

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

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

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

Incident ID	NAPP2224945459
District RP	
Facility ID	
Application ID	

# I Release Notification

## Responsible Party

Responsible Party: Hilcorp Energy	OGRID 372171
Contact Name: Kate Kaufman	Contact Telephone: 346-237-2275
Contact email: kkaufman@hilcorp.com	Incident # (assigned by OCD)
Contact mailing address: 1111 Travis St. Houston, TX 77471	

## Location of Release Source

Latitude 36.5649 \_\_\_\_\_ Longitude -107.82607 \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Lodewick 8E	Site Type: Well Site
Date Release Discovered: 8/26/2022	API# (if applicable) 30-045-23877

Unit Letter	Section	Township	Range	County
B	19	027N	009W	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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 47.5	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls) 20.7	Volume Recovered (bbls) 0
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe) Unknown hydrocarbon	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Corrosion in tank side wall resulted in release of condensate and produced water that remained within a partially lined containment area. No fluids were recovered. Well was shut in and the tank drained to allow for repairs.

State of New Mexico  
Oil Conservation Division

Incident ID	NAPP2224945459
District RP	
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Was this a major release as defined by 19.15.29.7(A) NMAC?  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Release volume greater than 25 bbls of condensate and produced water.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notification was made by Clara Cardoza via email at 3:37 PM MST on Friday, 8/26/2022 to Emmanuel Adeloye at BLM and Nelson Velez at NMOCD.	

### Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> 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> Kate Kaufman </u> Title: <u> Environmental Specialist </u> Signature: <u>  </u> Date: <u> 9/6/2022 </u> email: <u> kkaufman@hilcorp.com </u> Telephone: <u> 346-237-2275 </u>
<b><u>OCD Only</u></b>  Received by: _____ Date: _____

Incident ID	NAPP2224945459
District RP	
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## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>351</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	NAPP2224945459
District RP	
Facility ID	
Application ID	

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

Printed Name: Kathryn H Kaufman Title: Environmental Specialist

Signature:  Date: 12-13-2022

email: kk Kaufman@hilcorp.com Telephone: 346-237-2275

**OCD Only**

Received by: Jocelyn Harimon Date: 12/13/2022

Incident ID	NAPP2224945459
District RP	
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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(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Clara Cardoza Title: Environmental Specialist

Signature: \_\_\_\_\_ Date: 7/15/2019

email: ccardoza@hilcorp.com Telephone: 505.564.0733

**OCD Only**

Received by: Jocelyn Harimon Date: 12/13/2022

- Approved     
 Approved with Attached Conditions of Approval     
 Denied     
 Deferral Approved

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	NAPP2224945459
District RP	
Facility ID	
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## Closure

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

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

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Kathryn H. Kaufman Title: Environmental Specialist

Signature:  Date: 12-13-2021

email: kkaufman@hilcorp.com Telephone: 346-237-2275

**OCD Only**

Received by: Jocelyn Harimon Date: 12/13/2022

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

Closure Approved by:  Date: 12/23/2022

Printed Name: Nelson Velez Title: Environmental Specialist - Adv

Kate Kaufman

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From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>  
Sent: Wednesday, November 16, 2022 9:02 AM  
To: Kate Kaufman  
Subject: RE: [EXTERNAL] Hilcorp Release Reporting

**CAUTION:** External sender. DO NOT open links or attachments from UNKNOWN senders.

Good morning Kate,

Thank you for the notice. After a review of the available documents (bgt permits located in each well file) and our discussion yesterday afternoon, OCD has granted time extensions for both locations listed in your email below. New deadline for both is 12/16/2022 and has been updated in both incident pages. According to our records, these are initial time extension requests for both sites.

Any bgt related inquiries should initially go through Jaclyn Burdine of the environmental permitting group.

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

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

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

Thank you.

Regards,

Nelson Velez • Environmental Specialist - Adv  
Environmental Bureau | EMNRD - Oil Conservation Division  
1000 Rio Brazos Road | Aztec, NM 87410  
(505) 469-6146 | [nelson.velez@emnrd.nm.gov](mailto:nelson.velez@emnrd.nm.gov) **NOTE NEW EMAIL ADDRESS**  
<http://www.emnrd.state.nm.us/OCD/>



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From: Kate Kaufman <kkaufman@hilcorp.com>  
Sent: Tuesday, November 15, 2022 1:42 PM  
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>  
Subject: [EXTERNAL] Hilcorp Release Reporting

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

Hi Nelson –

I tried to give you a call this afternoon (your VM box is full, by the way.)

Do you have time for a call today or tomorrow to discuss a couple recent Hilcorp releases?

