Dilled By: Date: 8-18-2.0 Dilled By: Date: 8-18-2.0 Continuous Seal: Danny Burns MO-TE Drilling Diameter: Length: 55 Total Depth: Depth to Liquid: Diameter: Length: 55 Total Depth: UC i Depth to Water:				
Penetration Resistance Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litl	hology/Ren	narks	Well Completion
Dry Dry	6.0 19.3 2.3	No		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		X X	SW- SM -SM SW -SM	Brown N W/ Silt. No sta SAA. No s SAA. Brown No	med si not in loc slo	and w/silt	
		-	2						Boring/Well #	BH02	
---------------------------	---------------------	----------------	----------	-----------------------------	----------------------------------	---------------	---	-------------------	---	--	-------------------
	TI	3/	Δd	vanci	na Oi	norti	mi	itr/	Project:	Hare 14M	
	L	4		anon	ng op	γυπι	41 11	Ly	Project #	017820017	
			r i	1.1.1	1		1		Date	8-18-20	1
Penetratior Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completio
					15					2	
	Dry	7.3	No		16 17 18 19			sv- SM	Lt. Brow savel W/ Wall grue No s	in Fin-med. 31H. tain/odor.	
					20		-				14 4
	Dry	2.2	No		21 22 23 24 25 26			SM ML	Lt gray t sandy si Silty s slightly o No sta	- Lt. maroon ilt and and mix. hense, buit fissile. in Jodor	
	Dry	3,5	No		27 28 29 30		A CONTRACT OF A	ML	Gray save cementee some fiss No ste	ly silt. L throughout The ain/odor	
	Day	107	No	BH02 (a) -35' 1230	31 32 33 34 35			SM/ ML SM	-Lt. Maroon W/ sand -Lt.gray s. -gray siltys V. Fn, sli	avely siltstone avely siltstone a send stone, ight odor, no stain	
	Dry	62.7	No		36 37	-		MI	Lt. gray 3 siltstone.	endy solt, w/cement	

	-	2						Boring/Well #	BHOZ	
		Ad	vanc	ina Oi	nnnti	m	itv	Project:	Hare 14M	
		* 1541	- un IVI		ρυια	AT 11	''y	Project #	017820017	
H OL	I		í i	i i				Date	8-18-20	
Penetratio Resistanc Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	logy/Remarks	Well Completion
	46.1	No	BHOL 28-40 1300 40 -45 1330	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59			SM/ ML SM/ ML	Gray toda Silty sand to starn No starn No starn	y sandstone. d. , v. stt. odar auk gray , fissile, ilt stone. Nodor.	backfill Slough

Elevation: 5,815 Gravel Pack: 10-20 Silica Sand Casing Type: Schedule 40 PVC Screen Type: Schedule 40 PVC	Detector: 18 - 6.5 7.5 -	P: 5' 5.U.			BORI Boring/Wi Date: Logged By Drilling M Drilling M Seal: Bey Diameter:	Advancing Opport 848 E. 2nd Ave Durango, Color NG LOG/MONITORING W ell Number: $BH 03$ 8-18-20 y: Danny Burns ethod: Hollow Stem/Air Rotary ntonite $6.5-4.5'$ Length: 2" Length: 1021	tunity rado 81301 ELL COMPLETIC Project: Hare 1 Project Number: 017820 Drilled By: MO-TE D Sampling Method: Continu Grout: Bentonite Hole Diameter: 7 Total Depth:	AM AM AM AM AM AN AN AN AN AN AN AN AN AN AN
Penetration Resistance Moisture Content Vapor (ppm)	HC Staining?	Sample #	Depth Samp . bgs.) Ru	ple n Recovery	Soil/Rock Type	Lithology/Ren	narks	Well Completion
Dry 3.7 Dry 47.3 Dry 26.1	No No No	5-10' 5-10' 1 1 1 1 1 1 1 1 1 1 1 1 1	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	X	SW SM SW SM	Brown medi sand w/ sill Well gr. No stain /o Lt. Brown med sand w/ sitt No S/O Lt. Brown. med med coarse sarel w/ sill Well graded. No S/O	um +- dor. d	

	-		>						Boring/Well #	BHO3	
	171		Adv	ranci	ing Op	oportu	Ini	ty	Project: Project #	Hare 14M 017820017	
	1					· · ·			Date	8-18-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithe	blogy/Remarks	Well Completion
	Dry	12.2	No		15 16 17 18 19 20 21			STA SMAL	SAA. Brown : No Lt. gray t sundy si No slo	med savel w/sill, s/o maroon lt ftssile	backfill W
	Dry	1.8	No		21 22 23 24 25			SM ML	Lt. gray silly server Maroon so some ceme No statu,	istone, Istone, Indy siltstone, Intution, but fiscile. Idor.	
	Dry	0.9	No		26 27 28 29 30	-	V	ML	Lt. gray t gray t mostly c No sta	sandy stilt stilt stone. remented. in/odor	-
	Dry	0.7	No		31 32 33 34 35 36			SM	Gray stitt sandstone some fiss No Gray san	y Fn-medfn SIt. cement. The. slo dy sills.tn.	

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					Boring/Well #	BHOZ	
	duancina	Jonart	umi	I	Project:	Hare 14M	
	uvancing (pport	unn	ly	Project #	017820017	
C				1	Date	8-18-20	
Penetration Resistance Moisture Content Vapor (ppm)	$\begin{array}{c c} & & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	h Sample s.) Run	Recovery	Soil/Rock Type	Litho	logy/Remarks	Well Completion
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			SM.	Gray sitty Isand No 30.	sandstone y siltston	backfill

Elevation: 5,81 Gravet Pack: 10-20 Sili Casing Type: Schedule 4 Screen Type: Schedule 4	5 ca Sand 40 PVC	Detector: 2.0 5'-	1-4' 5.U.	PID			BORIN Boring/We Date: Logged By: Drilling Me H Seal: Ber Diameter: Diameter:	Advancing (848 E. 2nd Durango, o NG LOG/MONITORIE IN Number: BH04 8-19-20 Danny Burns thod: Hollow Stem/Air Rotary ttonite U'-0' Length: 2"	0 pportu d Ave Colorat NG WEI P1 P1 D 5 d Sa	alo 81301 LL COMPLETIC roject: Troject Number: 017820 rilled By: MO-TE I ampling Method: Contin rout: Bentonite ole Diameter: Tu ptal Depth: 40'	DN DIAGRAM 4M 0017 Drilling uous Depth to Liquid: Depth to Water:
Penetration Resistance Moisture	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litholog	gy/Reman	rks	Well Completion
	t 8,1	Ŋ0		0 1 2 3 4 5 6 7		X	SW SM	Brown, med Well graded No statu	sand color.	w/solt.	
SL: Mois	18.2	No		8 9 10 11		X	SW SSM	SAA. No stai	in lod	or:	
Dry	36.4	No	BH 04 0' -15' 0840	12 13 14 15		X	5W- 5M	SAA Blownimed same No s/o.	d w)	silt.	

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	-	-	2						Boring/Well #	BH04	
	K- n		Adv	anci	ina Ar	norti	ini	ity	Project:	Hare 14M	
		-	-nuv	anu	ng op	pont	<i>.</i>	cy	Project #	017820017	
0			1.1						Date	8-19-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
	skist Wost	1.4	No		15 16 17 18 19 20 21 22 23 24			SM- SM SM ML	SAA. No S Group & maroo Dense but f SAA. Silty fn so No sto.	%/0 m silty fa. sound. issile. No slo nd, source cementation nation sandy	hacksill w
	DY	0.4	No		24 25 26 27 28		V	5M/	- Gray, some n siltstone, de No 3/0. Lt. gray envolu silt	+ gray + j. cemented	
	D11	4.8	No		29 30 31	-	1	IMU	silt stone sound. N fissile iv	$-\omega/v$. fn. $\partial s/\partial places$.	
	Der	0.4	No		32 33 34 35	-		SM	Gray silty t sandsto slitly foss No sli	Fn. sand me. w/ cement. sile.	
	Dry		No		³⁶ - 37	-	X	SM	SAA.	Nº 5/0	+

2	5	7	Ad	vanci	ing Oj	oporti	un	ity	Boring/Well # Project: Project # Date	BH0 Hare 14M 01782001 8~14.2	7 7 7
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	logy/Remarks	Well Completion
	Dry	0.\	No	BH04 25-40 0920	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59			5M ML	Gray silty to sandy No So	saudstone, silt.	- Voueklint

Elevation: Gravel Pack 10-20 Casing Type Schert Screen Type Schert	5,815 5,815) Silica tule 40	Sand PVC PVC 4	Detector: 40'-2 30'-30'	29' + 5.U. Slot 20,0	PID 21'-9' 10'-5 10'	.U.		BORI Boring/We Date: Logged By Drilling Me F Seal: Ber Diameter: Diameter:	Advancing Opport 848 E. 2nd Ave Durango, Color NG LOG/MONITORING W 211 Number: $B + 0.5$ 8 - 19 - 2.0 The main of the second s	rtunity rado 81301 ELL COMPLET Project: Hare Project Number: 0178 Drilled By: MO-TE Sampling Method: Contri Grout: Bentonite Hole Diameter: 711 Total Depth: 45	YION DIAGRAM ⇒ 14M 20017 Drilling inuous 7'-0' Depth to Liquid: Depth to Water:
Penetration Resistance	Moisture Content	Vapor (ppm)	HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	 Soil/Rock Type 	Lithology/Ren	narks	See Wells low
	sl. Norst	1.9 41.6	No		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		XX	SW SW -SM	Brown, med. : silt. well gra No stain/o SAA. Lt. Prown frim Sand ws silt No slo SAA. Lt. Brown Slight Jassy o	der, no stain	A CONTRACT OF A

	-					-	-		Boring/Well #	PHO5	
	K F		Ads	and	ina Or	norti	in	ity	Project:	Hare 14M	
1		-	AUI	anci	ng Op	φυπ	11 11	LY	Project #	017820017	
6									Date	8-19-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lith	ology/Remarks	Well Completion
Pene	No. Der Der	200.2 89.0	od No Sta	San San San	(ft. bgs.) 15 16 17 18 19 20 21 22 23 24 25 26 27	Kun	Rec	SW -SM Sw -SM -SM -SM -SM	LJ. Brown W/ silt. No statm Odor SAA. N silty sam Lt-grapt No s/o Gray silty s graded. No	medium sand Well graded. , stright gassy o slo d. maroon sitt when and, med. well stain. Mod. odor.	Completion
	Deg	2268 2,005	No	@ 25.'311 1100	28 29 30 31 32 33 34 35 36		V	ML SM/ ML	Gray-durk Some cemen No stain. Interbedde sandstone and sand No statu,	gray sand sitt. tation. Still fissile. Mod-strong odor d silty sands/ s sy silts (siltstones mod. odor.	
	Dry	1,738	No		37	-		M	SAA. No	stain, sl-mod oder	

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Advancing Opportun									Boring/Well #	BHOS	
	Advancing Opportun							ity 🚽	Project:	Hare 14M	
								rty –	Project #	017820017	
E D	1	1						1	Date	8-19-20	
Penetratio Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
		170	. 10		37	Ш	1				
	K.	450	NU	مار	38	-		SM	SAA:		
	vy	174	No	1130	39 40		$\left \right $	pric	Dark goay saw Fissile. No	dy siltstn. stain, V_slt. odor,	
					41		1	:			
					42 -	1 1	VI	SM.	CAN T	aladaddad -	- ritil
					43				JANA I	111 amy	- Jonal
	Dry	23.4	NO		44			ML	- Dark gray sandy silts	s & silty savels.	+0
				1145	45		1		- Dense fn. sow	dy silt. No slo	40'
					46						
					47					1	
					48					-	
					49					-	
					50					-	
					51					-	
					52					-	
					53					1	
					54					+	
					55					+	
					56					1	.
					57					1	
					58					+	
					59 †						-

Elevation: 5,815 Gravel Pack: 10-20 Silica S Casing Type: Schedule 40 F Screen Type: Schedule 40 F	Detect and 43'- vc 33'- vc 43'-3	or: 32' + 2 -Stickup 3' ^{Slot:} 2 0,4	PID 6'-14' 5-15' 5-15'	-stuck	up	BORIN Boring/Wel Date: Logged By: Drilling Me F: Seal: Ben Diameter:	Advancing Oppor 848 E. 2nd Ave Durango, Colo NG LOG/MONITORING W I Number: BH06 3-19-20 Danny Burns thod: Iollow Stem/Air Rotary tonite 32'-26'+14'+2' Length: 2" Length: 0'	rtunity rado 81301 rado 81301 rell COMPLETIC Project: Hare 1 Project Number: 017820 Drilled By: MO-TE D Sampling Method: Continu Grout: Bentonite Hole Diameter: T Total Depth:	DN DIAGRAM 4M 0017 Drilling 10008 2'-0' Depth to Liquid: Depth to Water:
Penetration Resistance Moisture Content	Vapor (ppm) HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Rer	narks	Ven Wen Completion
Dry 3	7.4 No 29.1 No 27.2 No		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		X	SW- SW SM	bogging cuttin - only. SUE - install on - to soft som Brown medium w/ silt. We graded. No SAA. No SAA. No	ngs DE. well DE. per per sand U slo vo vo vo vo vo vo vo vo vo v	

			>			-			Boring/Well #	BHOR	2	
		-/	Adv	vanci	ina Or	nnorti	ıni	itv	Project:	Hare 14M		_
	L	-	7 107 7	QUI I OI		<i>p o i c</i>		· y	Project # Date	8-14-20		
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Complet	ion
					15	1				-	110	-
					16	-	V		Brown fr.	-med silty		NUUL C
							X	SW	Savel	<i>P</i>		
	Dry	52.1	No		18 - 19	-		-551	No 3	70		111111
						-	$\left(\right)$					
				1356	20	-						1010
					22	-	1	SW-	SAA	to a pay fr.		11111
			10		23	-	Y	1	silte cand	some cement.		
	Dry	8.4	No		24	-		SM -	Gray + mas	room soundy sitt.		1111 1111
					25	-	/ \	<i>ε</i> 1 μ	Fissile.	-	· / 5	11
					26	-				l lociel -		8
					27	-	V	< M	H. gray	sgruy interbea.		11
		46	A N		28			Ime	samply s	itt sta. t		1
	DM	7.0	No		29	-			V- M-SILI	reche Noslo		1
					30	-			Canol And Coly F			1
					31 _		\mathbb{N}					1
					32	-		SM	Gray silly commented y	1 th some t S.Sth. et fissile.		12.
	N	1,385	No		33	-		100	Gray saved	y silt stn.		. 8-
	Dry	,	1		34	-			No stam.	mod. odos.		e
				1350	35		-/		Dark	0	199 -7	.*
	Dry	1,432	Yes	8406 25-38	36	-	X	ML	Bense Fissil	e. Shi uy HC stain	I IIIII	یں۔ بر اور ا
			shiny		37				strong !	He odor!	1 2 .	S. 6

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			2						Boring/Well #	BHOG	
	h	-	Ad	iano	ina O	nnort	1117	ity	Project:	Hare 14M	
1	41	2	AU	allU	ny U	υρυτα		ily	Project #	017820017	
0	/							-	Date	8-19-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
Pen	Dery	22.6	No	1415 1415 1415 1415 1420	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59		Ret	Soi Stiller	Dark gray, Dense, fissi No stain, s SAA. No Gray silt Sovne bri Dunse, gray No slo	silly in sand. le- L-mod odor. S/O. In sand. wm. Nosja v. In sandysill	

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Elevation: 5,815 Gravel Pack: 10-20 Silica Sand Casing Type: Schedule 40 PVC Screen Type: Schedule 40 PVC	Detector:	PID			BORING Boring/Well N Date: Logged By: Drilling Metho Ho Seal: Bento Diameter: 2" Diameter: 2"	Advancing Opp 848 E. 2nd A Durango, Col GLOG/MONITORING GLOG/MONITORING GLOG/MONITORING GLOG/MONITORING GLOG/MONITORING BH07 8-20-20 Danny Burns d: Ilow Stem/Air Rotary mite Length: Length:	Project: Project: Project: Project Number: 017820 Drilled By: MO-TE I Sampling Method: Continu Grout: Bentonite Hole Diameter: Total Depth: U &	DN DIAGRAM 4M 0017 Drilling uous Depth to Liquid: Depth to Water:
Penetration Resistance Moisture Content Vapor (ppm)	HC Staining?	t Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/H	Remarks	Well Completion
SL Moist 31 Moist 1.7 Moist 1.7 Diry 2.1	No No	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14		X	SW -SM -SM -SM	Brown med. sa Well-graded. No stain, SAA. No s/o SAA. No s/o	nd w/ selt. /edor:	bayek Foll W/ Cuttings

	-	-							Boring/Well #	BH07	
	K		Adv	<i>ianc</i> i	na Or	norti	in	itv	Project:	Hare 14M	
		2	AUV	anu	ny op	pont		<i>Ly</i>	Project #	017820017	
C							1		Date	8-20-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
					15		5			-	
				BH	16 17	-	なべ	1	0	-	-
	Dry	7.8	No	C15-20	18	-	V	SU -SM	brown r Servid	web-coarse.	-
					19		Λ		Lield at	N. J.	E I
				0110	20	-	1		Willin Dr.	· NO SĮD	
					21	-		SW.SM	544		-
					22	-	V		Lt. brown to	gray for silly	-
	Dry	6.9	No		23	-		SM	fossile. 1	to s/o.	
					24						L I
					25	-	-	ML	Gray selly sar	ed. No sto	-
					26	-	11		SAA.	-	-
					27	-	V	SMI	Interbed	ded bray silty _	-
	Dry	3.1	No		28	_	1	IML	satter for	the sandy	
					²⁹	-			solt stra.	Kennent, but -	-
					30		-		trssue.	140 STO.	-
					31		\mathbb{V}				
					32				Dark grou	r sandy silt _	
	Dry	0.7	No		33			Me	tsiltstn		-
					34		$\left(\right)$		Mostly ce	mented but -	-
					35		-		41 mable / 415	Mile INV-10	
	Dru		Ne		36 -	+		ML	SAA N	12 Brown to be more -	-
			1.00		37				sundy si	It. No 5/0	-

1	ţį,	2	Ad	vanc	ing Oj	oporti	un	ity	Boring/Well # Project: Project # Date	BHD 7 Hare 14M 017820017	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	logy/Remarks	Well Completion
	Drj	0.3	No	BH 077 35-40 1010	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59			M	Dark grav fn. Dense, fissile, No well se	Sandy silt. No stamfodor. t. Backfill w/ Eultings	

Elevation: 5,815 Gravel Pack: 10-20 Silica S Casing Type: Schedule 40 P Screen Type:	and 4		+' 35- Slot:	PID	eup Cup		BORIN Boring/Wei Date: Logged By: Drilling Me H Seal: Bern Diameter: Diameter:	Advancing Oppor 848 E. 2nd Ave Durango, Colo. NG LOG/MONITORING W I Number: SH 08 8-20-20 Danny Burns thod: Iollow Stem/Air Rotary tonite 34'-32' Length: 2" Length: Color Length: Color Length: Color C	rado 81301 FLL COMPLET Project: Project Number: 01782 Drilled By: MO-TE Sampling Method: Contin Grout: Bentonite Hole Diameter: 71 Total Depth:	ION DIAGRAM 14M 20017 Drilling nuous 32'-0' Depth to Liquid: Depth to Water:
Schedule 40 P		ر 2 - 1	0.0	10"				2" 5	45	
Penetratio Resistanc Moisture Content	Vapor (ppr	HC Stainin	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Rer	narks	Well 5 Completion
Dry Dry	0.0	No		0 1 2 3 4 5 6 7 8 9 10 11		X	SW -SM -SM	Approx 10' lowe than pad. Brown med. = w/ silt. W No =10 SAA. No	r in elev. cand lell gr.	
Dey C).0	No		12 13 14 15		X	SW -SM	SAD. Ut.Brown fnm w/svitt. No	ed sand	

	-	-							Boring/Well #	BH08	
	K		Adu	anai	na Or	norti	m	the l	Project:	Hare 14M	
1		-	AUV	anci	ng Op	φυπ	1111	ιy	Project #	017820017	
	-	-							Date	8-20-20	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	i'i Litho	ology/Remarks	Well Completion
					15						1.14
					16	-	-1	6.	Lt. Brown san	nd white	4
					17	-	V	M.S.	- I - and when	more in safty savel.	¥ / /
	Dry	0.D	No		18 -	-	\wedge	SM	slightly den	se, but fissile.	f / /
					20	-			No star	in lodor	Ŧ
					21				it arous I	brown miked	¥ /
					22	-	V	SM	sandy silts Eissile but	+ stilly sands.	4
	Dry	0.0	No		23	-	A	1 M	No s/o	1	¥///
					24	-		ML	No sto	Groy.	¥/ //
					26					,	1 1
					27	-		6	Corre cand	e cilt N	¥ /
	Dry	0.0	No		28	-	X	A.	Some ceme	wt.	¥/ /
					29 -	-	$\left(\right)$	fre	No s	0	ŧ/ /
					31	-	-1		N L O		Í /
					32	-	V	me	Dense, Fissil	e Noslo	
	Dry	0.3	No		33	-	\bigwedge	EM	Gray situ F	n sand.	
					34	-		-	No si	0	
-			1		36	-		SM	Dark gray	fn. sandre sitt.	
	Dry		No		37	-		Im	+ silty	savel	

-		-	-				_		Boring/Well #	9 L) A C/	
1	K.	1	/						Project	Hare 14M	
1		9	Ad	<i>lanci</i>	ing Op	oporti	uni	ity 🛛	Project #	017820017	
					- 1				Date	8-20-70	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
	Deg	1412	No	BH D8 (-40)	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58			S SM ML	Dark graij silty fin som Fin. samply s sit. cerment. Gray funaro Silt. No	t gray inter, bed d danse, t ilts. F.ssile, but No stain, slt. odur. o slo	Slough backfoll to to
					59 Ŧ					-	

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Elevation: Detect 5,815 Detect Gravel Pack: 10-20 Silica Sand Casing Type: Schedule 40 PVC Screen Type: Schedule 40 PVC	or: PID	BH	BC Borin Date: Logge Drillin Seal: Diame	DRIN DRIN ng/Well ed By: ng Met H Benn eter: 2 eter:	Advancing Oppor 848 E. 2nd Ave Durango, Color NG LOG/MONITORING W I Number: BH09 &-20-20 Danny Burns thod: tollow Stem/Air Rotary tonite Length: 2" Length:	rtunity rado 81301 ELL COMPLETIC Project: Hare 1 Project Number: 017820 Drilled By: MO-TE I Sampling Method: Continu Grout: Bentonite Hole Diameter: Total Depth: 40 t	DN DIAGRAM 4M 0017 Drilling 10US Depth to Liquid: Depth to Water:
Penetration Resistance Moisture Content Vapor (ppm) HC Staining?	# pd un v Depth (ft. bgs.	Sample) Run	Recovery Soil/Rock	Type	Lithology/Ren	narks	Well Completion
Dry 0.3 No Dry 0.0 No Dry 0.0 No	$ \begin{array}{c} 0\\ 1\\ 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 13\\ 14\\ 15\\ \end{array} $		(-54 -54 -54 -54) M) N	H. Brown for sand W) STH. No S/O. Brown med so W/ STH. Well Gr. No	-med Wellgr.	Back fill W/ Cuthings