1. Lodewick 8E – release date 8/26/2022, nAPP2224945459. We have completed a dig and haul at this location, and are waiting on analytical data for closure. The 90 day reporting deadline is 11/24/2022. If I do not have analytical results back by that time, can I please request a 7-14 day extension for the 90 day report? Please let me know if you need me to submit anything via the portal.
2. Riddle Gas Com A 1R – release date 8/25/2022, nAPP2224436644 – similar situation with this release. Due to encountering sandstone at the location, our delineation efforts took a little longer than expected. We are planning to dig and haul at this location, and should be able to start this week. However, I likely will not have analytical data back by the 90 day reporting timeframe (11/23) and would like to request an extension. I would also like to get your input on the BGT next to the release location, and our plan for sampling.

Thank you!

Kate

Kate Kaufman | Senior Environmental Specialist | Hilcorp Energy Company  
O: 346-237-2275 | C: 907-244-8292 | [kkaufman@hilcorp.com](mailto:kkaufman@hilcorp.com)  
1111 Travis St. | Houston | TX | 77002

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## Executive Summary – Incident #nAPP2224945459

On August 28, 2022, approximately 48 barrels of produced water and 21 barrels of oil were released from an above ground storage tank at the Lodewick #8E wellsite (30-045-23877) S19, T27N, R09W, B. The release was due to corrosion on the sidewall of the tank. The release was discovered at 12:51 PM MST on Friday, August 26 and was reported to NMOCD and BLM at 3:37 PM MST that same day.

The tank sidewall developed a hole approximately six inches above the base and impacted an area approximately 30' by 27' inside the berm. The release remained inside the berm, in a partially lined containment area. No fluids were recovered. There was no immediate danger to the public and no fire occurred as a result of the release. The well was shut in and the tank drained for inspection and repair prior to being put back into service.

Eleven 5-point composite samples were collected on November 10, 2022. Analytical results from this sampling event were below NMOCD action criteria noted in NMAC 19.15.29 Table 1. Sample results are included.

# Scaled Site Map

Lat: 36.5649  
Long: -107.82607

Lodewick #8E Wellsite  
API: 30-045-23877



Release Area



# Depth to groundwater determination.

BGT Siting Criteria for Lodewick 8E

Estimated depth to groundwater is greater than 368'.