		Cal-manager	2						Boring/Well #	BHO9	
	h		Adv	anci	na Ar	norti	mi	ity 🛛	Project:	Hare 14M	
1		24	AUV	anu	ng op	porta		Ly	Project #	017820017	
9	-				<u> </u>			<u> </u>	Date	8-60-60	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithe	ology/Remarks	Well Completion
-	5.75				15					-	
					16		5		Brown W	ver - coarse	
					17	-	\mathbb{N}	SL)		all -	- 1
	Dry	0.0	No.		18	-	Ň	-SM	save w	No slo -	
					19	_	$\left \right $		-More d	ense.	- 1
					20		-				
					21		11		SAA. No S	0	L
					22	-	V	5W	Lt-gray Si	Ity fn-sand.	-
	Day	00	No		23		1	-5/19	Some cerner	t. Fissile. No so.	L I
	ירוע	0.0	100		24	-		SM	Dark brown	+ gray fu- sandy.	t l
					25		L	pic	SI DE. DERS.	et 1.4 =[.	L I
					26	-	V	SMY	Lt-gray t	dark gray fn.	-
					27 -		1	1.0	Savary Sitt.	FISSIR) Comunica.	+
	Dry	0.0	No		28	-			No slo.	aroon silt	Ì
					29				Ir sand	- No sh	-
					20	-	11	pur	71, 500100		†
-				-	- 30	H	+			-	t l
				BH	31		M			1	‡
				09	32 _	H			Dark Grou	wn t gray	+
-			1	0	32			441	V.fn. sa	ndy silt.	t l
-	Der	0.0	100	30'	- 35	H	$\langle \rangle$	ML	Nocla		t
	1 '			-35	34	t l			100 200	1	I
				1300	35		-		No slo.	Tr. saved.	+
	DM		No		36		X	ML	SAA. No	0 5/0	‡ _
					37		1/	1		cont d V	1

1	FI.	2	Ad	vanc	ing O _l	oporti	un	ity	Boring/Well # Project: Project # Date	BH09 Hare 14M 017820017	-7 <i>(</i>)
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithol	ogy/Remarks	Well Completion
	Dry	0.0	No	BH 29 35'-40' 1315	37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59		X	ML	Gray Fu- No -No in observe borehole	sandy sitt. s/o. paets d, backfill w/ cuttings	

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Elevation: 5,815 Gravel Pack: 10-20 Silica Sa Casing Type: Schedule 40 P Screen Type: Schedule 40 P	Detector and 38 VC VC	- 26.2 Slot: 0.01	PID 0"			BORIN Boring/Well Date: Logged By: Drilling Met H Seal: Ben Diameter: Diameter:	WSP USA INC 848 East 2nd Avenue Durango, CO 81301 G LOG/MONITORING W Number B H 1 D 7-14-21 Cecce Hereico Dommy Burns hod: ollow Stem/Air Rotary tonite $265-22^{\circ}$ 2° Length 30	/ELL COMPLETIC Project: Hare Project Number: 01782 Drilled By: MO-TE 1 Sampling Method: Contin Grout: Bentonite Hole Diameter: 5-5 Total Depth: 40	ON DIAGRAM 14 0017 Drilling uous Depth to Liquid: Depth to Water:
Penetration Resistance Moisture Content	Vapor (ppm) HC Staining?	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Re	marks	Well Completion
 	1.2	BH10 0-51 BH10			X	SU- SM	ton - light gray, f grans in silty r wated	in to matern	
 	2,0	BHIO BHIO	/		X	5M	very fine to medi ton, mansolida te	um grained, L. some grave	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Py	0.9		13 14 15	- - - - - -	X	1001	257 < +425		1 I I I I I I I I I I I I I I I I I I I

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WSP USA INC 848 East 2nd Avenu Durango, CO 81301		Boring/Well # Project Project # Date	Hare 14 017820017	
Penetration Resistance Moisture Content Vapor (ppm)	## Joepth Sample Sample With South S	Litho	ology/Remarks	Well Completion
	15 16 5-20 17 18 19 5 M	ntact core u on antside. Malium gra Fine sands minerali Zakion Well cariolida No 5/0	ith warry appearence y, silt to very w/white calcareans tal	
 	$ \begin{array}{c} 20 \\ BH0 \\ 21 \\ 20 \\ 20 \\ 20 \\ 20 \\ 22 \\ 23 \\ 24 \\ 25 \\ \end{array} $	Medium gray Sout homog Core pret No St Filghty darler Silt, laminak N S/D	5:1+-very fine erous. Nice stact consolidated 10 7mg brown to purple ed, \$55:10	
Dry 1.2 N	26 Q 27 25-30 28 29	medium gray silt to very N 6/ Blown - ma class + silts	, Inninated Are 0 10 10 10 10 10 10 10 10 10 10 10 10 1	
0"7 p.8 ^	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	medium gruy slightly more fissile s:1 moderately	to bown to pay, where appearence t t clays Consolidated	

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WSP USA INC 848 East 2nd Avenue Durango, CO 81301						_	£	Boring/Well # Project: Project # Date	Hare 14 017820017		
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Litho	ology/Remarks	Well Completion
	Moist	vapo O.7	Staini	CH PO Stampl	Joephin (ft. bgs.) 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	Run	Recov	Sould Typ	Lithe and. gray, LACO Silt No malerchely cons silt to clays TD & 40 well set e	sology/Remarks	Completion Completion
					58 _	+- +- +-					11/14/2022
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Elevation 5,815 Gravel Pack 10-20 Silica Sand Casing Type Schedule 40 PVC Screen Type Schedule 40 PVC	Event: PID $42 - 30^{\circ}$ Slot: 0.010"	WSP USA INC 848 East 2nd Avenue Durango, CO 81301 BORING LOG/MONITORING W Boring/Well Number 13 H Date 9-14-21 Logged By Receever Hangton Danny Burns Drilling Method Hollow Stem/Air Rotary Seal Bentonite 30' - 25 Diameter 2" Length 25	ELL COMPLETION DIAGRAM Project Hare 14 Project Number 017820017 O17820017 Drilled By MO-TE Drilling Sampling Method Continuous Grout Bentonite Hole Diameter Depth to Liquid Total Depth Depth to Water
Penetration Resistance Moisture Content Vapor (ppm)	HC Staining: Sample # Recovery Recovery	ZJiog Lithology/Ren	narks Well Completion
0.5 N	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Sw- Sw- Sm Sw- Sm No S/O Sw- Sm fan, ned - coarse Sw- Sm parvel 25% > filt Sw- Sm parvel 25% > filt Sw- Sm Porty Forted with No S/O	~ 25% 5'11 w/ some w/ some w/ some 1 10021020021120021000000

Boring/Well # WSP USA INC Hare 14 848 East 2nd Avenue Project: 017820017 Durango, CO 81301 Project Date Penetration Resistance Moisture Content Staining Soil/Rock Type Recovery Sample # Depth Sample Well Vapor (ppm) Lithology/Remarks (ft. bgs.) Run Completion 15 16 17 SWton, med-conse, mod-sorted 2990 > 5:1+ No 5/0 18 5M Λ 19 D.2Dry <u>2</u>0 and gray silt - very Fine and well consistented, white alcoreous 21 54 22 ungranthy 0.4 Dry N No S/O 23 24 25 to SIT purple light gray, manstrokel, 51+ - v Anc Sonds, Pt ssile 26 27 medium gray silt - v fine homogenous, well consolidated 5M 2.3 Ory 28 way texture on outer core 29 30 31 to the silt, sight ado, 32 SM pg N 33 780 with flecks of curbonceass maternal 34 55507 odor, no star Øly 35 36 99 1 37

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	WSP U	SA INC		_					Boring/Well #	B H 11	
	848 East 2nd Avenue					Project	Hare 14				
	Durang	o, CO 8	1301						Project #	017820017	(<u> </u>
									Date	9-14-21	
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithe	ology/Remarks	Well Completion
					37		\mathbf{k}		Chest ador.	monsplaghed Silt	
	1						W.		to V Ane saids	i. no stay	14 14
					38			SM	-		
	Dry					-		1.1	More consolidi	nted, medium gray	
	17	205	N		39 -	-	III.		111 110 5/0		
	{				40	-	$ \setminus$	L			
	1						⊬≯	ſ	4.		+
	1				41	-	IX.		neo:nm gr	my silt to V time	
	Dry	18.0	$ \mathcal{N} $				M	51	Sour moder	tely consultated	
					42	-	μ		no s/	0	and in
					12	-	Κ/		1		EVE
		22-					IY.				+
	1	0.1			44	•	IA -				. <u>†</u>
]						IN		TOPY	5' slough to 42	'T
					45 _		\square	•		1	+
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					48	4					+
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	1				'´ -						+ 1
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					51 -	H					+
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$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Elevation: Detector: 5,815 Gravel Pack: 10-20 Silica Sand 40-6 - 30 Casing Type: Schedule 40 PVC Screen Type Slot: Schedule 40 PVC Control of the state of t	PID 4	WSP USA INC 848 East 2nd Avenue Durango, CO 81301 BORING LOG/MONITORING W Boring Well Number FH 12 Date: 9-15 - 21 Logged By Ceece Hasse Drilling Method Hollow Stem/Air Rotary Seal Bentonite 30- 24.5 Diameter 2" 32- 40 + 5.0. Diameter 2" 6	/ELL COMPLETION DIAGRAM Project: Hare 14 Project Number 017820017 Drilled By: MO-TE Drilling Sampling Method Continuous Grout: Bentonite Hole Diameter: H Total Depth; 1 Uppth to Water 43
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Penetration Resistance Moisture Content Vapor (ppm) HC Staining? Sample #	Depth (ft. bgs.) Run	Lithology/Res	marks Well Completion
Ory QO N 10 10 10 10 10 10 10 10 10 10	Dry 0.8 N 0-2 BH BH E 540	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	sur to, Fore-redium y w/ occasional course, SM No 510	railwed sensels m2570 Fines
Dry 0.0 N 10-16 13 14 15 N 10-16 13 15 N 10-16 15 15 N 10-16 15 N 10-1	Cry QO N	9 10 11	SW ton, V Fine - and gr SM unconsultated m 25 NO 500	ahed, 78 Fings
	Dry 0.0 N 10-1	2 12 1 3 13 1 14 1 15	tan, med:um- coor nologi silts, modorat no s/o	rse grained, dy Sarted

WSP USA INC Boring/Well # Project Hare 14 848 East 2nd Avenue Project # 017820017 Durango, CO 81301 Date Penetration Resistance Moisture Content Staining Soil/Rock Type Recovery Sample # Depth Sample Well Vapor (ppm) Lithology/Remarks Run (ft. bgs.) Completion 15 PA BHP 16 e 17 13-20 unconsulidated, ton, med-coarse 10% > Pries, mod. sorted 5W-54 18 pr, 0.0 N 19 Fine-ond, -25%- Fines SM 20 21 BH12 for - It brown unconsul., fore-and grand, ~ 25% fores 22 57 27-25 23 "off wht - It gray, mod - consol-med mined in silty matrix, mich flucks visible No S/O 0.0 I) N 4w 24 SM 25 some as about 26 med-gray to marcon laminated selt, clays + v fore saids BH 12 27 25-70 NO 5/0 outside of care has warry 54 N 0.0 Dry 28 texture, not to well consid. 29 30 BIFIL 31 30-35 monsolidated, med-dark gray 32 41+ 33 N 96 snath nuist well consult-danted, www.y texture on core. med pany sitt to clay No 510 34 51 35 36

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WSP USA INC Boring Well # 3/+ /2-	
848 East 2nd Avenue Project Hare 14	
Durango, CO 81301 Project # 017820017	
Date	
Penctration Resistance Content	Well Completion
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Elevation 5,815 Gravel Pack: 10-20 Silica Sand Casing Type. Schedule 40 PVC	Pitector: PID 41-30	WSP USA INC 848 East 2nd Avenue Durango, CO 81301 BORING LOG/MONITORING W Boring Well Number 014 7 Date 9-15-21 Logged By Date 9-15-21 Logged By Decere Hanson Donny-Durns Drilling Method Hollow Stem/Air Rotary Seal Bentonite 30-24! Diameter 2" Cerefither 337558,	ELL COMPLETION DIAGRAM Project Hare 14 Project Number 017820017 Drilled By MO-TE Drilling Sampling Method Continuous Grout: Bentonite Hole Diameter Depth to Liquid
Schedule 40 PVC	Slot: 0.010"	Diameter Leingth: 10	Total Depth
Penetration Resistance Moisture Content Vapor (ppm)	Covery Recovery Recovery	Lithology/Ren	well Completion
ar 8.7 3.9	$N = \begin{bmatrix} 0 & 0 \\ 0 & 0 $	SW- SW- SM- SM SM Ton, Fire to course, 25% > 5:15 NO	unconsol. 5/0
Dr7 2.0	N 10 10 11 11 12 13 14 15	SW- Sm fine to care Sm praved ~ 10% sil No S,	t + - + - + + + + + + + + + + + +

13H 13 WSP USA INC Boring/Well # Hare 14 848 East 2nd Avenue Project; 017820017 Durango, CO 81301 Project # 9-15 Date 21 Penetration Resistance Moisture Content Staining Sample # Soil/Rock Type Recovery Vapor (ppm) Depth Sample Well Lithology/Remarks Run Completion (ft. bgs.) 15 16 BH 13 17 15-20 the, Pine-course grand w ~25%. silt, unconsubscied. N S/O 18 ςv Dry 57 2.2 N 19 tractions to more consolidated, 20 SM 21 BHIJ unconsolidated, prey/green, la. silt to v Fine Smd, no 5/0 mina tel 20-25 22 23 " considered care with waxy inter Dry 0.7 N texture. silt + clays to medium 24 grind firer down section 16 510 25 26 34 (3 unconstidated sitt + clays 2530 27 4C Considered core with wary texture druk gry to purplish . sills telays iry N 28 0.5 29 some more flecks visible 30 31 unconsolidate off-white to 3H 13 It gray , laminated sing self 32 54 51+ nuist 6.5 5/0 \mathcal{N} 70-37 33 consolidated when core . Mil gay homosenous silt & clays 34 SC 35 36 1 37

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$\begin{array}{c c c c c c c c c c c c c c c c c c c $	WSP USA INC 848 East 2nd Avenue Durango, CO 81301				Boring/Well # Project Project #	13H 13 Hare 14 017820017	
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$\begin{array}{c} 40 \\ 41 \\ 42 \\ 43 \\ 44 \\ 44 \\ 44 \\ 45 \\ 46 \\ 47 \\ 48 \\ 49 \\ 50 \\ 51 \\ 52 \\ 53 \\ 56 \\ 57 \\ 58 \end{array}$	Sta Trans	37 34 (7 35-40 39		SM SC	unions librated 1: sind N 5/0 consolidated c nedium gray silt of clays	t gray silt to v fine ore w/waxy letter noticed with mrain	
		$ \begin{array}{c} 40\\ 41\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 49\\ 50\\ 51\\ 52\\ 53\\ 54\\ 55\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 57\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56\\ 56$		SC	Silt & Clay's mod conside t Marosa N TDEC	N 5/0 motech nul. 9mg sit + chay 5/0 14 Q 1345	

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ENCLOSURE B – LABORATORY ANALYTICAL REPORTS


August 26, 2020

Clara Cardoza HILCORP ENERGY PO Box 4700 Farmington, NM 87499 TEL: (505) 564-0733 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2008986

RE: Hare 14M

Dear Clara Cardoza:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/19/2020 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Hare 14M

2008986-001

Project:

Lab ID:

Analytical Report Lab Order 2008986

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/26/2020 Client Sample ID: BH01@ 0'-5' Collection Date: 8/18/2020 8:20:00 AM

Received Date: 8/19/2020 7:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGAI	NICS					Analyst: BRM
Diesel Range Organics (DRO)	1500	99		mg/Kg	10	8/21/2020 3:47:49 PM
Motor Oil Range Organics (MRO)	ND	500	D	mg/Kg	10	8/21/2020 3:47:49 PM
Surr: DNOP	0	30.4-154	S	%Rec	10	8/21/2020 3:47:49 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	8/26/2020 1:06:47 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: DJF
Benzene	3.8	1.2		mg/Kg	50	8/21/2020 12:31:51 PM
Toluene	120	2.4		mg/Kg	50	8/21/2020 12:31:51 PM
Ethylbenzene	33	2.4		mg/Kg	50	8/21/2020 12:31:51 PM
Xylenes, Total	490	4.8		mg/Kg	50	8/21/2020 12:31:51 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	50	8/21/2020 12:31:51 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	50	8/21/2020 12:31:51 PM
Surr: Dibromofluoromethane	113	70-130		%Rec	50	8/21/2020 12:31:51 PM
Surr: Toluene-d8	94.4	70-130		%Rec	50	8/21/2020 12:31:51 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: DJF
Gasoline Range Organics (GRO)	8600	240		mg/Kg	50	8/21/2020 12:31:51 PM
Surr: BFB	110	70-130		%Rec	50	8/21/2020 12:31:51 PM

Matrix: SOIL

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

Page 1 of 9

Hare 14M

Project:

Analytical Report Lab Order 2008986

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/26/2020 Client Sample ID: BH01@ 38'-40' Collection Date: 8/18/2020 10:40:00 AM

Lab ID: 2008986-002 Matrix: SOIL Received Date: 8/19/2020 7:55:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 9.7 mg/Kg 1 8/20/2020 3:49:14 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 8/20/2020 3:49:14 PM Surr: DNOP 154 30.4-154 S %Rec 1 8/20/2020 3:49:14 PM **EPA METHOD 300.0: ANIONS** Analyst: CAS Chloride ND 8/26/2020 1:44:02 AM 60 mg/Kg 20 **EPA METHOD 8260B: VOLATILES SHORT LIST** Analyst: DJF Benzene ND 0.025 mg/Kg 8/21/2020 1:00:27 PM 1 Toluene 0.10 0.050 mg/Kg 8/21/2020 1:00:27 PM 1 Ethvlbenzene ND 0.050 mg/Kg 1 8/21/2020 1:00:27 PM Xylenes, Total 0.16 0.099 mg/Kg 1 8/21/2020 1:00:27 PM Surr: 1.2-Dichloroethane-d4 99.5 70-130 %Rec 1 8/21/2020 1:00:27 PM Surr: 4-Bromofluorobenzene 102 70-130 %Rec 1 8/21/2020 1:00:27 PM Surr: Dibromofluoromethane 106 70-130 %Rec 1 8/21/2020 1:00:27 PM Surr: Toluene-d8 104 70-130 %Rec 1 8/21/2020 1:00:27 PM **EPA METHOD 8015D MOD: GASOLINE RANGE** Analyst: DJF Gasoline Range Organics (GRO) ND 8/21/2020 1:00:27 PM 5.0 mg/Kg 1

107

70-130

%Rec

1

8/21/2020 1:00:27 PM

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

Qualifiers:

Surr: BFB

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
 H Holding times for preparation or analysis exceed.
- H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- ND
 Not Detected at the Reporting Limit

 PQL
 Practical Quanitative Limit
- 2L Practical Quantitative Linit
- 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

Page 2 of 9

Analytical Report

Hall Environmental Analysis Laboratory, Inc.

Lab Order 2008986

Date Reported: 8/26/2020

CLIENT:	HILCORP ENERGY
Project:	Hare 14M

2008986-003

Lab ID:

Client Sample ID: BH02@ 30'-35' Collection Date: 8/18/2020 12:30:00 PM Received Date: 8/19/2020 7:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	8/20/2020 1:40:00 PM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	8/20/2020 1:40:00 PM
Surr: DNOP	117	30.4-154	%Rec	1	8/20/2020 1:40:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	59	mg/Kg	20	8/26/2020 1:56:26 AM
EPA METHOD 8260B: VOLATILES SHOR	T LIST				Analyst: JMR
Benzene	ND	0.019	mg/Kg	1	8/20/2020 9:54:48 AM
Toluene	0.054	0.039	mg/Kg	1	8/20/2020 9:54:48 AM
Ethylbenzene	ND	0.039	mg/Kg	1	8/20/2020 9:54:48 AM
Xylenes, Total	0.096	0.078	mg/Kg	1	8/20/2020 9:54:48 AM
Surr: 1,2-Dichloroethane-d4	99.4	70-130	%Rec	1	8/20/2020 9:54:48 AM
Surr: 4-Bromofluorobenzene	99.2	70-130	%Rec	1	8/20/2020 9:54:48 AM
Surr: Dibromofluoromethane	105	70-130	%Rec	1	8/20/2020 9:54:48 AM
Surr: Toluene-d8	102	70-130	%Rec	1	8/20/2020 9:54:48 AM
EPA METHOD 8015D MOD: GASOLINE R	ANGE				Analyst: JMR
Gasoline Range Organics (GRO)	ND	3.9	mg/Kg	1	8/20/2020 9:54:48 AM
Surr: BFB	106	70-130	%Rec	1	8/20/2020 9:54:48 AM

Matrix: MEOH (SOIL)

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
- н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 3 of 9

Analytical Report

Hall Environmenta	l Analysis	Laboratory,	Inc.
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Lab Order 2008986

Date Reported: 8/26/2020

CLIENT:	HILCORP ENERGY
Project:	Hare 14M

2008986-004

Lab ID:

Client Sample ID: BH02@ 38'-40' Collection Date: 8/18/2020 1:00:00 PM

Matrix: MEOH (SOIL) Received Date: 8/19/2020 7:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	8/20/2020 2:04:20 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/20/2020 2:04:20 PM
Surr: DNOP	117	30.4-154	%Rec	1	8/20/2020 2:04:20 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	59	mg/Kg	20	8/26/2020 2:08:50 AM
EPA METHOD 8260B: VOLATILES SHORT	LIST				Analyst: JMR
Benzene	ND	0.018	mg/Kg	1	8/20/2020 10:23:25 AM
Toluene	ND	0.036	mg/Kg	1	8/20/2020 10:23:25 AM
Ethylbenzene	ND	0.036	mg/Kg	1	8/20/2020 10:23:25 AM
Xylenes, Total	ND	0.073	mg/Kg	1	8/20/2020 10:23:25 AM
Surr: 1,2-Dichloroethane-d4	98.6	70-130	%Rec	1	8/20/2020 10:23:25 AM
Surr: 4-Bromofluorobenzene	104	70-130	%Rec	1	8/20/2020 10:23:25 AM
Surr: Dibromofluoromethane	105	70-130	%Rec	1	8/20/2020 10:23:25 AM
Surr: Toluene-d8	103	70-130	%Rec	1	8/20/2020 10:23:25 AM
EPA METHOD 8015D MOD: GASOLINE RA	ANGE				Analyst: JMR
Gasoline Range Organics (GRO)	ND	3.6	mg/Kg	1	8/20/2020 10:23:25 AM
Surr: BFB	105	70-130	%Rec	1	8/20/2020 10:23:25 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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 4 of 9

Client: Project:	HILCORP EN Hare 14M	ERGY								
Sample ID: MB-54676 SampType: mblk TestCode: EPA Method 300.0: Anions										
Client ID: PBS		Batch ID:	54676	RunNo: 71336						
Prep Date: 8/25/2	2020 Anal	lysis Date:	8/25/2020	SeqNo: 2490791			Units: mg/Kg			
Analyte	Re	sult PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1	.5							

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

2008986

26-Aug-20

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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

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2008986

26-Aug-20

WO#:

Client:

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

HILCORP ENERGY

Project:	Hare 14N	Л									
Sample ID:	lcs-54452	SampType: LCS4 TestCode: EPA Method 8260B: Volatiles Short List									
Client ID:	BatchQC	Batc	h ID: 54	452	F	RunNo: 7	1205				
Prep Date:	8/16/2020	Analysis [Date: 8/	19/2020	S	SeqNo: 24	484058	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.94	0.025	1.000	0	94.0	80	120			
Toluene		1.0	0.050	1.000	0	103	80	120			
Ethylbenzene		1.0	0.050	1.000	0	101	80	120			
Xylenes, Total		3.1	0.10	3.000	0	104	80	120			
Surr: 1,2-Dich	nloroethane-d4	0.50		0.5000		99.8	70	130			
Surr: 4-Bromo	ofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromo	ofluoromethane	0.55		0.5000		110	70	130			
Surr: Toluene	e-d8	0.51		0.5000		102	70	130			
Sample ID:	Sample ID: mb-54452 SampType: MBLK TestCode: EPA Method 8260B: Volatiles Short List										
Client ID:	PBS	Batc	h ID: 54	452	RunNo: 71205						
Prep Date:	8/16/2020	Analysis [Date: 8/	19/2020	S	BeqNo: 24	484061	Units: mg/K	g		
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-Dich	nloroethane-d4	0.51		0.5000		103	70	130			
Surr: 4-Bromo	ofluorobenzene	0.51		0.5000		103	70	130			
Surr: Dibromo	ofluoromethane	0.56		0.5000		111	70	130			
Surr: Toluene	e-d8	0.53		0.5000		105	70	130			
Sample ID:	mb-54551	Samp	Гуре: МЕ	BLK	TestCode: EPA Method 8260B: Volatiles Short List						
Client ID:	PBS	Batc	h ID: 54	551	F	RunNo: 7 '	1232				
Prep Date:	8/19/2020	Analysis [Date: 8/	20/2020	S	SeqNo: 24	485082	Units: mg/K	g		
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-Dich	nloroethane-d4	0.51		0.5000		102	70	130			
Surr: 4-Bromo	ofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromo	ofluoromethane	0.54		0.5000		109	70	130			
Surr: Toluene	e-d8	0.52		0.5000		103	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

Page 7 of 9

26-Aug-20

Client: Project:

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

HILCORP ENERGY
Hare 14M

Sample ID: Ics-54551	ample ID: Ics-54551 SampType: LCS4 TestCode: EPA Method						8260B: Volat	iles Short	List	
Client ID: BatchQC	Batch	n ID: 545	551	F	RunNo: 7	1232				
Prep Date: 8/19/2020	Analysis D)ate: 8/2	20/2020	SeqNo: 2485083			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.8	80	120			
Toluene	1.0	0.050	1.000	0	99.9	80	120			
Ethylbenzene	0.95	0.050	1.000	0	94.6	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.4	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		107	70	130			
Surr: Dibromofluoromethane	0.56		0.5000		113	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			

- Analyte detected in the associated Method Blank в
- Е
- Р Sample pH Not In Range
- Reporting Limit RL
- Value above quantitation range
- J Analyte detected below quantitation limits

PQL Practical Quanitative Limit % Recovery outside of range due to dilution or matrix

Holding times for preparation or analysis exceeded

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Not Detected at the Reporting Limit

Qualifiers:

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ND

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Page 8 of 9

WO#: 2008986

26-Aug-20

Client:

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

HILCORP ENERGY

Project: Hare 14	М								
Sample ID: Ics-54452	SampType: L	CS	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline	Range	
Client ID: LCSS	Batch ID: 5	4452	R	lunNo: 7 1	1205				
Prep Date: 8/16/2020	Analysis Date:	8/19/2020	S	eqNo: 24	484164	Units: mg/k	٢g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23 5.0	25.00	0	92.5	70	130			
Surr: BFB	520	500.0		103	70	130			
Sample ID: mb-54452	SampType: N	IBLK	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline	Range	
Client ID: PBS	Batch ID: 5	4452	R	lunNo: 7 1	1205				
Prep Date: 8/16/2020	Analysis Date:	8/19/2020	S	eqNo: 24	484167	Units: mg/k	٢g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND 5.0)							
Surr: BFB	520	500.0		104	70	130			
Sample ID: mb-54551	SampType: N	IBLK	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline I	Range	
Client ID: PBS	Batch ID: 5	4551	R	lunNo: 7 1	1232				
Prep Date: 8/19/2020	Analysis Date:	8/20/2020	S	eqNo: 24	485108	Units: mg/h	٢g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND 5.0)							
Surr: BFB	520	500.0		103	70	130			
Sample ID: Ics-54551	SampType: L	cs	Tes	tCode: EF	PA Method	8015D Mod:	Gasoline I	Range	
Client ID: LCSS	Batch ID: 5	4551	R	lunNo: 7 1	1232				
Prep Date: 8/19/2020	Analysis Date:	8/20/2020	S	eqNo: 24	485109	Units: mg/k	٢g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24 5.0	25.00	0	94.3	70	130			
Surr: BFB	530	500.0		106	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

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2008986

26-Aug-20

Page	83	0	f 179
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Client Name: HILCORP ENERGY Received By: Cheyenne Cason Completed By: Isaiah Ortiz Reviewed By: JR S(19120	Work Order 8/19/2020 7:5 8/19/2020 8:1	r Number: 3	2008	3986			Desther 4
Received By: Cheyenne Cason Completed By: Isaiah Ortiz Reviewed By: JR S(19(20)	8/19/2020 7:5 8/19/2020 8:1	55:00 AM					ксрию: 1
Completed By: Isaiah Ortiz Reviewed By: JR 8(19(20	8/19/2020 8:1						
Reviewed By: JR 8/19/20		5:23 AM			I	20	24
Chain of Custody							
1. Is Chain of Custody complete?		,	Yes	~	No		Not Present
2. How was the sample delivered?		<u>(</u>	Cour	rier			
Log In							
3. Was an attempt made to cool the samples?		Y	Yes	~	No		NA 🗔
4. Were all samples received at a temperature of	⁵ ≥0° C to 6.0°	°C Y	Yes		No		
5. Sample(s) in proper container(s)?		1	Yes		No		
6. Sufficient sample volume for indicated test(s)?	6	Y	/es	~	No		
7. Are samples (except VOA and ONG) properly	preserved?	Y	/es	~	No		
8. Was preservative added to bottles?		Y	les		No	~	NA 🗌
9. Received at least 1 vial with headspace <1/4" f	for AQ VOA?	Y	/es		No		NA 🗹
10. Were any sample containers received broken?	?	1	Yes		No	~	# of preserved
11. Does paperwork match bottle labels?		Y	/es		No		bottles checked for pH:
(Note discrepancies on chain of custody)						_	(<2/or >12 unless noted)
2. Are matrices correctly identified on Chain of Cu	ustody?	Y	'es		No	Ľ	Adjusted?
3. Is it clear what analyses were requested?		Y	les	~	No		Gun aliala
4. Were all holding times able to be met? (If no, notify customer for authorization.)		Y	es	~	No		Checked by: CIVESTELLA
Special Handling (if applicable)							
15. Was client notified of all discrepancies with thi	is order?	3	Yes		No		NA 🔽
Person Notified:		Date:	-			-	
By Whom:		Via:	eMa	ail 🗌 Pl	hone 🗌	Fax	In Person
Regarding:							
Client Instructions:							
16. Additional remarks:							
17 Cooler Information							

Page 1 of 1

Client: Hilcorp AHn: Clara Mailing Address:	Energy Company Cardoza	Project #:	d Dire: 48 1 d Direuse Line: Line:	4 M	HALL ENVIRONMENTAL ANALYSIS LABORATOR www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107				L YS									
Phone #:						-			1	A	naly	sis	Req	uest				
email or Fax#: CCC	rdoza@hilcorp.com	n Project Man	ager:	.0	1)	0					04			nt)				
QA/QC Package:		LTE-	Danny	Durns	802	MR	B's		MS		4, 5			bse				
Standard	Level 4 (Full Validation)	7	01-570-	4727	3's (10	PO		OSI		4		1	nt/A				
Accreditation:	Compliance	Sampler:	D. Burn	S	TME	DF/	082	,	827		102			ese				
	ner	On Ice:	1 Yes	□ No		ß	es/8	504	or	S	3,		(YO	(Pr				
		# of Coolers	Vinatudina CDVS 7	1+12-2-2	IBI) D D	licid	poq	3310	Aeta	PZ	(A	Ni-V	orm				
Date Time Matrix	Sample Name	Container	Preservative	HEAL No.,	STEX / W	PH:8015	081 Pest	EDB (Met	AHs by {	RCRA 8 N	31, F., Br,	260 (VO	270 (Ser	otal Colif				
S.18-20 0822 Sail	BHOLDO'-5'	le Haa	(co.)	00-100	N.	V	ω		<u>-</u>	LL N	Y	8	8	-	-	-		
1 101101	PHOLO28 Jini	107	1001	007	\sim	-		-	-	-	~	-	-	-	-		\square	\vdash
1040	BTU - 20- 40			002	4			-	_	_			-			_		
1230	151702(230-35			003						_				_				
1300	BH02@38'-40'			004						_								
V 1330 V	BH02@40'-45'	V	V	005	V	N					4							
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Date: Time: Relinqu 8-18-90 2.30	ished by:	Redeived by:	Via:	Date Time	Rem	narks	: cc	: di	nen	cm ms	ene.	1te	ite nv.	COW	. ec n			
Date Time Doling	ishou by.	neceived by.	vid. ()	Date Time	F	OK	N	Dr	UZ	10	40	-4	>	w	ET1	19-11	Da.	1



September 01, 2020

Clara Cardoza HILCORP ENERGY PO Box 4700 Farmington, NM 87499 TEL: (505) 564-0733 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2008B74

Dear Clara Cardoza:

RE: Hare 14M

Hall Environmental Analysis Laboratory received 10 sample(s) on 8/21/2020 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Hare 14M

2008B74-001

Project:

Lab ID:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH03@ 5'-10' Collection Date: 8/18/2020 2:40:00 PM Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE O	RGANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	8/25/2020 8:25:35 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/25/2020 8:25:35 PM
Surr: DNOP	155	30.4-154	S	%Rec	1	8/25/2020 8:25:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2020 9:38:34 PM
Surr: BFB	98.8	75.3-105		%Rec	1	8/24/2020 9:38:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/24/2020 9:38:34 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2020 9:38:34 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2020 9:38:34 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/24/2020 9:38:34 PM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	8/24/2020 9:38:34 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	59		mg/Kg	20	8/29/2020 1:53:36 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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 1 of 12

Hare 14M

2008B74-002

Project:

Lab ID:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH03@ 35'-40' Collection Date: 8/18/2020 3:30:00 PM Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM **D** 1/ DI Oral Unita DE Data Analanad

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	8/25/2020 8:35:29 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/25/2020 8:35:29 PM
Surr: DNOP	77.0	30.4-154	%Rec	1	8/25/2020 8:35:29 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/24/2020 11:12:10 PM
Surr: BFB	98.6	75.3-105	%Rec	1	8/24/2020 11:12:10 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2020 11:12:10 PM
Toluene	ND	0.050	mg/Kg	1	8/24/2020 11:12:10 PM
Ethylbenzene	ND	0.050	mg/Kg	1	8/24/2020 11:12:10 PM
Xylenes, Total	ND	0.10	mg/Kg	1	8/24/2020 11:12:10 PM
Surr: 4-Bromofluorobenzene	101	80-120	%Rec	1	8/24/2020 11:12:10 PM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	60	mg/Kg	20	8/29/2020 2:06:00 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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 2 of 12

Project: Hare 14M

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH04@ 10'-15' Collection Date: 8/19/2020 8:40:00 AM

Lab ID: 2008B74-003	Matrix: SOIL	Rece	eived Date:	8/21/2	020 8:00:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/25/2020 8:45:24 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/25/2020 8:45:24 PM
Surr: DNOP	87.7	30.4-154	%Rec	1	8/25/2020 8:45:24 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/24/2020 11:35:36 PM
Surr: BFB	97.7	75.3-105	%Rec	1	8/24/2020 11:35:36 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2020 11:35:36 PM
Toluene	ND	0.049	mg/Kg	1	8/24/2020 11:35:36 PM
Ethylbenzene	ND	0.049	mg/Kg	1	8/24/2020 11:35:36 PM
Xylenes, Total	ND	0.099	mg/Kg	1	8/24/2020 11:35:36 PM
Surr: 4-Bromofluorobenzene	103	80-120	%Rec	1	8/24/2020 11:35:36 PM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	60	mg/Kg	20	8/29/2020 2:18:25 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
- D Sample Diluted Due to Matrix
 U Ualding times for proposition on englusis exceed.
- 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

Page 3 of 12

Hare 14M

2008B74-004

Project:

Lab ID:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH04@ 35'-40' Collection Date: 8/19/2020 9:20:00 AM Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM -14 DI Onel IInte DE ъ .

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	8/25/2020 8:55:20 PM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	8/25/2020 8:55:20 PM
Surr: DNOP	83.5	30.4-154	%Rec	1	8/25/2020 8:55:20 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/24/2020 11:58:58 PM
Surr: BFB	97.2	75.3-105	%Rec	1	8/24/2020 11:58:58 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/24/2020 11:58:58 PM
Toluene	ND	0.050	mg/Kg	1	8/24/2020 11:58:58 PM
Ethylbenzene	ND	0.050	mg/Kg	1	8/24/2020 11:58:58 PM
Xylenes, Total	ND	0.099	mg/Kg	1	8/24/2020 11:58:58 PM
Surr: 4-Bromofluorobenzene	104	80-120	%Rec	1	8/24/2020 11:58:58 PM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	59	mg/Kg	20	8/29/2020 2:30:49 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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hare 14M

Project:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH05@ 25'-30' Collection Date: 8/19/2020 11:00:00 AM **Becaived Date:** 8/21/2020 8:00:00 AM

Lab ID: 2008B74-005	Matrix: SOIL	R	eceive	ed Date:	8/21/2	020 8:00:00 AM
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	E ORGANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/25/2020 9:05:19 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/25/2020 9:05:19 PM
Surr: DNOP	87.2	30.4-154		%Rec	1	8/25/2020 9:05:19 PM
EPA METHOD 8015D: GASOLINE RANG	Ε					Analyst: NSB
Gasoline Range Organics (GRO)	14	4.9		mg/Kg	1	8/25/2020 11:24:19 AM
Surr: BFB	143	75.3-105	S	%Rec	1	8/25/2020 11:24:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2020 11:24:19 AM
Toluene	0.061	0.049		mg/Kg	1	8/25/2020 11:24:19 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/25/2020 11:24:19 AM
Xylenes, Total	0.36	0.098		mg/Kg	1	8/25/2020 11:24:19 AM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	8/25/2020 11:24:19 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/29/2020 2:43:14 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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 5 of 12

Hare 14M

2008B74-006

Project:

Lab ID:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH05@ 38'-40' Collection Date: 8/19/2020 11:30:00 AM Received Date: 8/21/2020 8:00:00 AM

Analyses	Result	RL	Qual U	nits	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS					Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7	rr	ng/Kg	1	8/25/2020 9:15:16 PM
Motor Oil Range Organics (MRO)	ND	49	m	ng/Kg	1	8/25/2020 9:15:16 PM
Surr: DNOP	84.5	30.4-154	%	6Rec	1	8/25/2020 9:15:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	rr	ng/Kg	1	8/25/2020 12:45:50 AM
Surr: BFB	97.7	75.3-105	%	6Rec	1	8/25/2020 12:45:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025	rr	ng/Kg	1	8/25/2020 12:45:50 AM
Toluene	ND	0.050	rr	ng/Kg	1	8/25/2020 12:45:50 AM
Ethylbenzene	ND	0.050	rr	ng/Kg	1	8/25/2020 12:45:50 AM
Xylenes, Total	ND	0.099	rr	ng/Kg	1	8/25/2020 12:45:50 AM
Surr: 4-Bromofluorobenzene	102	80-120	%	6Rec	1	8/25/2020 12:45:50 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60	rr	ng/Kg	20	8/29/2020 3:20:29 AM

Matrix: SOIL

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
- н
- Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 6 of 12

Surr: 4-Bromofluorobenzene

EPA METHOD 300.0: ANIONS

Chloride

Analytical Report
Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY Client Sample ID: BH06@ 35'-38' **Project:** Hare 14M Collection Date: 8/19/2020 1:50:00 PM Lab ID: 2008B74-008 Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) 83 8.8 mg/Kg 1 8/25/2020 9:25:16 PM Motor Oil Range Organics (MRO) ND 44 mg/Kg 1 8/25/2020 9:25:16 PM Surr: DNOP 81.4 30.4-154 %Rec 1 8/25/2020 9:25:16 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) 130 5 8/25/2020 1:09:16 AM 25 mg/Kg 5 Surr: BFB 218 75.3-105 S %Rec 8/25/2020 1:09:16 AM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 0.12 mg/Kg 5 8/25/2020 1:09:16 AM Toluene 5 0.68 0.25 mg/Kg 8/25/2020 1:09:16 AM Ethylbenzene 0.56 0.25 mg/Kg 5 8/25/2020 1:09:16 AM Xylenes, Total 7.6 0.50 mg/Kg 5 8/25/2020 1:09:16 AM

111

ND

80-120

60

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

5

20

8/25/2020 1:09:16 AM

8/29/2020 3:32:54 AM

Analyst: JMT

%Rec

ma/Ka

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

Page 7 of 12

Hare 14M

Project:

Analytical Report Lab Order 2008B74

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH06@ 38'-40' Collection Date: 8/19/2020 2:15:00 PM Received Date: 8/21/2020 8:00:00 AM

Lab ID: 2008B74-009	Matrix: SOIL	Rece	ived Date:	8/21/2	020 8:00:00 AM
Analyses	Result	RL Qua	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	10	9.7	mg/Kg	1	8/25/2020 9:35:14 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	8/25/2020 9:35:14 PM
Surr: DNOP	87.1	30.4-154	%Rec	1	8/25/2020 9:35:14 PM
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	8/25/2020 1:32:43 AM
Surr: BFB	99.4	75.3-105	%Rec	1	8/25/2020 1:32:43 AM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/25/2020 1:32:43 AM
Toluene	0.073	0.049	mg/Kg	1	8/25/2020 1:32:43 AM
Ethylbenzene	ND	0.049	mg/Kg	1	8/25/2020 1:32:43 AM
Xylenes, Total	0.20	0.099	mg/Kg	1	8/25/2020 1:32:43 AM
Surr: 4-Bromofluorobenzene	104	80-120	%Rec	1	8/25/2020 1:32:43 AM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	60	mg/Kg	20	8/29/2020 3:45:19 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

Page 8 of 12

Client: Project:	HILCOR Hare 141	P ENERGY A						
0								
Sample ID:	MB-54761	SampType:	mblk	Tes	Code: EPA Method	300.0: Anions		
Client ID:	PBS	Batch ID:	54761	R	tunNo: 71445			
Prep Date:	8/28/2020	Analysis Date:	8/29/2020	S	eqNo: 2495220	Units: mg/Kg		
Analyte		Result PC	L SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RPI	D RPDLimit	Qual
Chloride		ND	1.5					
Sample ID:	LCS-54761	SampType:	lcs	Test	tCode: EPA Method	300.0: Anions		
Client ID:	LCSS	Batch ID:	54761	R	tunNo: 71445			
Prep Date:	8/28/2020	Analysis Date:	8/29/2020	S	eqNo: 2495221	Units: mg/Kg		
Analyte		Result PC	L SPK value	SPK Ref Val	%REC LowLimit	HighLimit %RPI	D RPDLimit	Qual
Chloride		14	1.5 15.00	0	96.5 90	110		

Qualifiers:

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

- 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

Page 9 of 12

2008B74

01-Sep-20

Client:	HILCORP	ENERGY									
Project:	Hare 14M										
Sample ID: LCS-5	4627	SampTyp	be: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS		Batch I	D: 54	627	F	RunNo: 7	1330				
Prep Date: 8/24/	2020 A	analysis Dat	e: 8/	25/2020	S	SeqNo: 24	490676	Units: mg/K	g		
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		4.7		5.000		94.4	30.4	154			
Sample ID: MB-54	627	SampTyp	e: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS		Batch I	D: 54	627	F	RunNo: 7	1330				
Prep Date: 8/24/	2020 A	nalysis Dat	e: 8/	25/2020	S	SeqNo: 24	490679	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics	(DRO)	ND	10								
Motor Oil Range Organ	ics (MRO)	ND	50								
Surr: DNOP		8.4		10.00		84.2	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

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2008B74

01-Sep-20

Client: HIL	CORP ENERGY									
Project: Hare	e 14M									
Sample ID: mb-54607	SampType	E MBLK	Test	Code: EP	A Method	8015D: Gaso	line Rang	e		
Client ID: PBS	Batch ID	: 54607	RunNo: 71310							
Prep Date: 8/21/2020	Analysis Date	8/24/2020	S	eqNo: 24	88533	Units: mg/K	g			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRC Surr: BFB) ND 1000	5.0 1000		102	75.3	105				
Sample ID: Ics-54607	SampType	e: LCS	Test	Code: EP	A Method	8015D: Gaso	line Rang	e		
Client ID: LCSS	Batch ID	54607	R	unNo: 71	310					
Prep Date: 8/21/2020	Analysis Date	8/24/2020	S	eqNo: 24	88534	Units: mg/K	g			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRC Surr: BFB) 20 1100	5.0 25.00 1000	0	79.4 111	72.5 75.3	106 105			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

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2008B74

01-Sep-20

Client:	HILCORP	ENERG	Y										
Project:	Hare 14M												
Sample ID: mb-5	4607	SampT	ype: ME	BLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS		Batch	h ID: 54	607	F	RunNo: 7 '							
Prep Date: 8/21	1/2020	Analysis D	Date: 8/	24/2020	SeqNo: 2488571 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-Bromofluoro	benzene	1.1		1.000		106	80	120					
Sample ID: LCS-	54607	SampT	ype: LC	S	Tes	tCode: EF	PA Method	8021B: Volat	iles				
Client ID: LCS	5	Batch	h ID: 54	607	F	RunNo: 7 ′	1310						
Prep Date: 8/21	1/2020	Analysis D	Date: 8/	24/2020	S	SeqNo: 24	488572	Units: mg/k	ſg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene		0.91	0.025	1.000	0	90.8	80	120					
Toluene		0.92	0.050	1.000	0	92.4	80	120					
Ethylbenzene		0.93	0.050	1.000	0	92.8	80	120					
Xylenes, Total		2.8	0.10	3.000	0	93.6	80	120					
Surr: 4-Bromofluoro	benzene	1.1		1.000		107	80	120					

Qualifiers:

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

Released to Imaging: 11/14/2022 12:07:19 PM

- в Analyte detected in the associated Method Blank
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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2008B74

01-Sep-20

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- Е Value above quantitation range

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Alba TEL: 505-345-3975 Website: clients.ha	Analysis Labora 4901 Hawkin iquerque, NM 8 FAX: 505-345 llenvironmental	atory 18 NE 7109 San 4107 .com	Sample Log-In Check List					
Client Name: HILCORP ENERGY	Work Order Number:	2008B74		RcptNo: 1					
Received By: Cheyenne Cason 8/2	21/2020 8:00:00 AM								
Completed By: Isaiah Ortiz 8/2	21/2020 10:30:18 AM	<i>n</i>	the my C	X					
Reviewed By: JR 8 21 20				7					
Chain of Custody									
1. Is Chain of Custody complete?		Yes 🗹	No 🗌	Not Present 🗌	* .				
2. How was the sample delivered?		<u>Courier</u>							
Log In 3. Was an attempt made to cool the samples?		Yes 🗹	No 🗌						
4. Were all samples received at a temperature of >	0° C to 6.0° C	Yes 🖌	No 🗌						
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 pre-	served?	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 🗹	# of preserved					
11.Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗹	No 🗌	bottles checked for pH: (<2 or >1)	2 unless noted)				
12, Are matrices correctly identified on Chain of Cust	od y ?	Yes 🗹	No 🗌	Adjusted?					
13. Is it clear what analyses were requested?		Yes 🗹	No 🗆		Pro				
14. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🗹	Νο	Checked by: S	(A 8,2)				
Special Handling (if applicable)									
15. Was client notified of all discrepancies with this c	rder?	Yes	No 🗆	NA 🗹					
Person Notified:	Date:								
By Whom:	Via:	eMail 🔤 P	hone 🗌 Fax	In Person					
Regarding:				NY 2 - 1979					
Client Instructions:		***************************************		2010-01-01-01-01-01-01-01-01-01-01-01-01-					
16. Additional remarks:									
17. <u>Cooler Information</u> Cooler No Temp ºC Condition Seal Ir	tact Seal No S	eal Date	Signed By						
1 0.4 Good Not Pres	sent	ives substanting							

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Page 1 of 1

Release C	hain	-of-C	ustody Record	Turn-Around	I Time:								-			~~					Receiv
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	AU) (Type)		ſ	Unlice: # of Coolers	X Yes	. <mark>⊡. No</mark> .	٣ ٣	L SRO	des/{	150	0 o	als	٦.		/OA	l) n					
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Date	Time	Matrix	Sample Name	Type and #	Preservative Type	ZOOSBI 4	BTE)	ТРН	808,		PAH	Ľ. ₽	년 문	326(3270	Tota					
8-18-20	1440	Soll	BH03@5-10'	1-402	(00)	001	X	X					X							+	
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8-19-20	0840		BH04010'-15'			003														+	
s (0920		Bit 04@35'-40'			004												-+	+	+-	
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September 01, 2020