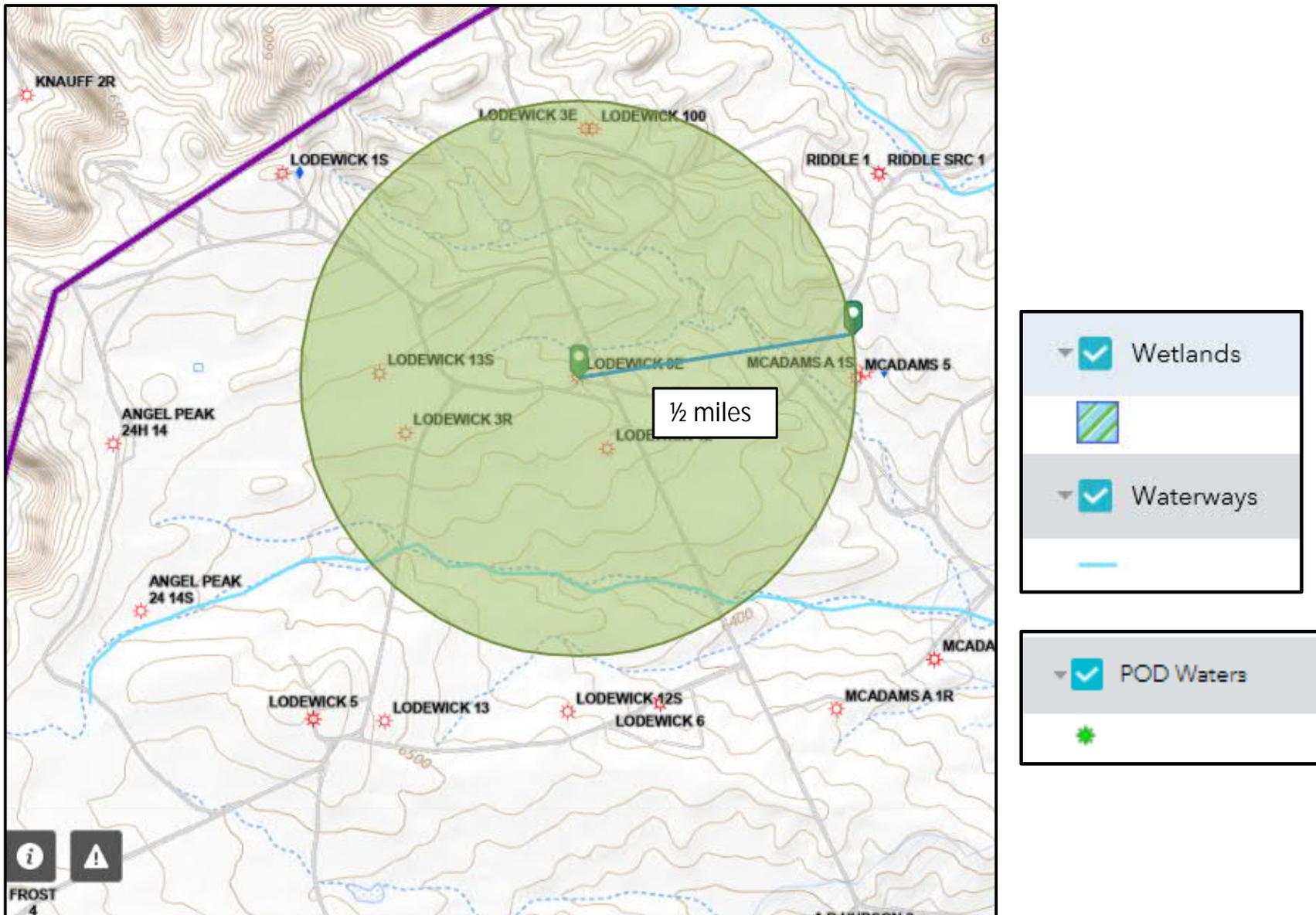
## **LODEWICK 8E**

### Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'LODEWICK 8E', which is located at 36.5649 degrees North latitude and 107.82607 degrees West longitude. This location is located on the Huerfano Peak 7.5' USGS topographic quadrangle. This location is in section 19 of Township 27 North Range 9 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in San Juan County, New Mexico. The nearest town is Blanco, located 10.9 miles to the north. The nearest large town (population greater than 10,000) is Farmington, located 24.1 miles to the northwest (National Atlas). The nearest highway is US Highway 550, located 7.4 miles to the southwest. The location is on BLM land and is 7,103 feet from the edge of the parcel as notated in the BLM land status layer updated January 2008. This location is in the Blanco Canyon, New Mexico, Sub-basin. This location is located 1977 meters or 6484 feet above sea level and receives 11 inches of rain each year. The vegetation at this location is classified as Colorado Plateau Pinon-Juniper Woodland as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 368 feet. This estimation is based on the data published on the New Mexico Engineer's iWaters Database website and water depth data from ConocoPhillips' cathodic wells. Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. The nearest stream is 300 feet to the north and is classified by the USGS as an intermittent stream. The nearest perennial stream is 1,637 feet to the northwest. The nearest water body is 1,634 feet to the northwest. It is classified by the USGS as an intermittent lake and is 0.2 acres in size. The nearest spring is 11,161 feet to the north. All stream, river, water body and spring information was determined as per the USGS Hydrographic Dataset (High Resolution), downloaded 3/2008. The nearest water well is 12,331 feet to the east. The nearest wetland is a 131.9 acre Ravine located 7,250 feet to the southeast. The slope at this location is 1 degrees to the northeast as calculated from USGS 30M National Elevation Dataset. This information is also discerned from the aerial and topographic map included. The surface geology at this location is NACIMIENTO FORMATION--Shale and sandstone with a Shale dominated formations of all ages substrate. The soil at this location is 'Fruitland-Persayo-Sheppard complex, hilly' and is well drained and not hydric with severe erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 24.8 miles to the west as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

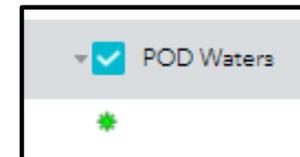
# Determination of water sources and significant watercourses within ½ mile of the lateral extent of the release



Note 1: Release point is within 300 ft of a continuously flowing watercourse or other significant water course.

Note 2: The lateral extents of the release point are not shown to be within 300 feet of a mapped wetland.