Clara Cardoza HILCORP ENERGY PO Box 4700 Farmington, NM 87499 TEL: (505) 564-0733 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

RE: Hare 14M

OrderNo.: 2008B67

Dear Clara Cardoza:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/21/2020 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Project: Hare 14M

Analytical Report Lab Order 2008B67

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/1/2020 Client Sample ID: BH07@ 15'-20' Collection Date: 8/20/2020 9:10:00 AM

Lab ID: 2008B67-001	Matrix: SOIL	Receiv	ved Date:	8/21/2	020 8:00:00 AM
Analyses	Result	RL Qua	l Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	8/25/2020 7:36:00 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/25/2020 7:36:00 PM
Surr: DNOP	89.6	30.4-154	%Rec	1	8/25/2020 7:36:00 PM
EPA METHOD 8015D: GASOLINE RANGE	i				Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/23/2020 10:13:09 PM
Surr: BFB	96.4	75.3-105	%Rec	1	8/23/2020 10:13:09 PM
EPA METHOD 8021B: VOLATILES					Analyst: NSB
Benzene	ND	0.025	mg/Kg	1	8/23/2020 10:13:09 PM
Toluene	ND	0.050	mg/Kg	1	8/23/2020 10:13:09 PM
Ethylbenzene	ND	0.050	mg/Kg	1	8/23/2020 10:13:09 PM
Xylenes, Total	ND	0.099	mg/Kg	1	8/23/2020 10:13:09 PM
Surr: 4-Bromofluorobenzene	103	80-120	%Rec	1	8/23/2020 10:13:09 PM
EPA METHOD 300.0: ANIONS					Analyst: JMT
Chloride	ND	60	mg/Kg	20	8/28/2020 11:37:04 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
 Sample Diluted Due to Matrix
- D Sample Diluted Due to Matrix
 H Holding times for preparation or analysis exceeded
- 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

Page 1 of 9

Analytical Report Lab Order 2008B67

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY Client Sample ID: BH07@ 35'-40' **Project:** Hare 14M Collection Date: 8/20/2020 10:10:00 AM Lab ID: 2008B67-002 Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 9.9 mg/Kg 1 8/25/2020 7:45:59 PM Motor Oil Range Organics (MRO) ND 49 mg/Kg 1 8/25/2020 7:45:59 PM Surr: DNOP 91.9 30.4-154 %Rec 1 8/25/2020 7:45:59 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 8/23/2020 10:36:38 PM 5.0 mg/Kg 1 Surr: BFB 98.1 75.3-105 %Rec 1 8/23/2020 10:36:38 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 0.025 mg/Kg 8/23/2020 10:36:38 PM 1 Toluene ND 0.050 mg/Kg 1 8/23/2020 10:36:38 PM Ethylbenzene ND 0.050 mg/Kg 1 8/23/2020 10:36:38 PM Xylenes, Total ND 0.099 mg/Kg 1 8/23/2020 10:36:38 PM Surr: 4-Bromofluorobenzene 103 80-120 %Rec 1 8/23/2020 10:36:38 PM **EPA METHOD 300.0: ANIONS** Analyst: JMT Chloride ND 60 8/28/2020 11:49:29 PM ma/Ka 20

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 Н Holding times for preparation or analysis exceeded
- ND
- Not Detected at the Reporting Limit POL
- Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Limit RL

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Analytical Report Lab Order 2008B67

Date Reported: 9/1/2020

8/29/2020 12:51:31 AM

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY Client Sample ID: BH08@ 35'-40' **Project:** Hare 14M Collection Date: 8/20/2020 11:45:00 AM Lab ID: 2008B67-003 Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 9.3 mg/Kg 1 8/25/2020 7:55:54 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 8/25/2020 7:55:54 PM Surr: DNOP 82.6 30.4-154 %Rec 1 8/25/2020 7:55:54 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) 12 8/23/2020 11:00:08 PM 4.9 mg/Kg 1 Surr: BFB 112 75.3-105 S %Rec 1 8/23/2020 11:00:08 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 0.024 mg/Kg 8/23/2020 11:00:08 PM 1 Toluene 0.14 0.049 mg/Kg 1 8/23/2020 11:00:08 PM Ethylbenzene ND 0.049 mg/Kg 1 8/23/2020 11:00:08 PM Xylenes, Total 0.48 0.098 mg/Kg 1 8/23/2020 11:00:08 PM Surr: 4-Bromofluorobenzene 104 80-120 %Rec 1 8/23/2020 11:00:08 PM **EPA METHOD 300.0: ANIONS** Analyst: JMT

ND

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

Qualifiers:

Chloride

- Value exceeds Maximum Contaminant Level.
 Sample Diluted Due to Matrix
- D Sample Diluted Due to MatrixH 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

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Analytical Report Lab Order 2008B67

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY Client Sample ID: BH09@ 30'-35' **Project:** Hare 14M Collection Date: 8/20/2020 1:00:00 PM Lab ID: 2008B67-005 Matrix: SOIL Received Date: 8/21/2020 8:00:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: BRM Diesel Range Organics (DRO) ND 9.4 mg/Kg 1 8/25/2020 8:05:50 PM Motor Oil Range Organics (MRO) ND 47 mg/Kg 1 8/25/2020 8:05:50 PM Surr: DNOP 82.5 30.4-154 %Rec 1 8/25/2020 8:05:50 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) ND 8/23/2020 11:23:31 PM 4.9 mg/Kg 1 Surr: BFB 98.7 75.3-105 %Rec 1 8/23/2020 11:23:31 PM **EPA METHOD 8021B: VOLATILES** Analyst: NSB Benzene ND 0.025 mg/Kg 8/23/2020 11:23:31 PM 1 Toluene ND 0.049 mg/Kg 1 8/23/2020 11:23:31 PM Ethylbenzene ND 0.049 mg/Kg 1 8/23/2020 11:23:31 PM Xylenes, Total ND 0.099 mg/Kg 1 8/23/2020 11:23:31 PM Surr: 4-Bromofluorobenzene 101 80-120 %Rec 1 8/23/2020 11:23:31 PM **EPA METHOD 300.0: ANIONS** Analyst: JMT Chloride ND 60 8/29/2020 1:28:46 AM ma/Ka 20

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 Н Holding times for preparation or analysis exceeded
- ND
- Not Detected at the Reporting Limit POL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Limit RL

Page 4 of 9

Hare 14M

Project:

Analytical Report Lab Order 2008B67

Date Reported: 9/1/2020

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH09@ 35'-40' Collection Date: 8/20/2020 1:15:00 PM Received Date: 8/21/2020 8:00:00 AM

Lab ID: 2008B67-006	Matrix: SOIL	Received Date: 8/21/2020 8:00:00 AM							
Analyses	Result	RL Qu	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS				Analyst: BRM				
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	8/25/2020 8:15:43 PM				
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	8/25/2020 8:15:43 PM				
Surr: DNOP	80.2	30.4-154	%Rec	1	8/25/2020 8:15:43 PM				
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: NSB				
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	8/24/2020 9:15:08 PM				
Surr: BFB	99.9	75.3-105	%Rec	1	8/24/2020 9:15:08 PM				
EPA METHOD 8021B: VOLATILES					Analyst: NSB				
Benzene	ND	0.025	mg/Kg	1	8/24/2020 9:15:08 PM				
Toluene	ND	0.050	mg/Kg	1	8/24/2020 9:15:08 PM				
Ethylbenzene	ND	0.050	mg/Kg	1	8/24/2020 9:15:08 PM				
Xylenes, Total	ND	0.099	mg/Kg	1	8/24/2020 9:15:08 PM				
Surr: 4-Bromofluorobenzene	103	80-120	%Rec	1	8/24/2020 9:15:08 PM				
EPA METHOD 300.0: ANIONS					Analyst: JMT				
Chloride	ND	60	mg/Kg	20	8/29/2020 1:41:11 AM				

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 5 of 9

Client:	HILCOR	RP ENERGY								
Project:	Hare 14M	Ν								
Sample ID:	MB-54760	SampType: m l	olk	Test	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	PBS	Batch ID: 54	760	R	lunNo: 7 1	1445				
Prep Date:	8/28/2020	Analysis Date: 8/	28/2020	S	eqNo: 24	495190	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-54760	SampType: Ic:	5	Test	tCode: EF	PA Method	300.0: Anion	S		
Client ID:	LCSS	Batch ID: 54	760	R	unNo: 7 1	1445				
Prep Date:	8/28/2020	Analysis Date: 8/	28/2020	S	eqNo: 24	495191	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15 1.5	15.00	0	96.7	90	110			
Sample ID:	MB-54761	SampType: ml	olk	Tes	tCode: EF	PA Method	300.0: Anion	S		
Client ID:	PBS	Batch ID: 54	761	R	unNo: 7 1	1445				
Prep Date:	8/28/2020	Analysis Date: 8/	29/2020	S	SeqNo: 24	195220	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-54761	SampType: Ic:	6	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch ID: 54	761	R	unNo: 7 1	1445				
Prep Date:	8/28/2020	Analysis Date: 8/	29/2020	S	eqNo: 24	495221	Units: mg/K	g		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14 1.5	15.00	0	96.5	90	110			

Qualifiers:

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

- 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

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2008B67

01-Sep-20

Client:	HILCORP EN	ERGY									
Project:	Hare 14M										
Sample ID: LCS-54	6 27 S	SampType	LC	s	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: LCSS		Batch ID:	546	627	F	RunNo: 71	1330				
Prep Date: 8/24/20	020 Anal	Analysis Date: 8/25/2020 SeqNo: 2490676 Units: mg/Kg									
Analyte	Re	sult P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (D	NRO)	51	10	50.00	0	102	70	130			
Surr: DNOP		4.7		5.000		94.4	30.4	154			
Sample ID: MB-546	27 S	SampType	MB	LK	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS		Batch ID:	546	627	F	RunNo: 7 1	1330				
Prep Date: 8/24/20	020 Anal	lysis Date:	8/2	25/2020	S	SeqNo: 24	490679	Units: mg/K	g		
Analyte	Re	sult P	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (D	RO)	ND	10								
Motor Oil Range Organics	s (MRO)	ND	50								
Surr: DNOP		8.4		10.00		84.2	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

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2008B67

01-Sep-20

Client:	HILCOR	P ENERG	Y								
Project:	Hare 14N	1									
Sample ID:	mb-54605	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8015D: Gasc	oline Rang	e	
Client ID:	PBS	Batch	n ID: 54	605	F	RunNo: 7	1272				
Prep Date:	8/21/2020	Analysis D	Date: 8/	23/2020	S	SeqNo: 24	486990	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		1000		1000		102	75.3	105			
Sample ID:	lcs-54605	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch	n ID: 54	605	F	RunNo: 7	1272				
Prep Date:	8/21/2020	Analysis D	Date: 8/	23/2020	S	SeqNo: 24	486991	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	je Organics (GRO)	20	5.0	25.00	0	79.4	72.5	106			
Surr: BFB		1100		1000		105	75.3	105			S
Sample ID:	mb-54607	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch	n ID: 54	607	F	RunNo: 7	1310				
Prep Date:	8/21/2020	Analysis D	Date: 8/	24/2020	S	SeqNo: 24	488533	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	je Organics (GRO)	ND	5.0								
Surr: BFB		1000		1000		102	75.3	105			
Sample ID:	lcs-54607	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch	n ID: 54	607	F	RunNo: 7	1310				
Prep Date:	8/21/2020	Analysis D	Date: 8/	24/2020	S	SeqNo: 24	488534	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	20	5.0	25.00	0	79.4	72.5	106			
Surr: BFB		1100		1000		111	75.3	105			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

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2008B67

01-Sep-20
Client:	HILCO	RP ENERG	Y								
Project:	Hare 14	4M									
Sample ID:	mb-54605	SampT	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	PBS	Batc	h ID: 54	605	F	RunNo: 71272					
Prep Date:	8/21/2020	Analysis E	Date: 8/	23/2020	Ş	SeqNo: 2	487087	Units: mg/ł	٢g		
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-Bromo	ofluorobenzene	1.0		1.000		104	80	120			
Sample ID:	LCS-54605	SampT	Гуре: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	LCSS	Batc	h ID: 54	605	F	RunNo: 7	1272				
Prep Date:	8/21/2020	Analysis E	Date: 8/	23/2020	Ş	SeqNo: 2	487088	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.92	0.025	1.000	0	92.2	80	120			
Toluene		0.94	0.050	1.000	0	94.1	80	120			
Ethylbenzene		0.95	0.050	1.000	0	94.7	80	120			
Xylenes, Total		2.8	0.10	3.000	0	94.8	80	120			
Surr: 4-Bromo	ofluorobenzene	1.1		1.000		108	80	120			
Sample ID:	mb-54607	SampT	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	PBS	Batc	h ID: 54	607	F	RunNo: 7	1310				
Prep Date:	8/21/2020	Analysis E	Date: 8/	24/2020	\$	SeqNo: 2	488571	Units: mg/ł	٢g		
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-Bromo	ofluorobenzene	1.1		1.000		106	80	120			
Sample ID:	LCS-54607	SampT	Type: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	LCSS	Batc	h ID: 54	607	F	RunNo: 7	1310				
Prep Date:	8/21/2020	Analysis E	Date: 8/	24/2020	Ş	SeqNo: 2	488572	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.91	0.025	1.000	0	90.8	80	120			
Toluene		0.92	0.050	1.000	0	92.4	80	120			
Ethylbenzene		0.93	0.050	1.000	0	92.8	80	120			
Xylenes, Total		2.8	0.10	3.000	0	93.6	80	120			
Surr: 4-Bromo	ofluorobenzene	1.1		1.000		107	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

2008B67

01-Sep-20

WO#:

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmenta Alb TEL: 505-345-397 Website: clients.hc	l Analysi 4901 uquerqu 5 FAX: 5 allenviro	s Laboratory Hawkins NE e, NM 87109 05-345-4107 nmental.com		Sar	nple Log-	In Cheo	ck List
Client Name: HILCORP ENERGY	Work Order Number	: 2008	367			R	cptNo: 1	
Received By: Cheyenne Cason	8/21/2020 8:00:00 AM	ĺ						
Completed By: Isaiah Ortiz	8/21/2020 9:11:52 AM	ĺ		T	ζ)~		
Reviewed By: JR-8/21/20								
Chain of Custody								
1. Is Chain of Custody complete?		Yes	✓	No		Not Present	:	
2. How was the sample delivered?		<u>Courie</u>	<u>16</u>					
Log In B. Was an attempt made to cool the samples?		Yes	~	No		NA		
 Were all samples received at a temperature 	of >0° C to 6.0°C	Yes		No		NA		
. Sample(s) in proper container(s)?		Yes	~	No				
Sufficient sample volume for indicated test(s)?	Yes		No				
Are samples (except VOA and ONG) properl	y preserved?	Yes		No			_	
. Was preservative added to bottles?		Yes		No	\checkmark	NA		
. Received at least 1 vial with headspace <1/4	" for AQ VOA?	Yes [No		NA		
). Were any sample containers received broke	n?	Yes [No	\checkmark	# of preserved		
1. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes		No		for pH:	d (<2 or >12⁄0	nless noted)
Are matrices correctly identified on Chain of	Custody?	Yes		No		Adjusted	?	
, is it clear what analyses were requested?		Yes		No				00.
Were all holding times able to be met? (If no, notify customer for authorization.)		Yes		No		Checked	by SPA	B12(12e
pecial Handling (if applicable)								
5. Was client notified of all discrepancies with t	this order?	Yes		No		NA		
Person Notified:	Date:							
By Whom:	Via: [eMai	l 📋 Phone	• 🗌	Fax	In Person		
Regarding:		u u	n de fan de f	(And a state of the state of th				
Client Instructions:		••••••••••••••••••••••••••••••••••••••	<u>.</u>				14543 ⁴	
6. Additional remarks:								
7. <u>Cooler Information</u> <u>Cooler No</u> Temp ^o C Condition Se 1 0.4 Good Yes	eal Intact Seal No S	Seal Dat	e Sigr	ied	Ву	e e transmission de la constante		

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Page 1 of 1

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Received by OCD: 11/22/2021 3:45:48 PM

Chain-of-Custody Record	Turn-Around Time:	
Client: Hilcorp Energy Company	🕱 Standard 🛛 Rush	
Affri Clara Cardoza	Project Name:	
Mailing Address:	Haro 14M	
<u>s</u> :	Project #:	Tel 505-345-3975 Eax 505 345 4107
Phone #:		Analysis Request
email or Fax#:	Project Manager:	
QA/QC Package:	LTE-Danny Burns	
Standard 🛛 Level 4 (Full Validation)	l l	
Accreditation: 🗆 Az Compliance	Sampler: D. Burns	
$\stackrel{\scriptstyle \scriptstyle \scriptstyle \leftarrow}{=} \frac{1}{100} $	On lce: M/Yes □ No ···	(Participant) 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	Cooler Temp(including.GEV/S-A i - A)	
Date Time Matrix Sample Name	Container Preservative HEALNo	
8-20-20 0910 Soul BH07 $(015'-20')$	1-1/ - (Sol Mi	X X X X X X X X X X X X X X X X X X X
1010 1 BHDZ@ 75'-40'		
$\frac{1145}{1145}$		<u><u></u><u></u><u></u><u></u></u>
1115 1118 C 31 40		╋┽╃┥╴┥┛┥╴┥╸┥╴┥╴┥╴┥╴
1200 BHOSE 40 - 45 XA		
1300 6H096 35	03	
• 1513 • 1517 09 (C 35'-40'	006	
Date: Time: Relinbuished by:	Received by: Via: Date Time	Remarks:
Pote	A Mate Date 1247.020	Hold Drivbe wers
Real 1921	Date lime	cc: dhenomanne Henricom
Mojuzo 1 Musto Lale	(MC Cam X/21/20 6800)	
 IT necessary, samples submitted to Hall Environmental may be submitted to Hall Environmental may be submitted. 	contracted to other accredited laboratones. This serves as notice of this	possibility. Any sub-contracted data will be clearly notated on the analytical report.

-1 + N



September 27, 2021

Mitch Killough HILCORP ENERGY PO Box 4700 Farmington, NM 87499 TEL: (505) 564-0733 FAX Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2109727

Dear Mitch Killough:

RE: Hare 14M

Hall Environmental Analysis Laboratory received 17 sample(s) on 9/15/2021 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Surr: 4-Bromofluorobenzene

Analytical Report

Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

9/16/2021 10:16:00 PM 62603

CLIENT:	HILCORP ENERGY		Clier	nt Sample II): BF	H11 5-10					
Project:	Hare 14M		Collection Date: 9/14/2021 11:45:00 AM								
Lab ID:	2109727-002	Matrix: SOIL	R	eceived Date	e: 9/1	15/2021 7:05:00 AM					
Analyses		Result	RL Q	Qual Units	DF	Date Analyzed	Batch				
EPA MET	THOD 300.0: ANIONS					Analyst	: VP				
Chloride		ND	59	mg/Kg	20	9/21/2021 4:24:26 AM	62691				
EPA MET	THOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analyst	JME				
Diesel R	ange Organics (DRO)	ND	9.6	mg/Kg	1	9/17/2021 3:54:38 PM	62620				
Motor Oi	Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 3:54:38 PM	62620				
Surr: I	DNOP	94.8	70-130	%Rec	1	9/17/2021 3:54:38 PM	62620				
EPA MET	THOD 8015D: GASOLINE RA	NGE				Analyst	mb				
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/16/2021 10:16:00 PM	62603				
Surr: I	BFB	98.0	70-130	%Rec	1	9/16/2021 10:16:00 PM	62603				
EPA MET	THOD 8021B: VOLATILES					Analyst	mb				
Benzene)	ND	0.025	mg/Kg	1	9/16/2021 10:16:00 PM	62603				
Toluene		ND	0.049	mg/Kg	1	9/16/2021 10:16:00 PM	62603				
Ethylben	izene	ND	0.049	mg/Kg	1	9/16/2021 10:16:00 PM	62603				
Xylenes,	Total	ND	0.098	mg/Kg	1	9/16/2021 10:16:00 PM	62603				

82.4

70-130

%Rec

1

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Surr: 4-Bromofluorobenzene

Analytical Report

Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

9/16/2021 11:15:00 PM 62603

CLIENT: Project:	H11 10-15						
Lab ID:	2109727-003	Matrix: SOIL	R	Received Date	: 9/1	5/2021 7:05:00 AM	
Analyses		Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS					Analyst	: VP
Chloride		88	60	mg/Kg	20	9/21/2021 4:36:51 AM	62691
EPA MET	HOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst	JME
Diesel Ra	ange Organics (DRO)	ND	9.7	mg/Kg	1	9/17/2021 4:04:31 PM	62620
Motor Oil	Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 4:04:31 PM	62620
Surr: D	NOP	99.7	70-130	%Rec	1	9/17/2021 4:04:31 PM	62620
EPA MET	HOD 8015D: GASOLINE RA	NGE				Analyst	mb
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/16/2021 11:15:00 PM	62603
Surr: E	BFB	93.7	70-130	%Rec	1	9/16/2021 11:15:00 PM	62603
EPA MET	HOD 8021B: VOLATILES					Analyst	mb
Benzene		ND	0.024	mg/Kg	1	9/16/2021 11:15:00 PM	62603
Toluene		ND	0.049	mg/Kg	1	9/16/2021 11:15:00 PM	62603
Ethylben	zene	ND	0.049	mg/Kg	1	9/16/2021 11:15:00 PM	62603
Xylenes,	Total	ND	0.097	mg/Kg	1	9/16/2021 11:15:00 PM	62603

82.2

70-130

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range

%Rec 1

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT: HILCORP ENERGY		Cl	ient Sample II	D: BI	H11 15-20				
Project: Hare 14M	Collection Date: 9/14/2021 11:56:00 AM								
Lab ID: 2109727-004	Matrix: SOIL		Received Dat	e: 9 /1	15/2021 7:05:00 AM				
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch			
EPA METHOD 300.0: ANIONS					Analysi	: VP			
Chloride	61	60	mg/Kg	20	9/21/2021 4:49:16 AM	62691			
EPA METHOD 8015M/D: DIESEL RANGE					Analyst	: JME			
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	9/17/2021 4:14:24 PM	62620			
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	9/17/2021 4:14:24 PM	62620			
Surr: DNOP	93.1	70-130	%Rec	1	9/17/2021 4:14:24 PM	62620			
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	: mb			
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/16/2021 11:35:00 PN	62603			
Surr: BFB	97.6	70-130	%Rec	1	9/16/2021 11:35:00 PM	62603			
EPA METHOD 8021B: VOLATILES					Analyst	: mb			
Benzene	ND	0.024	mg/Kg	1	9/16/2021 11:35:00 PM	62603			
Toluene	ND	0.048	mg/Kg	1	9/16/2021 11:35:00 PM	62603			
Ethylbenzene	ND	0.048	mg/Kg	1	9/16/2021 11:35:00 PM	62603			
Xylenes, Total	ND	0.096	mg/Kg	1	9/16/2021 11:35:00 PM	62603			
Surr: 4-Bromofluorobenzene	83.4	70-130	%Rec	1	9/16/2021 11:35:00 PN	62603			

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cl	ient Sample I	D: BI	H11 20-25	
Project:	Hare 14M		(Collection Dat	e: 9/1	14/2021 12:03:00 PM	
Lab ID:	2109727-005	Matrix: SOIL		Received Dat	e: 9/1	15/2021 7:05:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS					Analyst:	VP
Chloride		68	60	mg/Kg	20	9/21/2021 5:01:41 AM	62691
EPA MET	HOD 8015M/D: DIESEL RANG	E ORGANICS				Analyst:	JME
Diesel Ra	ange Organics (DRO)	ND	9.6	mg/Kg	1	9/17/2021 4:24:14 PM	62620
Motor Oil	Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 4:24:14 PM	62620
Surr: D	NOP	94.4	70-130	%Rec	1	9/17/2021 4:24:14 PM	62620
EPA MET	HOD 8015D: GASOLINE RANG	E				Analyst:	mb
Gasoline	Range Organics (GRO)	ND	5.0	mg/Kg	1	9/16/2021 11:54:00 PM	62603
Surr: E	3FB	98.9	70-130	%Rec	1	9/16/2021 11:54:00 PM	62603
EPA MET	HOD 8021B: VOLATILES					Analyst:	mb
Benzene		ND	0.025	mg/Kg	1	9/16/2021 11:54:00 PM	62603
Toluene		ND	0.050	mg/Kg	1	9/16/2021 11:54:00 PM	62603
Ethylbenz	zene	ND	0.050	mg/Kg	1	9/16/2021 11:54:00 PM	62603
Xylenes,	Total	ND	0.099	mg/Kg	1	9/16/2021 11:54:00 PM	62603
Surr: 4	-Bromofluorobenzene	85.5	70-130	%Rec	1	9/16/2021 11:54:00 PM	62603

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cl	ient Saı	nple II): BH	H11 25-30	
Project:	Hare 14M		(Collectio	on Date	e: 9/1	4/2021 12:52:00 PM	
Lab ID:	2109727-006	Matrix: SOIL		Receiv	ed Date	e: 9/1	5/2021 7:05:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS						Analyst:	VP
Chloride		73	60		mg/Kg	20	9/21/2021 5:14:06 AM	62691
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANICS					Analyst:	JME
Diesel Ra	ange Organics (DRO)	ND	9.3		mg/Kg	1	9/17/2021 4:34:04 PM	62620
Motor Oil	Range Organics (MRO)	ND	46		mg/Kg	1	9/17/2021 4:34:04 PM	62620
Surr: D	DNOP	95.6	70-130		%Rec	1	9/17/2021 4:34:04 PM	62620
EPA MET	HOD 8015D: GASOLINE RANG	E					Analyst:	mb
Gasoline	Range Organics (GRO)	ND	4.8		mg/Kg	1	9/17/2021 12:14:00 AM	62603
Surr: E	3FB	97.1	70-130		%Rec	1	9/17/2021 12:14:00 AM	62603
EPA MET	HOD 8021B: VOLATILES						Analyst:	mb
Benzene		ND	0.024		mg/Kg	1	9/17/2021 12:14:00 AM	62603
Toluene		ND	0.048		mg/Kg	1	9/17/2021 12:14:00 AM	62603
Ethylben	zene	ND	0.048		mg/Kg	1	9/17/2021 12:14:00 AM	62603
Xylenes,	Total	ND	0.097		mg/Kg	1	9/17/2021 12:14:00 AM	62603
Surr: 4	I-Bromofluorobenzene	84.6	70-130		%Rec	1	9/17/2021 12:14:00 AM	62603

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cl	ient Sa	ample II): BF	H11 30-35	
Project:	Hare 14M		(Collect	ion Dat	e: 9/1	4/2021 1:05:00 PM	
Lab ID:	2109727-007	Matrix: SOIL		Recei	ved Date	e: 9/1	5/2021 7:05:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS						Analyst	VP
Chloride		ND	60		mg/Kg	20	9/21/2021 8:58:14 AM	62691
EPA MET	HOD 8015M/D: DIESEL RAM	IGE ORGANICS					Analyst	JME
Diesel Ra	ange Organics (DRO)	16	9.4		mg/Kg	1	9/17/2021 4:43:53 PM	62620
Motor Oil	Range Organics (MRO)	ND	47		mg/Kg	1	9/17/2021 4:43:53 PM	62620
Surr: D	DNOP	95.8	70-130		%Rec	1	9/17/2021 4:43:53 PM	62620
EPA MET	HOD 8015D: GASOLINE RA	NGE					Analyst	mb
Gasoline	Range Organics (GRO)	49	4.9		mg/Kg	1	9/17/2021 12:34:00 AM	62603
Surr: E	BFB	253	70-130	S	%Rec	1	9/17/2021 12:34:00 AM	62603
EPA MET	HOD 8021B: VOLATILES						Analyst	mb
Benzene		0.052	0.024		mg/Kg	1	9/17/2021 12:34:00 AM	62603
Toluene		0.75	0.049		mg/Kg	1	9/17/2021 12:34:00 AM	62603
Ethylben	zene	0.26	0.049		mg/Kg	1	9/17/2021 12:34:00 AM	62603
Xylenes,	Total	3.2	0.097		mg/Kg	1	9/17/2021 12:34:00 AM	62603
Surr: 4	I-Bromofluorobenzene	111	70-130		%Rec	1	9/17/2021 12:34:00 AM	62603

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cli	ent Sample ID): BF	H11 35-40	
Project:	Hare 14M		C	Collection Date	e: 9/1	4/2021 1:24:00 PM	
Lab ID:	2109727-008	Matrix: SOIL		Received Date	e: 9/1	5/2021 7:05:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS					Analyst	: VP
Chloride		ND	59	mg/Kg	20	9/21/2021 9:10:39 AM	62691
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst	: JME
Diesel Ra	ange Organics (DRO)	ND	9.8	mg/Kg	1	9/17/2021 4:53:40 PM	62620
Motor Oi	I Range Organics (MRO)	ND	49	mg/Kg	1	9/17/2021 4:53:40 PM	62620
Surr: E	DNOP	97.7	70-130	%Rec	1	9/17/2021 4:53:40 PM	62620
EPA MET	HOD 8015D: GASOLINE RANG	E				Analyst	: mb
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 1:33:00 AM	62603
Surr: E	3FB	104	70-130	%Rec	1	9/17/2021 1:33:00 AM	62603
EPA MET	HOD 8021B: VOLATILES					Analyst	: mb
Benzene		ND	0.024	mg/Kg	1	9/17/2021 1:33:00 AM	62603
Toluene		0.078	0.049	mg/Kg	1	9/17/2021 1:33:00 AM	62603
Ethylben	zene	ND	0.049	mg/Kg	1	9/17/2021 1:33:00 AM	62603
Xylenes,	Total	0.27	0.098	mg/Kg	1	9/17/2021 1:33:00 AM	62603
Surr: 4	1-Bromofluorobenzene	84.4	70-130	%Rec	1	9/17/2021 1:33:00 AM	62603

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT: HILCORP ENERGY		Cli	ent Sample II	D: BH	H11 40-42					
Project: Hare 14M	Collection Date: 9/14/2021 1:45:00 PM									
Lab ID: 2109727-009	Matrix: SOIL		Received Dat	te: 9/15/2021 7:05:00 AM						
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch				
EPA METHOD 300.0: ANIONS					Analyst	: VP				
Chloride	ND	60	mg/Kg	20	9/15/2021 10:46:23 AM	62591				
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS				Analyst	SB				
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	9/15/2021 10:41:46 AM	62590				
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	9/15/2021 10:41:46 AM	62590				
Surr: DNOP	104	70-130	%Rec	1	9/15/2021 10:41:46 AM	62590				
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	: mb				
Gasoline Range Organics (GRO)	ND	3.4	mg/Kg	1	9/15/2021 9:15:00 AM	GS81278				
Surr: BFB	99.8	70-130	%Rec	1	9/15/2021 9:15:00 AM	GS81278				
EPA METHOD 8021B: VOLATILES					Analyst	: mb				
Benzene	ND	0.017	mg/Kg	1	9/15/2021 9:15:00 AM	BS81278				
Toluene	ND	0.034	mg/Kg	1	9/15/2021 9:15:00 AM	BS81278				
Ethylbenzene	ND	0.034	mg/Kg	1	9/15/2021 9:15:00 AM	BS81278				
Xylenes, Total	ND	0.067	mg/Kg	1	9/15/2021 9:15:00 AM	BS81278				
Surr: 4-Bromofluorobenzene	82.9	70-130	%Rec	1	9/15/2021 9:15:00 AM	BS81278				

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cl	ient Sample II): BF	H10 0-5	
Project:	Hare 14M		(Collection Date	e: 9/1	14/2021 9:30:00 AM	
Lab ID:	2109727-010	Matrix: SOIL		Received Date	e: 9/1	15/2021 7:05:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS					Analyst	VP
Chloride		ND	59	mg/Kg	20	9/21/2021 9:23:03 AM	62691
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst	JME
Diesel Ra	ange Organics (DRO)	ND	9.7	mg/Kg	1	9/17/2021 5:03:26 PM	62620
Motor Oil	I Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 5:03:26 PM	62620
Surr: D	DNOP	110	70-130	%Rec	1	9/17/2021 5:03:26 PM	62620
EPA MET	HOD 8015D: GASOLINE RANGE	E				Analyst	mb
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 1:52:00 AM	62603
Surr: E	3FB	97.0	70-130	%Rec	1	9/17/2021 1:52:00 AM	62603
EPA MET	HOD 8021B: VOLATILES					Analyst	mb
Benzene		ND	0.024	mg/Kg	1	9/17/2021 1:52:00 AM	62603
Toluene		ND	0.049	mg/Kg	1	9/17/2021 1:52:00 AM	62603
Ethylben	zene	ND	0.049	mg/Kg	1	9/17/2021 1:52:00 AM	62603
Xylenes,	Total	ND	0.098	mg/Kg	1	9/17/2021 1:52:00 AM	62603
Surr: 4	1-Bromofluorobenzene	82.5	70-130	%Rec	1	9/17/2021 1:52:00 AM	62603

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Client Sample ID: BH10 5-10									
Project:	Hare 14M		Collection Date: 9/14/2021 9:40:00 AM									
Lab ID:	2109727-011	Matrix: SOIL		Received Dat	e: 9 /1	15/2021 7:05:00 AM						
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch					
EPA MET	HOD 300.0: ANIONS					Analys	: VP					
Chloride		ND	60	mg/Kg	20	9/21/2021 9:35:28 AM	62691					
EPA MET	HOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analys	: JME					
Diesel Ra	ange Organics (DRO)	49	9.7	mg/Kg	1	9/17/2021 5:13:12 PM	62620					
Motor Oi	Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 5:13:12 PM	62620					
Surr: E	DNOP	114	70-130	%Rec	1	9/17/2021 5:13:12 PM	62620					
EPA MET	HOD 8015D: GASOLINE RA	NGE				Analys	: mb					
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 2:12:00 AM	62603					
Surr: E	BFB	96.2	70-130	%Rec	1	9/17/2021 2:12:00 AM	62603					
EPA MET	HOD 8021B: VOLATILES					Analys	: mb					
Benzene		ND	0.024	mg/Kg	1	9/17/2021 2:12:00 AM	62603					
Toluene		ND	0.049	mg/Kg	1	9/17/2021 2:12:00 AM	62603					
Ethylben	zene	ND	0.049	mg/Kg	1	9/17/2021 2:12:00 AM	62603					
Xylenes,	Total	ND	0.097	mg/Kg	1	9/17/2021 2:12:00 AM	62603					
Surr: 4	I-Bromofluorobenzene	83.7	70-130	%Rec	1	9/17/2021 2:12:00 AM	62603					

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Surr: 4-Bromofluorobenzene

Analytical Report

Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

9/17/2021 2:31:00 AM 62603

CLIENT:	HILCORP ENERGY		Clier	nt Sample II): BF	H10 10-15				
Project:	Hare 14M		Co	llection Date	e: 9/1	4/2021 9:52:00 AM				
Lab ID:	2109727-012	Matrix: SOIL	Received Date: 9/15/2021 7:05:00 AM							
Analyses		Result	RL Q	Qual Units	DF	Date Analyzed	Batch			
EPA MET	THOD 300.0: ANIONS					Analyst	: VP			
Chloride		72	60	mg/Kg	20	9/21/2021 9:47:53 AM	62691			
EPA MET	THOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analyst	: JME			
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	9/17/2021 5:22:58 PM	62620			
Motor Oi	il Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 5:22:58 PM	62620			
Surr: I	DNOP	98.0	70-130	%Rec	1	9/17/2021 5:22:58 PM	62620			
EPA MET	THOD 8015D: GASOLINE RA	NGE				Analyst	: mb			
Gasoline	e Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 2:31:00 AM	62603			
Surr: I	BFB	99.5	70-130	%Rec	1	9/17/2021 2:31:00 AM	62603			
EPA MET	THOD 8021B: VOLATILES					Analyst	: mb			
Benzene)	ND	0.025	mg/Kg	1	9/17/2021 2:31:00 AM	62603			
Toluene		ND	0.049	mg/Kg	1	9/17/2021 2:31:00 AM	62603			
Ethylben	izene	ND	0.049	mg/Kg	1	9/17/2021 2:31:00 AM	62603			
Xylenes,	Total	ND	0.099	mg/Kg	1	9/17/2021 2:31:00 AM	62603			

85.5

70-130

%Rec

1

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT: HI	LCORP ENERGY	Client Sample ID: BH10 15-20										
Project: Ha	re 14M		Collection Date: 9/14/2021 10:08:00 AM									
Lab ID: 2109727-013 Analyses		Matrix: SOIL	Received Date: 9/15/2021 7:05:00 AM									
		Result	RL	Qual Units	DF	Date Analyzed	Batch					
EPA METHO	D 300.0: ANIONS					Analyst	: VP					
Chloride		ND	60	mg/Kg	20	9/21/2021 10:00:19 AM	62691					
EPA METHO	D 8015M/D: DIESEL RAN	GE ORGANICS				Analyst	JME					
Diesel Range	Organics (DRO)	ND	10	mg/Kg	1	9/17/2021 5:32:43 PM	62620					
Motor Oil Rar	nge Organics (MRO)	ND	50	mg/Kg	1	9/17/2021 5:32:43 PM	62620					
Surr: DNO	P	112	70-130	%Rec	1	9/17/2021 5:32:43 PM	62620					
EPA METHO	D 8015D: GASOLINE RA	NGE				Analyst	mb					
Gasoline Ran	nge Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 2:51:00 AM	62603					
Surr: BFB		96.7	70-130	%Rec	1	9/17/2021 2:51:00 AM	62603					
EPA METHO	D 8021B: VOLATILES					Analyst	mb					
Benzene		ND	0.025	mg/Kg	1	9/17/2021 2:51:00 AM	62603					
Toluene		ND	0.049	mg/Kg	1	9/17/2021 2:51:00 AM	62603					
Ethylbenzene	9	ND	0.049	mg/Kg	1	9/17/2021 2:51:00 AM	62603					
Xylenes, Tota	al	ND	0.098	mg/Kg	1	9/17/2021 2:51:00 AM	62603					
Surr: 4-Bro	mofluorobenzene	84.1	70-130	%Rec	1	9/17/2021 2:51:00 AM	62603					

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT: HILCORP ENERGY Project: Hare 14M Lab ID: 2109727-014	Matrix: SOIL	Cl (ient Sample II Collection Date Received Date): BH e: 9/1 e: 9/1	H10 20-25 4/2021 10:18:00 AM 5/2021 7:05:00 AM	
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	VP
Chloride	ND	59	mg/Kg	20	9/21/2021 10:37:31 AM	62691
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst	JME
Diesel Range Organics (DRO)	ND	8.5	mg/Kg	1	9/17/2021 5:42:29 PM	62620
Motor Oil Range Organics (MRO)	ND	42	mg/Kg	1	9/17/2021 5:42:29 PM	62620
Surr: DNOP	100	70-130	%Rec	1	9/17/2021 5:42:29 PM	62620
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	mb
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 3:11:00 AM	62603
Surr: BFB	97.9	70-130	%Rec	1	9/17/2021 3:11:00 AM	62603
EPA METHOD 8021B: VOLATILES					Analyst	mb
Benzene	ND	0.025	mg/Kg	1	9/17/2021 3:11:00 AM	62603
Toluene	ND	0.049	mg/Kg	1	9/17/2021 3:11:00 AM	62603
Ethylbenzene	ND	0.049	mg/Kg	1	9/17/2021 3:11:00 AM	62603
Xylenes, Total	ND	0.098	mg/Kg	1	9/17/2021 3:11:00 AM	62603
Surr: 4-Bromofluorobenzene	85.5	70-130	%Rec	1	9/17/2021 3:11:00 AM	62603

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
- Н 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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Cli	ient Sample II): BF	H10 25-30	
Project:	Hare 14M		(Collection Date	e: 9/1	4/2021 10:23:00 AM	
Lab ID:	2109727-015	Matrix: SOIL		Received Date	e: 9/1	5/2021 7:05:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS					Analyst	VP
Chloride		ND	60	mg/Kg	20	9/21/2021 10:49:55 AM	62691
EPA MET	HOD 8015M/D: DIESEL RAN	GE ORGANICS				Analyst	JME
Diesel Ra	ange Organics (DRO)	ND	9.2	mg/Kg	1	9/17/2021 5:52:17 PM	62620
Motor Oil	Range Organics (MRO)	ND	46	mg/Kg	1	9/17/2021 5:52:17 PM	62620
Surr: D	DNOP	94.1	70-130	%Rec	1	9/17/2021 5:52:17 PM	62620
EPA MET	HOD 8015D: GASOLINE RAI	NGE				Analyst	mb
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	9/17/2021 3:31:00 AM	62603
Surr: E	BFB	106	70-130	%Rec	1	9/17/2021 3:31:00 AM	62603
EPA MET	HOD 8021B: VOLATILES					Analyst	mb
Benzene		ND	0.024	mg/Kg	1	9/17/2021 3:31:00 AM	62603
Toluene		ND	0.048	mg/Kg	1	9/17/2021 3:31:00 AM	62603
Ethylben	zene	ND	0.048	mg/Kg	1	9/17/2021 3:31:00 AM	62603
Xylenes,	Total	ND	0.097	mg/Kg	1	9/17/2021 3:31:00 AM	62603
Surr: 4	I-Bromofluorobenzene	86.9	70-130	%Rec	1	9/17/2021 3:31:00 AM	62603

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY	Client Sample ID: BH10 30-35							
Project:	Hare 14M		(Collection Date	e: 9/1	4/2021 10:30:00 AM			
Lab ID:	2109727-016	Matrix: SOIL		Received Date	e: 9/1	5/2021 7:05:00 AM			
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch		
EPA MET	HOD 300.0: ANIONS					Analyst	: VP		
Chloride		ND	61	mg/Kg	20	9/21/2021 11:02:20 AM	62691		
EPA MET	HOD 8015M/D: DIESEL RANG	E ORGANICS				Analyst	: JME		
Diesel Ra	ange Organics (DRO)	ND	9.6	mg/Kg	1	9/17/2021 6:02:05 PM	62620		
Motor Oi	I Range Organics (MRO)	ND	48	mg/Kg	1	9/17/2021 6:02:05 PM	62620		
Surr: E	DNOP	95.8	70-130	%Rec	1	9/17/2021 6:02:05 PM	62620		
EPA MET	HOD 8015D: GASOLINE RANG	E				Analyst	: mb		
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/17/2021 3:50:00 AM	62603		
Surr: E	3FB	101	70-130	%Rec	1	9/17/2021 3:50:00 AM	62603		
EPA MET	HOD 8021B: VOLATILES					Analyst	: mb		
Benzene		ND	0.025	mg/Kg	1	9/17/2021 3:50:00 AM	62603		
Toluene		ND	0.049	mg/Kg	1	9/17/2021 3:50:00 AM	62603		
Ethylbenzene		ND	0.049	mg/Kg	1	9/17/2021 3:50:00 AM	62603		
Xylenes,	Total	ND	0.099	mg/Kg	1	9/17/2021 3:50:00 AM	62603		
Surr: 4	1-Bromofluorobenzene	87.4	70-130	%Rec	1	9/17/2021 3:50:00 AM	62603		

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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Lab Order 2109727

Date Reported: 9/27/2021

CLIENT:	HILCORP ENERGY		Client Sample ID: BH10 35-40					
Project:	Hare 14M		(Collecti	on Date	e: 9/1	4/2021 10:40:00 AM	
Lab ID:	2109727-017	Matrix: SOIL Received Date: 9/15/2021 7:05:00 AM						
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 300.0: ANIONS						Analyst:	VP
Chloride		ND	60		mg/Kg	20	9/21/2021 12:29:12 PM	62706
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANICS					Analyst	JME
Diesel Ra	ange Organics (DRO)	ND	9.7		mg/Kg	1	9/17/2021 6:11:53 PM	62629
Motor Oil	Range Organics (MRO)	ND	48		mg/Kg	1	9/17/2021 6:11:53 PM	62629
Surr: D	DNOP	99.0	70-130		%Rec	1	9/17/2021 6:11:53 PM	62629
EPA MET	HOD 8015D: GASOLINE RANGI	E					Analyst	mb
Gasoline	Range Organics (GRO)	ND	0.049		mg/Kg	1	9/17/2021 4:10:00 AM	62603
Surr: E	3FB	101	70-130		%Rec	1	9/17/2021 4:10:00 AM	62603
EPA MET	HOD 8021B: VOLATILES						Analyst	mb
Benzene		ND	0.00025		mg/Kg	1	9/17/2021 4:10:00 AM	62603
Toluene		ND	0.00049		mg/Kg	1	9/17/2021 4:10:00 AM	62603
Ethylbenz	zene	ND	0.00049		mg/Kg	1	9/17/2021 4:10:00 AM	62603
Xylenes, Total		ND	0.00099		mg/Kg	1	9/17/2021 4:10:00 AM	62603
Surr: 4	I-Bromofluorobenzene	85.6	70-130		%Rec	1	9/17/2021 4:10:00 AM	62603

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
- Н Holding times for preparation or analysis exceeded
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- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

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- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range RL Reporting Limit

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Chent.	HILCOR	P ENERGY									
Project:	Hare 14M	1									
Sample ID:	MB-62591	SampTyp	e: ME	BLK	Test	Code: EF	PA Method	300.0: Anions			
Client ID:	PBS	Batch II	D: 62	591	R	unNo: 8 ′	1279				
Prep Date:	9/15/2021	Analysis Date	e: 9/	15/2021	S	eqNo: 2	871570	Units: mg/Kg	J		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-62591	SampTyp	e: LC	S	Test	Code: EF	PA Method	300.0: Anions	i		
Client ID:	LCSS	Batch II	D: 62	591	R	unNo: 8	1279				
Prep Date:	9/15/2021	Analysis Date	e: 9/	15/2021	S	eqNo: 2	871571	Units: mg/Kg)		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15	1.5	15.00	0	99.5	90	110			
Sample ID:	MB-62706	SampTyp	e: ME	BLK	Test	Code: EF	PA Method	300.0: Anions			
Client ID:	PBS	Batch II	D: 62	706	R	unNo: 8	1415				
Prep Date:	9/21/2021	Analysis Date	e: 9/	21/2021	S	eqNo: 2	877535	Units: mg/Kg)		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID:	LCS-62706	SampTyp	e: LC	S	Test	Code: EF	PA Method	300.0: Anions			
Sample ID: Client ID:	LCS-62706 LCSS	SampTyp Batch II	e: LC D: 62	S 706	Test R	Code: Ef unNo: 8	PA Method 1415	300.0: Anions			
Sample ID: Client ID: Prep Date:	LCS-62706 LCSS 9/21/2021	SampTyp Batch II Analysis Date	e: LC D: 62 9: 9/	S 706 21/2021	Test R S	Code: Ef unNo: 8 ieqNo: 2	PA Method 1415 877536	300.0: Anions Units: mg/Kg	9		
Sample ID: Client ID: Prep Date: Analyte	LCS-62706 LCSS 9/21/2021	SampTyp Batch II Analysis Date Result	e: LC D: 62 e: 9/ PQL	S 706 21/2021 SPK value	Test R SPK Ref Val	Code: EF unNo: 8 eqNo: 28 %REC	PA Method 1415 877536 LowLimit	300.0: Anions Units: mg/Kg HighLimit) %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride	LCS-62706 LCSS 9/21/2021	SampTyp Batch II Analysis Date Result 15	e: LC D: 62 e: 9/ PQL 1.5	S 706 21/2021 SPK value 15.00	Test R S SPK Ref Val 0	Code: EF anNo: 8 GeqNo: 28 <u>%REC</u> 97.6	PA Method 1415 877536 LowLimit 90	300.0: Anions Units: mg/Kg HighLimit 110	9 %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID:	LCS-62706 LCSS 9/21/2021 MB-62691	SampTyp Batch II Analysis Date Result 15 SampTyp	e: LC D: 62 e: 9/ PQL 1.5 e: ME	S 706 21/2021 SPK value 15.00	Test R SPK Ref Val 0 Test	Code: EF anNo: 8 beqNo: 28 %REC 97.6 code: EF	PA Method 1415 877536 LowLimit 90 PA Method	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions	9 %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID:	LCS-62706 LCSS 9/21/2021 MB-62691 PBS	SampTyp Batch II Analysis Date Result 15 SampTyp Batch II	e: LC D: 62 e: 9/ PQL 1.5 e: ME D: 62	S 706 21/2021 SPK value 15.00 BLK 691	Test R SPK Ref Val 0 Test R	Code: EF anNo: 8' aeqNo: 21 %REC 97.6 Code: EF	PA Method 1415 877536 LowLimit 90 PA Method 1415	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions	9 %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date:	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021	SampTyp Batch II Analysis Date Result 15 SampTyp Batch II Analysis Date	e: LC D: 62 e: 9/ PQL 1.5 e: ME D: 62 e: 9/	S 706 21/2021 SPK value 15.00 BLK 691 22/2021	Test R SPK Ref Val 0 Test R S	Code: EF aunNo: 8 aeqNo: 24 <u>%REC</u> 97.6 code: EF aunNo: 8 aeqNo: 24	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg	9 %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021	SampTyp Batch II Analysis Date Result 15 SampTyp Batch II Analysis Date Result	e: LC D: 62 PQL 1.5 e: ME D: 62 D: 62 PQL PQL	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value	Test R SPK Ref Val 0 Test R SPK Ref Val	Code: Ef aunNo: 8 aeqNo: 24 %REC 97.6 code: Ef aunNo: 8 aeqNo: 24 %REC	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit	9 %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte Chloride	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021	SampTyp Batch II Analysis Date Result 15 SampTyp Batch II Analysis Date Result ND	e: LC D: 62 PQL 1.5 e: ME D: 62 e: 9/ PQL 1.5	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value	Test R S SPK Ref Val 0 Test R S SPK Ref Val	Code: EF aunNo: 8 beqNo: 28 %REC 97.6 Code: EF aunNo: 8 beqNo: 28 %REC	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit	9 %RPD	RPDLimit RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID:	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021 LCS-62691	SampTyp Batch II Analysis Date Result SampTyp Batch II Analysis Date Result ND	e: LC D: 62 e: 9/ PQL 1.5 e: ME D: 62 e: 9/ PQL 1.5 e: LC	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value S	Test R SPK Ref Val 0 Test SPK Ref Val SPK Ref Val	Code: Ef aunNo: 8 aeqNo: 24 %REC 97.6 Code: Ef aunNo: 8 %REC %REC	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit PA Method	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit 300.0: Anions	9 %RPD %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID:	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021 LCS-62691 LCSS	SampTyp Batch II Analysis Data Result 15 SampTyp Batch II Analysis Data Result 1 ND SampTyp Batch II	e: LC 2: 62 9: 9/ PQL 1.5 1.5 0: 62 9: 9/ PQL 1.5 PQL 1.5 0: 62 0: 62 0	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value S 691	Test R SPK Ref Val 0 Test SPK Ref Val Test R	Code: Ef aunNo: 8 GeqNo: 24 %REC 97.6 Code: Ef aunNo: 8 %REC Code: Ef aunNo: 8	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit PA Method 1415	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit 300.0: Anions	9 %RPD 9 %RPD	RPDLimit RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date:	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021 LCS-62691 LCSS 9/20/2021	SampTyp Batch II Analysis Date 15 SampTyp Batch II Analysis Date ND SampTyp Batch II Analysis Date	e: LC 2: 62 2: 9/ PQL 1.5 62 0: 62 0: 62 0	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value S 691 22/2021	Test R SPK Ref Val 0 Test SPK Ref Val Test R SPK Ref Val	Code: Ef aunNo: 8 aeqNo: 24 %REC 97.6 Code: Ef aunNo: 8 %REC Code: Ef aunNo: 8 code: Ef aunNo: 8	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit PA Method 1415 877600	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit 300.0: Anions Units: mg/Kg	%RPD %RPD	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte Chloride Sample ID: Client ID: Prep Date: Analyte	LCS-62706 LCSS 9/21/2021 MB-62691 PBS 9/20/2021 LCS-62691 LCSS 9/20/2021	SampTyp Batch II Analysis Date Result 15 SampTyp Batch II Analysis Date ND SampTyp Batch II Analysis Date Result	e: LC 2: 62 9: 9/ PQL 1.5 e: ME 0: 62 0: 62	S 706 21/2021 SPK value 15.00 3LK 691 22/2021 SPK value S 691 22/2021 SPK value	Test R SPK Ref Val 0 Test SPK Ref Val Test R SPK Ref Val	Code: Ef aunNo: 8' GeqNo: 24 %REC 97.6 Code: Ef aunNo: 8' GeqNo: 24 Code: Ef aunNo: 8' GeqNo: 24 Code: 24 Code: 24 Code: 24 Code: 24 Code: 24	PA Method 1415 877536 LowLimit 90 PA Method 1415 877599 LowLimit PA Method 1415 877600 LowLimit	300.0: Anions Units: mg/Kg HighLimit 110 300.0: Anions Units: mg/Kg HighLimit 300.0: Anions Units: mg/Kg HighLimit	%RPD %RPD	RPDLimit RPDLimit RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
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- 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

WO#: 2109727 27-Sep-21

QC SUMMARY REPORT Η

	WO#:	2109727
all Environmental Analysis Laboratory, Inc.		27-Sep-21

Client: Project:	HILCOR Hare 14M	P ENERG` 1	Y								
Sample ID:	LCS-62590	SampT	ype: LC	S	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	LCSS	Batch	ID: 62	590	F	RunNo: 8	31280				
Prep Date:	9/15/2021	Analysis D	ate: 9/	15/2021	S	SeqNo: 2	2870379	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	47	10	50.00	0	94.2	68.9	135			
Surr: DNOP	1	5.6		5.000		112	70	130			
Sample ID:	MB-62590	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	PBS	Batch	ID: 62	590	F	RunNo: 8	81280				
Prep Date:	9/15/2021	Analysis D	ate: 9/	15/2021	5	SeqNo: 2	2870380	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Motor Oil Rang Surr: DNOP	Organics (DRO) ge Organics (MRO)	ND ND 10	10 50	10.00		101	70	130			
Sample ID:	2109727-009AMS	SampT	ype: MS	6	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	BH11 40-42	Batch	ID: 62	590	F	RunNo: 8	31280		J	•	
Prep Date:	9/15/2021	Analysis D	ate: 9/	15/2021	S	SeqNo: 2	2870565	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	52	9.9	49.41	7.476	89.2	39.3	155			
Surr: DNOP	1	5.7		4.941		115	70	130			
Sample ID:	2109727-009AMSI	D SampT	ype: MS	SD	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	BH11 40-42	Batch	ID: 62	590	F	RunNo: 8	81280				
Prep Date:	9/15/2021	Analysis D	ate: 9/	15/2021	5	SeqNo: 2	2870566	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	51	10	50.15	7.476	85.9	39.3	155	1.98	23.4	
Surr: DNOP		5.7		5.015		114	70	130	0	0	
Sample ID:	MB-62620	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	PBS	Batch	ID: 62	620	F	RunNo: 8	31352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	5	SeqNo: 2	2873416	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	ND	10								
Motor Oil Rang	ge Organics (MRO)	ND	50			e = 1	_				
Surr: DNOP		9.7		10.00		97.5	70	130			

Qualifiers:

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- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
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- Р Sample pH Not In Range
- RL Reporting Limit

Client:	HILCOR	P ENERG	Y								
Project:	Hare 14N	1									
Sample ID:	MB-62629	SampT	ype: ME	BLK	Tes	tCode: EF	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	PBS	Batch	n ID: 62	629	F	RunNo: 8 ′	1352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	S	SeqNo: 28	873417	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	ND	10								
Motor Oil Rang	e Organics (MRO)	ND	50								
Surr: DNOP		11		10.00		106	70	130			
Sample ID:	LCS-62620	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	LCSS	Batch	n ID: 62	620	F	RunNo: 8 ′	1352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	S	SeqNo: 28	873419	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	45	10	50.00	0	91.0	68.9	135			
Surr: DNOP		5.5		5.000		110	70	130			
Sample ID:	LCS-62629	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	LCSS	Batch	n ID: 62	629	F	RunNo: 8 4	1352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	S	SeqNo: 28	873420	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	50	10	50.00	0	99.6	68.9	135			
Surr: DNOP		5.7		5.000		114	70	130			
Sample ID:	2109727-017AMS	SampT	ype: M	6	Tes	tCode: EF	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	BH10 35-40	Batch	n ID: 62	629	F	RunNo: 8	1352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	S	SeqNo: 28	873879	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	47	9.8	49.12	5.877	83.0	39.3	155			
Surr: DNOP		5.5		4.912		112	70	130			
Sample ID:	2109727-017AMSI) SampT	ype: M	SD	Tes	tCode: EF	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID:	BH10 35-40	Batch	n ID: 62	629	F	RunNo: 8 ′	1352				
Prep Date:	9/16/2021	Analysis D	ate: 9/	17/2021	S	SeqNo: 2	873880	Units: mg/ł	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	48	9.5	47.57	5.877	88.4	39.3	155	2.74	23.4	
Surr: DNOP		5.2		4.757		110	70	130	0	0	

Qualifiers:

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- 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

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2109727

27-Sep-21

WO#:

Client:	HILCORF	PENERG	Y								
	Hare 14M	-									
Sample ID: MB		SampT	ype: M	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS		Batcl	n ID: G	S81278	F	RunNo: 8 ′	1278				
Prep Date:		Analysis D	Date: 9,	/15/2021	S	SeqNo: 28	871045	Units: mg/ #	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Orgar Surr: BFB	nics (GRO)	ND 1100	5.0	1000		105	70	130			
Sample ID: 2.5ug	lcs gro	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	5	Batcl	n ID: G	S81278	F	RunNo: 8	1278				
Prep Date:		Analysis D	Date: 9 /	/15/2021	S	SeqNo: 28	871046	Units: mg/k	٤g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Orgar	nics (GRO)	25	5.0	25.00	0	101	78.6	131			
Surr: BFB		1200		1000		122	70	130			
Sample ID: mb-6	2603	SampT	ype: M	BLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS		Batcl	n ID: 62	603	F	RunNo: 8 ′	1344				
Prep Date: 9/15	/2021	Analysis D	Date: 9,	/16/2021	S	SeqNo: 28	872750	Units: mg/ #	٤g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Orgar	nics (GRO)	ND	5.0								
Surr: BFB		970		1000		96.9	70	130			
Sample ID: Ics-62	2603	SampT	ype: LC	s	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	5	Batcl	n ID: 62	603	F	RunNo: 8 ′	1344				
Prep Date: 9/15	/2021	Analysis D	Date: 9 /	/16/2021	S	SeqNo: 28	872752	Units: mg/k	٤g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Orgar	nics (GRO)	30	5.0	25.00	0	119	78.6	131			
Surr: BFB		1100		1000		113	70	130			

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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WO#: 2109727 27-Sep-21

Client:	HILCORI	P ENERG	Y								
Project:	Hare 14M	1									
Sample ID: M	В	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: PE	BS	Batch	n ID: BS	81278	F	RunNo: 8	1278				
Prep Date:		Analysis D)ate: 9/	15/2021	S	SeqNo: 2	871047	Units: mg/ #	٢g		
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-Bromoflu	uorobenzene	0.90		1.000		89.6	70	130			
Sample ID: 10	00ng btex lcs	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: LC	CSS	Batch	n ID: BS	81278	F	RunNo: 8	1278				
Prep Date:		Analysis D	0ate: 9/	15/2021	S	SeqNo: 2	871048	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.83	0.025	1.000	0	82.6	80	120			
Foluene		0.85	0.050	1.000	0	85.4	80	120			
Ethylbenzene		0.88	0.050	1.000	0	88.5	80	120			
Kylenes, Total		2.7	0.10	3.000	0	89.5	80	120			
Surr: 4-Bromoflu	uorobenzene	0.89		1.000		89.0	70	130			
Sample ID: 21	109727-009ams	SampT	ype: MS	6	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: B	H11 40-42	Batch	n ID: BS	81278	F	RunNo: 8	1278				
Prep Date:		Analysis D)ate: 9/	15/2021	S	SeqNo: 2	871049	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.56	0.017	0.6748	0	83.0	80	120			
Toluene		0.57	0.034	0.6748	0	84.5	80	120			
Ethylbenzene		0.59	0.034	0.6748	0	86.7	80	120			
Xylenes, Total		1.8	0.067	2.024	0	87.0	80	120			
Surr: 4-Bromoflu	uorobenzene	0.57		0.6748		83.8	70	130			
Sample ID: 21	109727-009amsd	SampT	ype: MS	SD	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: BI	H11 40-42	Batch	n ID: BS	81278	F	RunNo: 8	1278				
Prep Date:		Analysis D)ate: 9/	15/2021	S	SeqNo: 2	871050	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.54	0.017	0.6748	0	80.7	80	120	2.77	20	
Toluene		0.55	0.034	0.6748	0	81.4	80	120	3.69	20	
Ethylbenzene		0.56	0.034	0.6748	0	83.7	80	120	3.62	20	
Kylenes, Total		1.7	0.067	2.024	0	83.6	80	120	4.03	20	
Surr: 4-Bromoflu	uorobenzene	0.55		0.6748		81.5	70	130	0	0	

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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2109727

27-Sep-21

WO#:

Client:	HILCOR	P ENERG	Ϋ́Υ								
Project:	Hare 14M	1									
Sample ID:	mb-62603	Samp	Type: ME	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	PBS	Batc	h ID: 62	603	F	RunNo: 8	81344				
Prep Date:	9/15/2021	Analysis [Date: 9/	16/2021	S	SeqNo: 2	872754	Units: mg/l	٨g		
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-Brom	nofluorobenzene	0.85		1.000		85.0	70	130			
Sample ID:	lcs-62603	Samp	Гуре: LC	S	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	LCSS	Batc	h ID: 62	603	F	RunNo: 8	31344				
Prep Date:	9/15/2021	Analysis [Date: 9/	16/2021	S	SeqNo: 2	872756	Units: mg/l	٨g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.93	0.025	1.000	0	92.6	80	120			
Toluene		0.92	0.050	1.000	0	92.2	80	120			
Ethylbenzene		0.93	0.050	1.000	0	92.6	80	120			
Xylenes, Total		2.8	0.10	3.000	0	92.9	80	120			
Surr: 4-Brom	nofluorobenzene	0.88		1.000		87.7	70	130			
Sample ID:	2109727-002ams	Samp	Гуре: МS	3	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	BH11 5-10	Batc	h ID: 62	603	F	RunNo: 8	31344				
Prep Date:	9/15/2021	Analysis [Date: 9/	16/2021	S	SeqNo: 2	872801	Units: mg/l	٨g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.95	0.025	0.9872	0	96.3	80	120			
Toluene		0.96	0.049	0.9872	0	97.1	80	120			
Ethylbenzene		0.97	0.049	0.9872	0	98.4	80	120			
Xylenes, Total		2.9	0.099	2.962	0	98.8	80	120			
Surr: 4-Brom	nofluorobenzene	0.81		0.9872		82.2	70	130			
Sample ID:	2109727-002amsd	Samp	Гуре: МS	D	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID:	BH11 5-10	Batc	h ID: 62	603	F	RunNo: 8	81344				
Prep Date:	9/15/2021	Analysis [Date: 9/	16/2021	S	SeqNo: 2	872803	Units: mg/l	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.95	0.025	1.000	0	95.1	80	120	0.0218	20	
Toluene		0.96	0.050	1.000	0	95.6	80	120	0.229	20	
Ethylbenzene		0.96	0.050	1.000	0	96.3	80	120	0.902	20	
Xylenes, Total		2.9	0.10	3.000	0	96.1	80	120	1.48	20	
Surr: 4-Brom	nofluorobenzene	0.84		1.000		83.6	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

2109727

27-Sep-21

WO#:

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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					nple Log-In Check List
Client Name: Hilcorp Energy	Work Order Number:	210	9727			RcptNo: 1
Received By: Cheyenne Cason 9/	15/2021 7:05:00 AM			Chend	L	
Completed By: Cheyenne Cason 9/	15/2021 8:17:25 AM			chent	1	
Reviewed By: DAD 9/15/21						
Chain of Custody						
1. Is Chain of Custody complete?		Yes		No		Not Present
2. How was the sample delivered?		Cou	rier			
Log In 3. Was an attempt mode to cool the complete?		v		No		NA 🗔
5. Was an altempt made to cool the samples?		Yes	V	NO		
4. Were all samples received at a temperature of >	•0° C to 6.0°C	Yes		No		
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 pro	eserved?	Yes		No		
8. Was preservative added to bottles?		Yes		No	\checkmark	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		# of preserved
 Does paperwork match bottle labels? (Note discrepancies on chain of custody) 		Yes		No		for pH: (<2.or >12 unless noted)
2. Are matrices correctly identified on Chain of Cust	ody?	Yes	\checkmark	No		Adjusted?
3. Is it clear what analyses were requested?		Yes	\checkmark	No		10151501
4. Were all holding times able to be met?		Yes	\checkmark	No	Ξ,	Checked by: SPA 105.2
Special Handling (if applicable)				1	/	Sanday and gilling Check
15. Was client notified of all discrepancies with this of	order?	Yes		No		NA 🗹
Person Notified:	Date:	_			_	
By Whom:	Via:	eM	ail 🗌 Ph	one 🗔	Fax	In Person
Regarding:						
Client Instructions:						
16. Additional remarks: Disregand	the INFO	12m	Ation	- 0 -	· +	be "sticker LABIE" (Cli
17. <u>Cooler Information</u> トゥロ シネータ Cooler No Temp °C Condition Seal Ir	IES IOA, ILA	, 14 eal D	ate 5	igned F	+,1= Bv	7A. 5,0A 9.15.21
1 5.8 Good				igned t	Jy	& SAMPLE COLA Not PRO

Page 1 of 1

Client:	HE Mitch Address	-ot-C	longh	Proje	Around officers itandard oct Nam	n Time: d <u>ダ Rusi</u> e: RE 14M	Some Days Bit 11 40-42 on	HALL ENVIRONMENTAL ANALYSIS LABORATOR www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107				L ZY									
				Proje	ct #:	~~~~~	-														
Phone	#:		0			1 +8 2001	F	Analysis Request													
email o QA/QC ⊒ Stan	r Fax#: Package idard	See	Level 4 (Full Validation)	Proje	ct Mana	Danny Bu Stuart Hu	rns/	's (8021) O / MRO PCB's DSIMS PO4, SO4													
Accredi	itation:	□ Az Co	ompliance	Sampler: Reece Honson HU HU Son																	
	AC (Type)	□ Othe	r	On Ic	e:	TYes	□ No	- È	SRO	les/8	1 504	0 or	sle	D ₃ , I		(OA)	n (Pr				
				Coole	er Temp	D(including CF):5.9	-0.1=5.8 (°C)	MTB	5D(G	sticic	ethoc	831	Meta	NON .	(Y)	√-imi	iforn				
Date	Time	Matrix	Sample Name	Conta Type	ainer and #	Preservative Type	HEAL No.	BTEX)	TPH:801	8081 Pe	EDB (Me	PAHs by	RCRA 8	ĈĥF, Br	8260 (VC	8270 (Se	Total Col				
1-14-2	1140	Soit	-DH 11 0-5	1-6	102	Cool	COT 9/15/2	1	5		11			~							
	1145		134115-10	1			002														
	115/		1314 11 10-15				003														
	1156		0411 15-20				004														
_	1203		131+11 20-25				005														
	1232		Bitl 25-30				006												8		
	1305		13411 30-35				607			1 - 2											
	1324		BH11 35-40				608														
	1345		\$ 131+11 40-42				009	1	X	1				Y							
*	_		244-42-15- RH					X	+	1				Y							
-	930		BH 10 0-5		-		010		1.	<i>.</i>											
vate:	940 Time:	Relinquish	31710 5-10 ed by:	Receive	ed by:	Via:	Date Time 9/14/24 1610	Remarks: Some day rush on 40-42' sample (BIFT Stondard on all others			11 4										
ate: /14/21	Time:	Relinquish	nt Walt	Cm	ed by:	Via: currer 9	Date Time	CC - Stuart. Hydee wsp. com Danny, burnse wsp. com													

Client: 14FC				Turn-A	Around	l Time:					ŀ	A	LL	E	NV	/TF	20	NM	ENT		
	17E	٢		Projec	andaro t Nam	d 🗆 Rusl e:	ı	- [A	N	AL	Y	SIS	5 L	A	BOR	AT	OR	Y
Mailing	Addres	s:			HA	IRE 142	1		49	01 H	awk	www. ins N	w.ha NE -	llenv Alt	viron	men erqu	tal.co ie, Ni	om M 8710	9		
Phone	#:			Projec	:t #:	01 78 200	017	Tel. 505-345-3975 Fax 505-345-4107													
email o	r Fax#:			Project	t Mana	ader. ~	- /		6			-		4	313	Req			1-1		-
QA/QC □ Star	Package ndard		□ Level 4 (Full Validation)		, mane	Stuarl	- 13wr 3/ - Hydl	s (8021)	O.I.MRO	PCB's		SIMS		PO4, SC			t/Absent				
Accredi	itation: AC	□ Az Co □ Othe	ompliance r	Sample On Ice	er: :	RH Ø Yes	□ No	/ TMB	RO / DR	s/8082	504.1)	or 8270	s	3, NO ₂ ,		(AC	(Presen				
) (Type)	T		# of Co	oolers:	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TBE	D(GF	icide	poi	310	letal	NO	()	i-VC	orm				
Date	Time	Matrix	Sample Name	Contain Type a	ner Ind #	Preservative Type	HEAL No.	BTEX) M	TPH:8015	8081 Pest	EDB (Meth	PAHs by 8	RCRA 8 N	CIJF, Br,	8260 (VO/	8270 (Sen	Total Colif				
9-14-21	952	Soil	BH10 10-15	(1)402	Jer	Cust	50-012	I	1					1							
ſ	1008	1	13/10 13-20	1		1	013		1										\uparrow		
	1018		Bit 10 20-25				014												+		
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	1030		BH10 30-35				06	1													
×	1040	1	BH10 35-40	+	2.1	*	017	Y	J					V						1	
										_		-	-	-	-	-	-	_	\vdash	+	-
															-					-	-
Date:	Time:	Relinquish	ed by:	Received	d by:	Via:	Date Time	Ren	narks	5:											
7/14/21 Date:	1614 Time:	Relinquish	ed by:	Received	H ل by:	Vart Via:															



September 30, 2021

Mitch Killough HILCORP ENERGY PO Box 4700 Farmington, NM 87499 TEL: (505) 564-0733 FAX: Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: clients.hallenvironmental.com

OrderNo.: 2109899

Dear Mitch Killough:

RE: HARE 14M

Hall Environmental Analysis Laboratory received 18 sample(s) on 9/16/2021 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 0-5 Collection Date: 9/15/2021 9:15:00 AM **Deceived Deter** 0/16/2021 10:55:00 AM

Lab ID: 2109899-001	Matrix: SOIL	Received Date: 9/16/2021 10:55:00 AM								
Analyses	Result	RL Qu	al Units	DF	Date Analyzed					
EPA METHOD 8015M/D: DIESEL RAM	NGE ORGANICS				Analyst: SB					
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	9/22/2021 2:36:56 PM					
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	9/22/2021 2:36:56 PM					
Surr: DNOP	81.5	70-130	%Rec	1	9/22/2021 2:36:56 PM					
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb					
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	9/22/2021 9:11:00 AM					
Surr: BFB	102	70-130	%Rec	1	9/22/2021 9:11:00 AM					
EPA METHOD 8021B: VOLATILES					Analyst: mb					
Benzene	ND	0.023	mg/Kg	1	9/22/2021 9:11:00 AM					
Toluene	ND	0.046	mg/Kg	1	9/22/2021 9:11:00 AM					
Ethylbenzene	ND	0.046	mg/Kg	1	9/22/2021 9:11:00 AM					
Xylenes, Total	ND	0.092	mg/Kg	1	9/22/2021 9:11:00 AM					
Surr: 4-Bromofluorobenzene	90.5	70-130	%Rec	1	9/22/2021 9:11:00 AM					
EPA METHOD 300.0: ANIONS					Analyst: VP					
Chloride	ND	60	mg/Kg	20	9/22/2021 8:11:40 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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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2109899-002

Project: HARE 14M

Lab ID:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 5-10 Collection Date: 9/15/2021 9:19:00 AM Received Date: 9/16/2021 10:55:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OF	RGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	9/22/2021 3:15:08 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	9/22/2021 3:15:08 PM
Surr: DNOP	85.8	70-130	%Rec	1	9/22/2021 3:15:08 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	9/22/2021 10:11:00 AM
Surr: BFB	92.5	70-130	%Rec	1	9/22/2021 10:11:00 AM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.023	mg/Kg	1	9/22/2021 10:11:00 AM
Toluene	ND	0.047	mg/Kg	1	9/22/2021 10:11:00 AM
Ethylbenzene	ND	0.047	mg/Kg	1	9/22/2021 10:11:00 AM
Xylenes, Total	ND	0.093	mg/Kg	1	9/22/2021 10:11:00 AM
Surr: 4-Bromofluorobenzene	81.1	70-130	%Rec	1	9/22/2021 10:11:00 AM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 8:48:55 PM

Matrix: SOIL

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

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HARE 14M

Project:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 10-15 Collection Date: 9/15/2021 9:26:00 AM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-003	Matrix: SOIL	Received Date: 9/16/2021 10:55:00 AM							
Analyses	Result	RL Qu	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RA	NGE ORGANICS				Analyst: SB				
Diesel Range Organics (DRO)	ND	9.3	mg/Kg	1	9/22/2021 3:27:54 PM				
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	9/22/2021 3:27:54 PM				
Surr: DNOP	89.5	70-130	%Rec	1	9/22/2021 3:27:54 PM				
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb				
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	9/22/2021 11:09:00 AM				
Surr: BFB	91.0	70-130	%Rec	1	9/22/2021 11:09:00 AM				
EPA METHOD 8021B: VOLATILES					Analyst: mb				
Benzene	ND	0.024	mg/Kg	1	9/22/2021 11:09:00 AM				
Toluene	ND	0.047	mg/Kg	1	9/22/2021 11:09:00 AM				
Ethylbenzene	ND	0.047	mg/Kg	1	9/22/2021 11:09:00 AM				
Xylenes, Total	ND	0.094	mg/Kg	1	9/22/2021 11:09:00 AM				
Surr: 4-Bromofluorobenzene	77.4	70-130	%Rec	1	9/22/2021 11:09:00 AM				
EPA METHOD 300.0: ANIONS					Analyst: VP				
Chloride	ND	60	mg/Kg	20	9/22/2021 9:01:19 PM				

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
 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

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HARE 14M

Project:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 15-20 Collection Date: 9/15/2021 9:32:00 AM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-004	Matrix: SOIL	Received Date: 9/16/2021 10:55:00 AM							
Analyses	Result	RL Qu	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: SB				
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	9/22/2021 3:40:29 PM				
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	9/22/2021 3:40:29 PM				
Surr: DNOP	102	70-130	%Rec	1	9/22/2021 3:40:29 PM				
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb				
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	9/22/2021 11:29:00 AM				
Surr: BFB	98.6	70-130	%Rec	1	9/22/2021 11:29:00 AM				
EPA METHOD 8021B: VOLATILES					Analyst: mb				
Benzene	ND	0.024	mg/Kg	1	9/22/2021 11:29:00 AM				
Toluene	ND	0.049	mg/Kg	1	9/22/2021 11:29:00 AM				
Ethylbenzene	ND	0.049	mg/Kg	1	9/22/2021 11:29:00 AM				
Xylenes, Total	ND	0.097	mg/Kg	1	9/22/2021 11:29:00 AM				
Surr: 4-Bromofluorobenzene	85.0	70-130	%Rec	1	9/22/2021 11:29:00 AM				
EPA METHOD 300.0: ANIONS					Analyst: VP				
Chloride	ND	60	mg/Kg	20	9/22/2021 9:13:44 PM				

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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HARE 14M

Project:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 20-25 Collection Date: 9/15/2021 9:43:00 AM **Becaived Date:** 9/16/2021 10:55:00 AM

Lab ID: 2109899-005	Matrix: SOIL	Received Date: 9/16/2021 10:55:00 AM							
Analyses	Result	RL Qu	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RAM	NGE ORGANICS				Analyst: SB				
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	9/22/2021 3:53:12 PM				
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	9/22/2021 3:53:12 PM				
Surr: DNOP	108	70-130	%Rec	1	9/22/2021 3:53:12 PM				
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb				
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/22/2021 11:49:00 AM				
Surr: BFB	99.7	70-130	%Rec	1	9/22/2021 11:49:00 AM				
EPA METHOD 8021B: VOLATILES					Analyst: mb				
Benzene	ND	0.024	mg/Kg	1	9/22/2021 11:49:00 AM				
Toluene	ND	0.048	mg/Kg	1	9/22/2021 11:49:00 AM				
Ethylbenzene	ND	0.048	mg/Kg	1	9/22/2021 11:49:00 AM				
Xylenes, Total	ND	0.097	mg/Kg	1	9/22/2021 11:49:00 AM				
Surr: 4-Bromofluorobenzene	86.2	70-130	%Rec	1	9/22/2021 11:49:00 AM				
EPA METHOD 300.0: ANIONS					Analyst: VP				
Chloride	ND	60	mg/Kg	20	9/22/2021 9:50:58 PM				

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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HARE 14M

Project:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 25-30 Collection Date: 9/15/2021 9:56:00 AM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-006	Matrix: SOIL	Received Date: 9/16/2021 10:55:00 AM							
Analyses	Result	RL Qu	al Units	DF	Date Analyzed				
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS				Analyst: SB				
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	9/22/2021 4:05:46 PM				
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	9/22/2021 4:05:46 PM				
Surr: DNOP	95.5	70-130	%Rec	1	9/22/2021 4:05:46 PM				
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb				
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/22/2021 12:08:00 PM				
Surr: BFB	89.0	70-130	%Rec	1	9/22/2021 12:08:00 PM				
EPA METHOD 8021B: VOLATILES					Analyst: mb				
Benzene	ND	0.024	mg/Kg	1	9/22/2021 12:08:00 PM				
Toluene	ND	0.048	mg/Kg	1	9/22/2021 12:08:00 PM				
Ethylbenzene	ND	0.048	mg/Kg	1	9/22/2021 12:08:00 PM				
Xylenes, Total	ND	0.097	mg/Kg	1	9/22/2021 12:08:00 PM				
Surr: 4-Bromofluorobenzene	79.2	70-130	%Rec	1	9/22/2021 12:08:00 PM				
EPA METHOD 300.0: ANIONS					Analyst: VP				
Chloride	70	60	mg/Kg	20	9/22/2021 10:03:22 PM				

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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HARE 14M

Project:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 30-35 Collection Date: 9/15/2021 10:06:00 AM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-007	Matrix: SOIL	Reco	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	9/22/2021 4:18:28 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	9/22/2021 4:18:28 PM
Surr: DNOP	101	70-130	%Rec	1	9/22/2021 4:18:28 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	9/22/2021 12:28:00 PM
Surr: BFB	92.5	70-130	%Rec	1	9/22/2021 12:28:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.023	mg/Kg	1	9/22/2021 12:28:00 PM
Toluene	ND	0.046	mg/Kg	1	9/22/2021 12:28:00 PM
Ethylbenzene	ND	0.046	mg/Kg	1	9/22/2021 12:28:00 PM
Xylenes, Total	ND	0.092	mg/Kg	1	9/22/2021 12:28:00 PM
Surr: 4-Bromofluorobenzene	79.4	70-130	%Rec	1	9/22/2021 12:28:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	61	mg/Kg	20	9/22/2021 10:15:47 PM

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 35-40 Collection Date: 9/15/2021 10:20:00 AM **Deceived Deter** 0/16/2021 10:55:00 AM

Lab ID: 2109899-008	Matrix: SOIL	Rece	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.0	mg/Kg	1	9/22/2021 4:31:06 PM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	9/22/2021 4:31:06 PM
Surr: DNOP	110	70-130	%Rec	1	9/22/2021 4:31:06 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/22/2021 12:48:00 PM
Surr: BFB	87.9	70-130	%Rec	1	9/22/2021 12:48:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	9/22/2021 12:48:00 PM
Toluene	ND	0.048	mg/Kg	1	9/22/2021 12:48:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	9/22/2021 12:48:00 PM
Xylenes, Total	ND	0.095	mg/Kg	1	9/22/2021 12:48:00 PM
Surr: 4-Bromofluorobenzene	77.7	70-130	%Rec	1	9/22/2021 12:48:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 10:28:12 PM

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

Qualifiers:

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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH12 40-43 Collection Date: 9/15/2021 10:52:00 AM noiwed Deter 0/16/2021 10.55.00 AM ъ

Lab ID: 2109899-009	Matrix: SOIL	Reco	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	8.9	mg/Kg	1	9/22/2021 4:43:46 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	9/22/2021 4:43:46 PM
Surr: DNOP	98.9	70-130	%Rec	1	9/22/2021 4:43:46 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/22/2021 1:07:00 PM
Surr: BFB	96.1	70-130	%Rec	1	9/22/2021 1:07:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	9/22/2021 1:07:00 PM
Toluene	ND	0.050	mg/Kg	1	9/22/2021 1:07:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	9/22/2021 1:07:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	9/22/2021 1:07:00 PM
Surr: 4-Bromofluorobenzene	85.6	70-130	%Rec	1	9/22/2021 1:07:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 10:40:37 PM

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

Qualifiers:

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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 0-5 Collection Date: 9/15/2021 12:32:00 PM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-010	Matrix: SOIL	Rece	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAM	NGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	9/22/2021 4:56:25 PM
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	9/22/2021 4:56:25 PM
Surr: DNOP	85.9	70-130	%Rec	1	9/22/2021 4:56:25 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/22/2021 1:27:00 PM
Surr: BFB	92.3	70-130	%Rec	1	9/22/2021 1:27:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	9/22/2021 1:27:00 PM
Toluene	ND	0.048	mg/Kg	1	9/22/2021 1:27:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	9/22/2021 1:27:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	9/22/2021 1:27:00 PM
Surr: 4-Bromofluorobenzene	80.2	70-130	%Rec	1	9/22/2021 1:27:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 10:53:02 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
- н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit PQL
 - Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Released to Imaging: 11/14/2022 12:07:19 PM

Project:

Lab ID:

Analyses

Surr: DNOP

Analytical Report Lab Order 2109899

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/30/2021 **CLIENT: HILCORP ENERGY** Client Sample ID: BH13 5-10 HARE 14M Collection Date: 9/15/2021 12:37:00 PM 2109899-011 Matrix: SOIL Received Date: 9/16/2021 10:55:00 AM Result **RL** Qual Units DF **Date Analyzed** EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: SB **Diesel Range Organics (DRO)** ND 9.5 mg/Kg 1 9/28/2021 1:13:57 PM Motor Oil Range Organics (MRO) ND 48 mg/Kg 1 9/28/2021 1:13:57 PM 82.2 70-130 %Rec 1 9/28/2021 1:13:57 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: mb

Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	9/22/2021 2:26:00 PM
Surr: BFB	89.4	70-130	%Rec	1	9/22/2021 2:26:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.023	mg/Kg	1	9/22/2021 2:26:00 PM
Toluene	ND	0.047	mg/Kg	1	9/22/2021 2:26:00 PM
Ethylbenzene	ND	0.047	mg/Kg	1	9/22/2021 2:26:00 PM
Xylenes, Total	ND	0.093	mg/Kg	1	9/22/2021 2:26:00 PM
Surr: 4-Bromofluorobenzene	78.6	70-130	%Rec	1	9/22/2021 2:26:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 11:05:27 PM

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

Qualifiers:

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

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 10-15 Collection Date: 9/15/2021 12:41:00 PM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-012	Matrix: SOIL	Reco	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.4	mg/Kg	1	9/22/2021 5:21:52 PM
Motor Oil Range Organics (MRO)	ND	47	mg/Kg	1	9/22/2021 5:21:52 PM
Surr: DNOP	105	70-130	%Rec	1	9/22/2021 5:21:52 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	9/22/2021 2:45:00 PM
Surr: BFB	88.6	70-130	%Rec	1	9/22/2021 2:45:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	9/22/2021 2:45:00 PM
Toluene	ND	0.049	mg/Kg	1	9/22/2021 2:45:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	9/22/2021 2:45:00 PM
Xylenes, Total	ND	0.097	mg/Kg	1	9/22/2021 2:45:00 PM
Surr: 4-Bromofluorobenzene	77.2	70-130	%Rec	1	9/22/2021 2:45:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	64	60	mg/Kg	20	9/22/2021 11:17:52 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
 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

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Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

9/22/2021 11:30:17 PM

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY Client Sample ID: BH13 15-20 **Project:** HARE 14M Collection Date: 9/15/2021 12:50:00 PM Lab ID: 2109899-013 Matrix: SOIL Received Date: 9/16/2021 10:55:00 AM Result **RL** Qual Units DF **Date Analyzed** Analyses **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** Analyst: SB Diesel Range Organics (DRO) ND 9.5 mg/Kg 1 9/22/2021 5:34:32 PM Motor Oil Range Organics (MRO) 9/22/2021 5:34:32 PM ND 47 mg/Kg 1 Surr: DNOP 97.0 70-130 %Rec 1 9/22/2021 5:34:32 PM **EPA METHOD 8015D: GASOLINE RANGE** Analyst: mb Gasoline Range Organics (GRO) ND 9/22/2021 3:05:00 PM 4.7 mg/Kg 1 Surr: BFB 100 70-130 %Rec 1 9/22/2021 3:05:00 PM **EPA METHOD 8021B: VOLATILES** Analyst: mb Benzene ND 0.024 mg/Kg 9/22/2021 3:05:00 PM 1 Toluene ND 0.047 mg/Kg 1 9/22/2021 3:05:00 PM Ethylbenzene ND 0.047 mg/Kg 1 9/22/2021 3:05:00 PM Xylenes, Total ND 0.095 mg/Kg 1 9/22/2021 3:05:00 PM 9/22/2021 3:05:00 PM Surr: 4-Bromofluorobenzene 87.0 70-130 %Rec 1 Analyst: VP **EPA METHOD 300.0: ANIONS**

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ma/Ka

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

Qualifiers:

Chloride

- 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

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2109899-014

Project: HARE 14M

Lab ID:

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 20-25 Collection Date: 9/15/2021 12:58:00 PM Received Date: 9/16/2021 10:55:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE OR	GANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	9/22/2021 5:47:18 PM
Motor Oil Range Organics (MRO)	ND	45	mg/Kg	1	9/22/2021 5:47:18 PM
Surr: DNOP	87.6	70-130	%Rec	1	9/22/2021 5:47:18 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/22/2021 3:24:00 PM
Surr: BFB	88.8	70-130	%Rec	1	9/22/2021 3:24:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	9/22/2021 3:24:00 PM
Toluene	ND	0.050	mg/Kg	1	9/22/2021 3:24:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	9/22/2021 3:24:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	9/22/2021 3:24:00 PM
Surr: 4-Bromofluorobenzene	77.9	70-130	%Rec	1	9/22/2021 3:24:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/22/2021 11:42:42 PM

Matrix: SOIL

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
- н
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Released to Imaging: 11/14/2022 12:07:19 PM

Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 25-30 Collection Date: 9/15/2021 1:09:00 PM **Deceived Deter** 0/16/2021 10:55:00 AM

Lab ID: 2109899-015	Matrix: SOIL	Reco	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAM	IGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	8.8	mg/Kg	1	9/22/2021 6:00:11 PM
Motor Oil Range Organics (MRO)	ND	44	mg/Kg	1	9/22/2021 6:00:11 PM
Surr: DNOP	96.4	70-130	%Rec	1	9/22/2021 6:00:11 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	9/22/2021 3:44:00 PM
Surr: BFB	90.6	70-130	%Rec	1	9/22/2021 3:44:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	9/22/2021 3:44:00 PM
Toluene	ND	0.049	mg/Kg	1	9/22/2021 3:44:00 PM
Ethylbenzene	ND	0.049	mg/Kg	1	9/22/2021 3:44:00 PM
Xylenes, Total	ND	0.099	mg/Kg	1	9/22/2021 3:44:00 PM
Surr: 4-Bromofluorobenzene	78.7	70-130	%Rec	1	9/22/2021 3:44:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	59	mg/Kg	20	9/23/2021 12:19:56 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
- н
- Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 30-35 Collection Date: 9/15/2021 1:19:00 PM **Becaived Date:** 9/16/2021 10:55:00 AM

Lab ID: 2109899-016	Matrix: SOIL	Reco	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	9/22/2021 6:12:54 PM
Motor Oil Range Organics (MRO)	ND	46	mg/Kg	1	9/22/2021 6:12:54 PM
Surr: DNOP	89.4	70-130	%Rec	1	9/22/2021 6:12:54 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/22/2021 4:04:00 PM
Surr: BFB	93.5	70-130	%Rec	1	9/22/2021 4:04:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.024	mg/Kg	1	9/22/2021 4:04:00 PM
Toluene	ND	0.048	mg/Kg	1	9/22/2021 4:04:00 PM
Ethylbenzene	ND	0.048	mg/Kg	1	9/22/2021 4:04:00 PM
Xylenes, Total	ND	0.096	mg/Kg	1	9/22/2021 4:04:00 PM
Surr: 4-Bromofluorobenzene	78.5	70-130	%Rec	1	9/22/2021 4:04:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	59	mg/Kg	20	9/23/2021 12:32:21 AM

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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2109899-017

Project: HARE 14M

Lab ID:

Analytical Report Lab Order 2109899

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/30/2021 Client Sample ID: BH13 35-40 Collection Date: 9/15/2021 1:30:00 PM Matrix: SOIL Received Date: 9/16/2021 10:55:00 AM **D** 1/ DI Orral Unita DE Data Analamad

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORG	ANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	9/22/2021 6:25:41 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	9/22/2021 6:25:41 PM
Surr: DNOP	88.2	70-130	%Rec	1	9/22/2021 6:25:41 PM
EPA METHOD 8015D: GASOLINE RANGE					Analyst: mb
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/22/2021 4:23:00 PM
Surr: BFB	99.3	70-130	%Rec	1	9/22/2021 4:23:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	9/22/2021 4:23:00 PM
Toluene	ND	0.050	mg/Kg	1	9/22/2021 4:23:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	9/22/2021 4:23:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	9/22/2021 4:23:00 PM
Surr: 4-Bromofluorobenzene	85.8	70-130	%Rec	1	9/22/2021 4:23:00 PM
EPA METHOD 300.0: ANIONS					Analyst: VP
Chloride	ND	60	mg/Kg	20	9/23/2021 12:44:45 AM

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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Released to Imaging: 11/14/2022 12:07:19 PM

Project: HARE 14M

Analytical Report Lab Order 2109899

Date Reported: 9/30/2021

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: BH13 40-44 Collection Date: 9/15/2021 1:59:00 PM Received Date: 9/16/2021 10:55:00 AM

Lab ID: 2109899-018	Matrix: SOIL	Rece	eived Date:	9/16/2	021 10:55:00 AM
Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analyst: SB
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	9/22/2021 6:38:29 PM
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	9/22/2021 6:38:29 PM
Surr: DNOP	83.0	70-130	%Rec	1	9/22/2021 6:38:29 PM
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst: mb
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/22/2021 4:43:00 PM
Surr: BFB	104	70-130	%Rec	1	9/22/2021 4:43:00 PM
EPA METHOD 8021B: VOLATILES					Analyst: mb
Benzene	ND	0.025	mg/Kg	1	9/22/2021 4:43:00 PM
Toluene	ND	0.050	mg/Kg	1	9/22/2021 4:43:00 PM
Ethylbenzene	ND	0.050	mg/Kg	1	9/22/2021 4:43:00 PM
Xylenes, Total	ND	0.10	mg/Kg	1	9/22/2021 4:43:00 PM
Surr: 4-Bromofluorobenzene	88.6	70-130	%Rec	1	9/22/2021 4:43:00 PM
EPA METHOD 300.0: ANIONS					Analyst: CAS
Chloride	ND	60	mg/Kg	20	9/22/2021 4:37:16 PM

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

Qualifiers:

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

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:	HILCOR	P ENERGY								
Project:	HARE 14	4M								
Sample ID:	MB-62751	SampType: M	BLK	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID:	PBS	Batch ID: 62	751	R	unNo: 8	1465				
Prep Date:	9/22/2021	Analysis Date: 9/	/22/2021	S	eqNo: 2	879331	Units: mg/Kg	9		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-62751	SampType: LC	S	Tes	tCode: El	PA Method	300.0: Anions	;		
Client ID:	LCSS	Batch ID: 62	751	R	lunNo: 8	1465				
Prep Date:	9/22/2021	Analysis Date: 9,	/22/2021	S	eqNo: 2	879332	Units: mg/Kg	9		
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			
Sample ID:	MB-62759	SampType: m	blk	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID:	PBS	Batch ID: 62	759	R	unNo: 8	1505				
Prep Date:	9/22/2021	Analysis Date: 9/	/22/2021	S	eqNo: 2	879452	Units: mg/Kg	9		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND 1.5								
Sample ID:	LCS-62759	SampType: Ic:	5	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID:	LCSS	Batch ID: 62	759	R	unNo: 8	1505				
Prep Date:	9/22/2021	Analysis Date: 9	/22/2021	S	eqNo: 2	879453	Units: mg/Kg	9		
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		15 1.5	15.00	0	96.8	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

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30-Sep-21

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	HILCOR HARE 14	P ENERGY M	Y								
Sample ID:	LCS-62736	SampTy	ype: LC	S	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID:	LCSS	Batch	ID: 62	736	F	lunNo: 8 1	1472				
Prep Date:	9/22/2021	Analysis Da	ate: 9 /	22/2021	S	eqNo: 28	878395	Units: %Red	•		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		4.4		5.000		88.9	70	130			
Sample ID:	MB-62736	SampTy	ype: MI	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID:	PBS	Batch	ID: 62	736	F	tunNo: 8 1	1472				
Prep Date:	9/22/2021	Analysis Da	ate: 9/	22/2021	S	eqNo: 28	878420	Units: %Red	•		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		9.2		10.00		91.8	70	130			
Sample ID:	MB-62716	SampTy	ype: MI	BLK	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID:	PBS	Batch	ID: 62	716	F	tunNo: 8 1	1472				
Prep Date:	9/21/2021	Analysis Da	ate: 9/	22/2021	S	eqNo: 28	879823	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	ND	10								
Surr: DNOP	je Organics (MRO)	9.7	50	10.00		96.6	70	130			
Sample ID:	LCS-62716	SamoTi		·e	Tee	tCode: E	PA Mothod	8015M/D: Die	sol Pang	Organics	
Client ID.		Batch	ID. 62	.5 716	F		- A Method 1472	0015W/D. DIE	eser Kange	eorganics	
Prep Date:	9/21/2021	Analysis Da	ate: 9/	22/2021	S	SeqNo: 28	<u>-</u> 879824	Units: mg/K	g		
Analvte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	- HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	53	10	50.00	0	105	68.9	135			
Surr: DNOP		5.2		5.000		103	70	130			
Sample ID:	2109899-001AMS	SampTy	ype: MS	6	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID:	BH12 0-5	Batch	ID: 62	716	F	unNo: 8 1	1472				
Prep Date:	9/21/2021	Analysis Da	ate: 9 /	22/2021	5	eqNo: 28	879826	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	45	9.8	49.07	0	91.2	39.3	155			
Suff: DNOP		4.3		4.907		87.5	70	130			
Sample ID:	2109899-001AMS	SampTy	ype: M \$	SD	Tes	tCode: EF	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID:	BH12 0-5	Batch	ID: 62	716	F	lunNo: 81	1472				
Prep Date:	9/21/2021	Analysis Da	ate: 9/	22/2021	S	SeqNo: 28	879827	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	41	9.4	47.13	0	87.4	39.3	155	8.29	23.4	

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

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30-Sep-21

Client: Project:	HILCORE HARE 14	P ENERG` M	Y									
Sample ID:	2109899-001AMSD	SampT	ype: M	SD	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics		
Client ID:	BH12 0-5	Batch	ID: 62	2716	F	RunNo: 8	1472					
Prep Date:	9/21/2021	Analysis D	ate: 9	/22/2021	S	SeqNo: 2	879827	Units: mg/K	ζg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: DNOP		4.0		4.713		85.1	70	130	0	0		

Qualifiers:

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

- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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30-Sep-21

2109899

Released to Imaging	: 11	/14/	/2022	12:07:19	PM
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QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	HILCOR HARE 14	P ENERG` IM	Y								
Sample ID:	mb-62708	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	je	
Client ID:	PBS	Batch	1D: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis D	ate: 9/	22/2021	S	SeqNo: 2	878961	Units: mg/k	٨g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	ge Organics (GRO)	ND	5.0								
Surr: BFB		890		1000		89.2	70	130			
Sample ID:	lcs-62708	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	je	
Client ID:	LCSS	Batch	1D: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis D	ate: 9/	/22/2021	S	SeqNo: 2	878963	Units: mg/ł	٨g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	ge Organics (GRO)	29	5.0	25.00	0	115	78.6	131			
Surr: BFB		1000		1000		103	70	130			
Sample ID:	2109899-001ams	SampT	уре: М	S	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	je	
Client ID:	BH12 0-5	Batch	1D: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis D	ate: 9/	/22/2021	5	SeqNo: 2	878965	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	ge Organics (GRO)	28	4.9	24.63	0	114	61.3	114			
Surr: BFB		1200		985.2		119	70	130			
Sample ID:	2109899-001amsc	I SampT	ype: M \$	SD	Tes	tCode: El	PA Method	8015D: Gase	oline Rang	je	
Client ID:	BH12 0-5	Batch	1D: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis D	ate: 9/	/22/2021	S	SeqNo: 2	878967	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	ge Organics (GRO)	28	4.8	23.92	0	116	61.3	114	1.07	20	S
Surr: BFB		1200		956.9		123	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

2109899

30-Sep-21

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:	HILCOR	P ENERG	θY								
Project:	HARE 14	łM									
Sample ID:	mb-62708	Samo	Type: MF	a k	Tee	tCode: F I	PA Method	8021B: Vola	tilos		
Client ID:	PBS	Bate	h ID. 62	708	F		1496	00210. 0010	lies		
Pren Date:	0/21/2021	Analysis [Date: 0/	22/2021	, ,		970014	Inite: ma/k	(
i iep Date.	5/21/2021		Jaie. 3	22/2021			0/9014		vy		- ·
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Teluene			0.025								
Toluene			0.050								
Ethylbenzene		ND	0.050								
Xylenes, I otal		ND	0.10	4 000		00.0	70	100			
Surr: 4-Brom	nofluorobenzene	0.81		1.000		80.8	70	130			
Sample ID:	lcs-62708	Samp	Туре: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	LCSS	Batc	h ID: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis [Date: 9/	22/2021	S	SeqNo: 2	879016	Units: mg/k	٢g		
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		0.92	0.050	1.000	0	92.3	80	120			
Ethylbenzene		0.93	0.050	1.000	0	92.7	80	120			
Xylenes, Total		2.8	0.10	3.000	0	92.8	80	120			
Surr: 4-Brom	nofluorobenzene	0.81		1.000		80.9	70	130			
Sample ID:	2109899-002ams	Samp	Туре: М	6	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	BH12 5-10	Batc	h ID: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis [Date: 9/	22/2021	S	SeqNo: 2	879018	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.96	0.024	0.9579	0	100	80	120			
Toluene		0.98	0.048	0.9579	0	103	80	120			
Ethylbenzene		1.0	0.048	0.9579	0	104	80	120			
Xylenes, Total		3.0	0.096	2.874	0	105	80	120			
Surr: 4-Brom	nofluorobenzene	0.77		0.9579		80.7	70	130			
Sample ID:	2109899-002amsd	I Samp	Туре: М	SD	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID:	BH12 5-10	Batc	h ID: 62	708	F	RunNo: 8	1496				
Prep Date:	9/21/2021	Analysis [Date: 9/	22/2021	S	SeqNo: 2	879020	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.94	0.023	0.9191	0	102	80	120	2.47	20	
Toluene		0.96	0.046	0.9191	0	105	80	120	1.93	20	
Ethylbenzene		0.98	0.046	0.9191	0	107	80	120	1.27	20	
Xylenes, Total		3.0	0.092	2.757	0	108	80	120	1.59	20	
Surr: 4-Brom	nofluorobenzene	0.74		0.9191		80.0	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

	Page	<i>162</i>	of 179
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HALL ENVIRONMENT, ANALYSIS LABORATORY	AL	Ha TE W	ell Environme EL: 505-345 Vebsite: clien	ental Analys 490 Albuquerq 3975 FAX: , ts.hallenvir	is Labora l Hawkins ye, NM 87 505-345-4 onmental.c	tory NE 109 Sar 107 com	nple Log-In Check List
Client Name: HILCORP	ENERGY	Work	Order Num	nber: 2109	899		RcptNo: 1
Received By: Cheyenne	Cason	9/16/20	21 10:55:0	0 AM		chul	
Completed By: Sean Livin	ngston	9/17/20	21 9:26:58	AM		< /	
Reviewed By: DAD	9/17/21					Dal.	John
Chain of Custody							
1. Is Chain of Custody comp	lete?			Yes	~	No 🗌	Not Present
2. How was the sample deliv	ered?			Couri	er		
Log In							
3. Was an attempt made to c	ool the samp	les?		Yes		No 🗌	
4. Were all samples received	at a tempera	ture of >0° C	to 6.0°C	Yes		No 🗌	
5. Sample(s) in proper contai	ner(s)?			Yes		No 🗌	
6. Sufficient sample volume for	or indicated te	est(s)?		Yes	~	No 🗌	
7. Are samples (except VOA a	and ONG) pro	perly preserve	ed?	Yes	~	No 🗌	
8. Was preservative added to	bottles?			Yes		No 🔽	NA 🗌
9. Received at least 1 vial with	headspace	<1/4" for AQ V	'OA?	Yes [No 🗌	NA 🗹
10. Were any sample containe	rs received b	roken?		Yes		No 🔽	
11. Does paperwork match bot	tle labels?			Yes	~	No 🗌	# of preserved bottles checked for pH:
(Note discrepancies on cha	in of custody)			1.1		_	<pre>/<2 or >12 unless noted</pre>
12. Are matrices correctly ident	ified on Chair	n of Custody?		Yes		No 🗌	Adjusted?
13. Is it clear what analyses we	re requested'	?		Yes	~	No 🗌	
14. Were all holding times able (If no, notify customer for a	to be met? uthorization.)			Yes		No	Checked by: TMC 9.17.7
Special Handling (if app	licable)					/	
15. Was client notified of all dis	screpancies w	vith this order?		Yes		No 🗌	NA 🔽
Person Notified:		1.1	Date	-			
By Whom:			Via:	🗌 eMai	I 🗌 Ph	one 🗌 Fax	In Person
Regarding:							
Client Instructions:							1
16. Additional remarks:							
17. <u>Cooler Information</u> Cooler No Temp °C	Condition	Seal Intact	Seal No	Seal Dat	e c	ligned By	
1 2.3	Good	Jour muot	5001110	ocal Dal		ngried by	
2 4.0	Good						

Page 1 of 1

Client:	Chain HE	-of-C C	ustody Record	ĭurn- ⊠ s	Around	d Time:	·				ŀ			E		/IF S L	RO .AE	NM 301			IL by C
Mailing	Address	:tch	Killorgh	Proje	ct Nam	e: HARE I	4 M		49	01 F	lawk	www.	w.ha		viron	men erau	tal.co	om M 87'	09		CD: 11/
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email o QA/QC □ Star	or Fax#: Package: ndard		□ Level 4 (Full Validation)	Proje 5†	ct Mana nart.	ager: start Hyde ews Bur ase ws	Hyde, Onny Burns g. Com g. Com	\$ (8021)	(ONM / C	PCB's		SIMS		O4, SO4			/Absent)				3:45:48 FA
Accred	itation: .AC) (Type)	□ Az Co □ Othe	ompliance r	Samp On Ic # of C	e: oolers:	Zeece Hans Ves 1 2	□ No 3-0=2.3	FBE / TMB's	(GRO / DRO	cides/8082 F	od 504.1)	310 or 8270	etals	NO ₃ , NO ₂ , F	(i-VOA)	rm (Present				
Date	Time	Matrix	Sample Name	Coole Conta Type	iner and #	D(including CF): 4 Preservative Type	<u>0-0-40 (°C)</u> HEAL NO. 2109899	BTEX) M	TPH:8015	8081 Pesti	EDB (Meth	PAHs by 8:	RCRA 8 M	CIJF, Br,	8260 (VOA	8270 (Sem	Total Colifo				
9-15-2	915	9011	BH 120-5	1-	402	Cool	001		1					1							
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Client:	hain HE	i-of-C C	ustody Record	Turn-Around	d Time: d Rust	ı				ŀ			E	N\ SI:	/IF 5 L	RO AE	NM 3OF	ENT		7
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email or	Fax#:			Project Man	ader:						-		4		neq					
QA/QC F	^c ackage dard	:	□ Level 4 (Full Validation)		ugor.		s (8021)	O / MRO	PCB's		SIMS		PO4, SO			t/Absent				
Accredit	tation: AC	□ Az C □ Othe	ompliance er	Sampler: Non Ice:	Z/F Ø Yes	□ No	/ TMB	O / DR	s/8082	(04.1)	or 8270		NO ₂ ,		A)	Presen				
	(Type)			# of Coolers: Cooler Temp	2,3 D(including CF): 4.1	0-0-23 0-0-40 (°C)	MTBE	15D(GR	sticides	ethod 5	/ 8310	Metals	r, NO ₃ ,	(AC	emi-VO	liform (
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX	TPH:80-	8081 Pe	EDB (M	AHs by	RCRA 8	CIGF, B	3260 (Vi	3270 (Se	Fotal Co				
9-13-21	1250	5021	BH13 15-20	1-402	(001	013	Y	Y			-	_	T				+			F
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Date: T {-16:21	Time: 1055	Relinquish	nd detus	Received by:	Via: Llaut	Date Time 9/14/21 1055														C LUT VJ

ENCLOSURE C – PILOT TEST DATA

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SOIL VAPOR EXTRACTION SYSTEM PILOT TEST DATA

HARE 14M SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Date :	12/8/2021	-	SVE well dia -	2"							
Extraction Test We	ell										
SVE01/BH01											
	P	ilot Test Extraction W	Vell								
Time	Wellhead	Well	Well	PID at	SVE02	SVE05	SVE07	SVE09	SVE05	SVE07	SVE09
	(in wc)	(fpm)	Flow (cfm)	Stack (npm)	0	21	38	15	21	38	15
	()		()	(FF)		Vacuun	n (in. wc)		 P	PID Measurement (pp)	n)
9:30	0.0	0.0	0.0	548	0.0	0.0	0.0	0.0	86	832	1215
10:10	19.3	<1,000	5	1,195	0.0	0.0	0.0	0.0	NM	NM	NM
10:15	19.7	1,000	6	1,190	0.0	0.0	0.0	0.0	NM	NM	NM
10:25	19.6	1,000	6	1,176	0.0	0.0	0.0	0.0	NM	NM	NM
10:35	41.6	1,200	10	1,201	0.0	0.0	0.0	0.0	NM	NM	NM
10:48	42	1,200	10	1,205	0.1	0.0	0.0	0.0	NM	NM	NM
10:53	77.1	2,200	17	869	0.1	0.0	0.0	0.0	NM	NM	NM
10:58	77.4	2,200	17	8,511	0.1	0.0	0.0	0.0	NM	NM	NM
11:08	136.1	5,600	46	NM	0.1	0.0	0.0	0.1	NM	NM	NM
11:30	163.3	>6,000	50	NM	0.1	0.0	0.0	0.1	NM	NM	NM
12:15	190.5	>6,000	>60	NM	0.1	0.0	0.0	0.2	NM	NM	NM
Date :	12/8/2021	-	SVE well dia -	2"	-						

Notes:

ND - not detected in. wc - inches of water column ppm - parts per million PID - photoionization detector

fpm - feet per minute acfm - actual cubic feet per minute

NM - not measured

RADIUS OF EFFECT CALCULATIONS

HARE 14M SAN JUAN COUNTY, NEW MEXICO HILCORP ENERGY COMPANY

Site Specific Information		
Test Well	SVE01	
SVE Screen Length (H)	10	ft
Soil Type	sand and silty sand	
Porosity (n)	30%	percent
Test Specific Information		
Radius of Influence (ROI)	20	feet - 0.3 IWC observed in at a distance of 39 feet
Flow Rate (1)	46	SCFM
Wellhead Vacuum (1)	136	IWC
Calculations (Flowrate - 60 SCFM)		
Total Volume (ft ³)	12,566	= PI * ROI * ROI * H
Volume Pore Space (ft^3)	3,770	= Total Volume * n
Pore Volume Exchange Rate	0.06	days
Annual Pore Volume Exchanges	6,413	>500 Required
Velocity at ROI (ft/min)	0.122	= $Flowrate/(2*PI * ROI * H * n)$
Velocity at ROI (ft/day)	176	> 3 ft/day recommended

Acceptable annual pore volume exchanges >500 and acceptable pore space velocity.

Notes:

ft - feet ROI - radius of influence IWC - inches water column min - minute s - second SCFM - standard cubic feet per minute

ENCLOSURE D – SVE SYSTEM DIAGRAM

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Received by OCD: 11/22/2021 3:45:48 PM
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SERVICE PANEL

SVE SYSTEM DIAGRAM



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ENCLOSURE E – SVE O&M FORMS AND OPERATIONS AND MAINTENANCE MANUAL

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SVE SYSTEM BIWEEKLY O&M FORM

DATE: O&M PERSONNEL: TIME OFFSITE:													
TIME ONSITE:			TIME OFFSITE:										
SVE STATUS:		SVE SYSTEM	SVE BLOWER HOURS: GENERATOR HOURS:										
SVE ALARMS: (check if applicable)		HIGH/LOW VACUUM KO TANK HIGH LEVEL											
(•••••••••••••••••••••••••••••••		HIGH EXHAUST TEMPER	ATURE										
MANIFO AFTE	LD INLET VACUUM: ER FILTER VACUUM:		KO TANK DRAIN: BYPASS STATUS:										
EXHAU E	JST TEMPERATURE: XHAUST PRESSURE:		BLOWER GREASE: GENERATOR GREASE:										
	EXHAUST FLOW:		INLINE FILTER CLEAN:										
EXHAUST PID:		A SVE SYSTEM	IR SAMPLE COLLECTION:										
MANIFOLD	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS									
INLEI													
COMMENTS/OTHE	R MAINTENANCE:												

OPERATIONS AND MAINTENANCE MANUAL

SAN JUAN BASIN, NEW MEXICO SVE SYSTEMS

OCTOBER 2021

Prepared for:

HILCORP ENERGY COMPANY 1111 TRAVIS STREET HOUSTON, TEXAS

Prepared by:

WSP USA, INC 848 EAST 2ND AVENUE DURANGO, COLORADO (970) 385-1096

Released to Imaging: 11/14/2022 12:07:19 PM

SECTION 1.0

INTRODUCTION

1.0 INTRODUCTION

This Operations and Maintenance (O&M) Manual has been prepared for the Hilcorp Energy Company (Hilcorp) for the purpose of successfully operating the soil vapor extraction (SVE) systems remediating subsurface hydrocarbon impacts in the San Juan Basin, New Mexico. The O&M manual is the base guide for all O&M personnel to follow at sites throughout the basin. This O&M manual is intended to serve as a guide to assist in the routine day-to-day operation and maintenance of the remediation systems. This manual also outlines the remediation system monitoring schedules to comply with regulatory agencies and to document the effectiveness of the systems. Successful operation of the systems will ensure that the environment is protected, the public welfare is promoted, and that federal/state and local laws/regulations are met.

1.2 SVE Process Equipment

A vacuum is applied to the wells and subsurface piping using a regenerative blower system electrified either by solar panels and batteries or directly connected to the power grid. Each system includes a manifold to control flow from each well or group of wells, and the SVE blower system. The manifold includes control valves, sample ports, and a tap plug for obtaining air velocity measurements in the individual lines. The initial flow and applied vacuum settings will be determined during pilot testing, system startup, and initial O&M procedures. As subsurface conditions change, adjustment of the flow rates and applied vacuum to each SVE well may be required. Typically, adjustments will be required to balance the air flowing from the various wells.

Starting from the manifold, the SVE skid generally contains:

- a control valve;
- a vacuum indicator;
- a sample port;
- an air/water separator with storage tank, fluid sight tube and fluid level switch;
- an additional vacuum indicator;
- a dilution air valve;
- a particulate filter;
- a vacuum relief valve;
- a regenerative blower driven by an electric motor;

- a high temperature switch;
- a temperature indicator;
- a pressure indicator;
- a SVE stack drain/sampling valve; and
- a flow indicator.

An SVE system diagram is attached.

SECTION 2.0

SYSTEM OPERATION

Operational procedures are summarized below. These procedures describe the adjustments needed for full system operation. Manufacturer's information for the specific system components shall be examined when seeking information regarding a particular system component. The equipment supplier provided O&M Manuals should also be consulted during operation and maintenance procedures.

2.1 ROUTINE O&M SITE VISITS

O&M site visits will occur as needed to achieve near continuous operation of the systems. Typically, system operation checks will be performed every other weekly (twice monthly). Site visits which shall include more involved tasks will be performed monthly, quarterly, semiannually, annually, and on an as-needed basis. Specific O&M tasks have been determined for each of the above frequencies, and these tasks should be used as a reference guide for determining what actions are necessary for proper system operation. The O&M tasks are summarized on the site specific Monitoring Schedules. The monitoring schedule indicates the frequency required for each of the O&M tasks. The monitoring schedule also shows the monitoring required at individual wells.

Records kept during the O&M procedures shall be recorded in a field book and scanned onto the WSP server each day after returning to the office. WSP will review the site data and log book prior to each site visit to determine what O&M actions occurred during the last site visit and identify any special equipment or maintenance actions required for the planned site visit.

Semi-Monthly System Check

A typical system check during the weekly O&M site visit will consist of the following tasks, in sequential order beginning with arrival on site:

- 1. Note if the systems are running.
- 2. Inspect the control panel to determine if any alarms have occurred (if applicable).
- 3. Record any alarm conditions and the hour meter values for applicable remediation equipment onsite.
- 4. Note the inlet vacuum for the SVE blower.
- 5. Record all gauge and flow indicator values for the SVE system.
- 6. Record vacuum or pressure readings on the manifold assembly and perform minor valve adjustments as needed to optimize system operation.
- 7. Check air/water separation tank levels and transfer fluid as needed.

- 8. Lubricate the appropriate generators and blowers, check and add oil/grease as required.
- 9. Examine/check operation of building heaters and exhaust fans (if applicable).
- 10. Perform simple adjustments to correct any system operational problems.
- 11. Perform general housekeeping inside and outside of the equipment area, such as picking up trash or debris surrounding the site. Note any damage or vandalism requiring attention.
- 12. Collect influent samples per quarterly and annual requirements.

Monthly System Checks

Monthly site visits shall include the following additional efforts:

- 1. Collect any required air samples.
- 2. Monitor the SVE inlet air and exhaust using a photoionization detector (PID).
- 3. Following the recording of measurements, adjustments of system operation may be made based on the measurements.
- 4. Perform any required equipment maintenance (See O&M Manual for specific maintenance requirements).
- 5. Check and clean filters.

Quarterly Site Checks

Quarterly site visits shall include:

- 1. Measure and record vacuum in each SVE line.
- 2. Measure and adjust vacuum and measure vapor concentrations using a PID at the SVE wellheads.
- 3. Clean and replace filters as required by manufacturer's O&M manual or as needed through visual inspection, and perform all required maintenance items, as required.
- 4. Clean all fluid level switches.
- 5. Change and check oil and oil filters, where applicable.

Semi-annual System Checks

Semi-annual site visits shall include:

1. Change generator and SVE blower oil. Replace with oil recommended by the equipment manufacturer or equivalent.

2. Tighten all wire terminals and check connections.

Annual

Annual requirements include:

1. Replace SVE blower air inlet filter elements.

Periodic

The following items will need to be conducted as remediation progresses. The timing of these activities is site dependent and cannot be predicted. These activities shall be performed as soon as possible following discovery of conditions affecting or limiting system performance.

1. Drain the SVE air/water separation or knockout (KO) tank fluid.

2. Clean sludge from the SVE air/water separation tanks.

2.2 SVE SYSTEM PERFORMANCE ADJUSTMENTS

On a routine basis, WSP will evaluate site monitoring data and may complete performance adjustments to the remediation system operation. It may be beneficial to adjust the remediation system's operation over time, and as specific areas of a site require less effort than other areas. Remediation efforts will be characterized by system monitoring information.

For example, as the concentration of contaminants in SVE wells decreases to asymptotic conditions, flow and vacuum in these areas may be adjusted in attempts to increase volatilization and contaminant removal. Additionally, as contaminant concentrations decrease to below 1 milligram per liter (mg/L), flow in individual SVE wells may be decreased and/or shut off to induce higher flow in other wells and target specific areas of the site.

2.2.1 SVE Flow Adjustment

Proper operation of the SVE systems entails applying an optimum vacuum at the screened interval of the SVE well such that the maximum air flow rate through the well is achieved. The SVE systems are designed to run at a specific vacuum and air flow rate, however, due to variable subsurface conditions, the air flow through the subsurface may need to be reduced by opening the blower inlet bypass valve and/or restricting flow from certain wells.

The air flow rate may be measured at the flow lines using a portable air velocity device, such as a thermal anemometer. The air flow rate and applied vacuum can be adjusted by opening/closing ball valves on the individual lines. Typically, these adjustments will be made quarterly. Ideal operation of the SVE system entails balancing flow rates from each well. To balance flow from all SVE wells, minor calculations may be required for sites with different sizes of SVE lines.

To balance the SVE system, follow the following procedure:

- 1. Measure the air velocity in each line using the thermal anemometer.
- 2. Calculate the total flow from the SVE wells using the equation Flowrate = Cross Sectional Area X Velocity. Area for the SVE pipes is calculated using the formula Area = $\pi *$ Diameter²/4.
- 3. Divide the total flow by the number of wells to be balanced. This number equals the average flow rate.
- 4. Back calculate the air velocity required to achieve the average flowrate for each pipe size using the equation: Velocity = Average Flowrate / Area.
- 5. Starting at the well yielding the highest flowrate, use the control valve for each line to reduce the flowrate to the average flowrate by lowering the air velocity measured with the thermal anemometer to the velocity calculated in Step #4.
- 6. Check lower flow wells to ensure an increase in airflow.

Note that the thermal anemometer yields a rough field estimate, and there may be a large inaccuracy inherent to the instrument. It is therefore only necessary to achieve a balance within 25% of the average flowrate. The system will also change flows as the higher flow wells are reduced and system vacuum is increased. This is another reason why it is not necessary to balance the SVE wells to closer than 25% of the calculated average flow. Also note that most SVE systems have the same sized pipes for all SVE lines, which allows for fewer calculations when balancing the SVE system.

For sites with the same size SVE lines, the average flowrate calculation and velocity back calculations are not necessary. Rather, measure the velocity from each well, calculate the average velocity, and attempt to achieve the average velocity from each well by reducing flow/velocity from the higher flow wells. As with the flowrate calculation method, velocities within 25% of the average velocity do not need adjustment.

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3470 Fax: (505) 476-3462

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

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY	372171
1111 Travis Street	Action Number:
Houston, TX 77002	63058
	Action Type:
	[C-141] Release Corrective Action (C-141)

CONDITIONS

1					
	Created By	Condition	Condition Date		
	nvelez	Please see Conditions of Approval Letter within attached application file.	11/14/2022		

Action 63058