## Distance to mapped water wells.



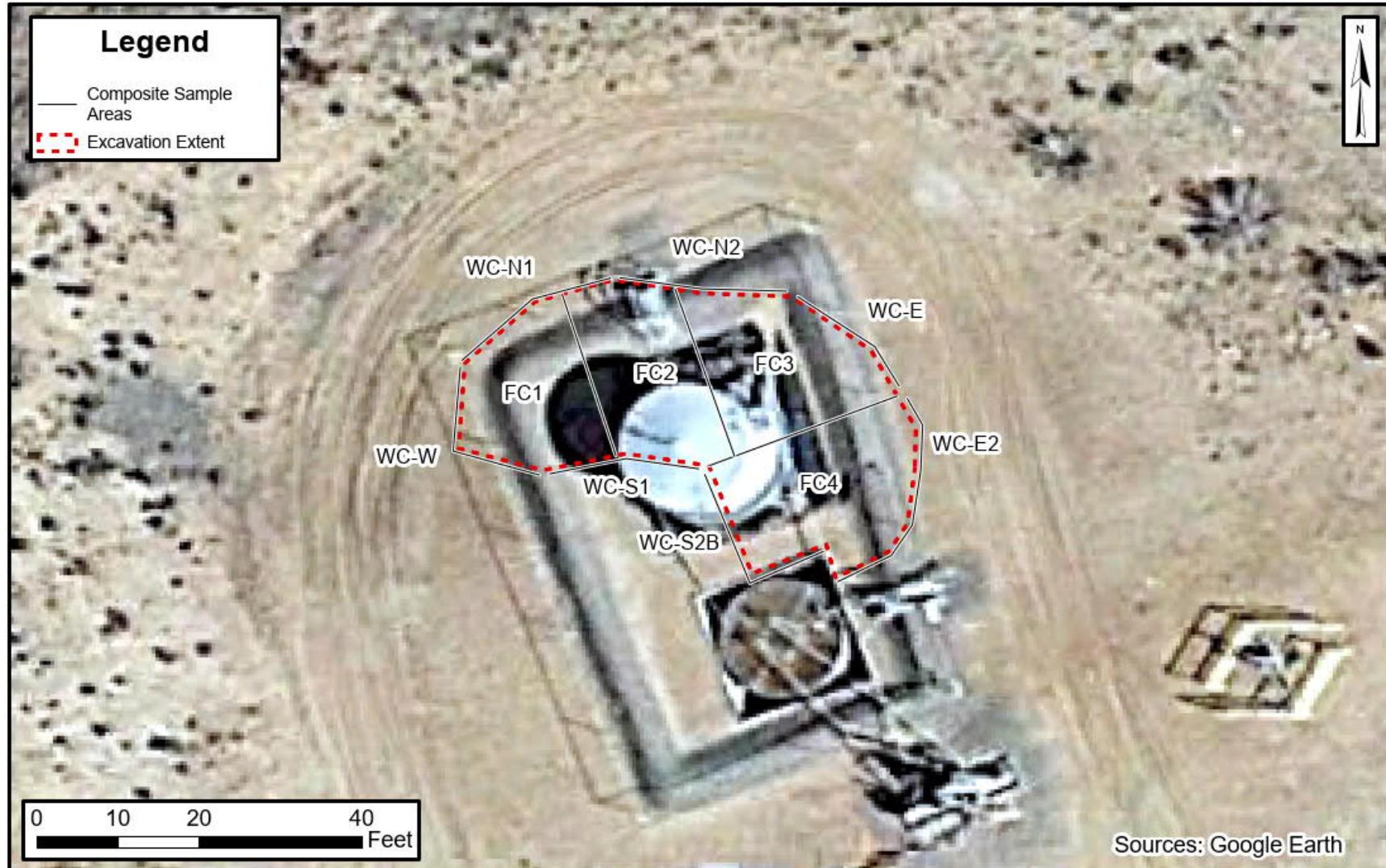
Note: The lateral extents of the release point are not shown to be within 500 ft of a spring or domestic freshwater well used by less than 5 households (or stock watering) or within 1,000 ft of any freshwater water well or spring.

# Data table of soil contaminant concentrations

Sample Name	Sample Date	Field VOCs by PID (ppm)	Lodewick #8E Laboratory Results										
			Chloride (mg/kg)	TPH as DRO (mg/kg)	TPH as GRO (mg/kg)	TPH as MRO (mg/kg)	Total TPH (mg/kg)	TPH as GRO + DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylene (mg/kg)	Total BTEX (mg/kg)
<b>19.15.29 Table 1 Closure Criteria</b>			<b>600</b>	-	-	-	<b>100</b>	-	<b>10</b>	-	-	-	<b>50</b>
Floor Composite 1	11/10/2022	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Floor Composite 2	11/10/2022	8.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Floor Composite 3	11/10/2022	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Floor Composite 4	11/10/2022	70.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite N1	11/10/2022	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite N2	11/10/2022	1.3	ND	28	ND	ND	28	28	ND	ND	ND	ND	ND
Wall Composite E	11/10/2022	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite S1	11/10/2022	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite W	11/10/2022	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite E2	11/10/2022	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Wall Composite S2B	11/10/2022	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Confirmation samples were collected on 11/10/2022 by Ensolum and all results were below NMOCD 19.15.29.12.D Table 1 closure criteria.

# Field Sample Diagram



## Excavation And Soil Sample Locations

Lodewick 8E  
Hilcorp Energy Company

FIGURE  
1

## Sample Photos – Southwest to Southeast



# Sample Photos – East to West



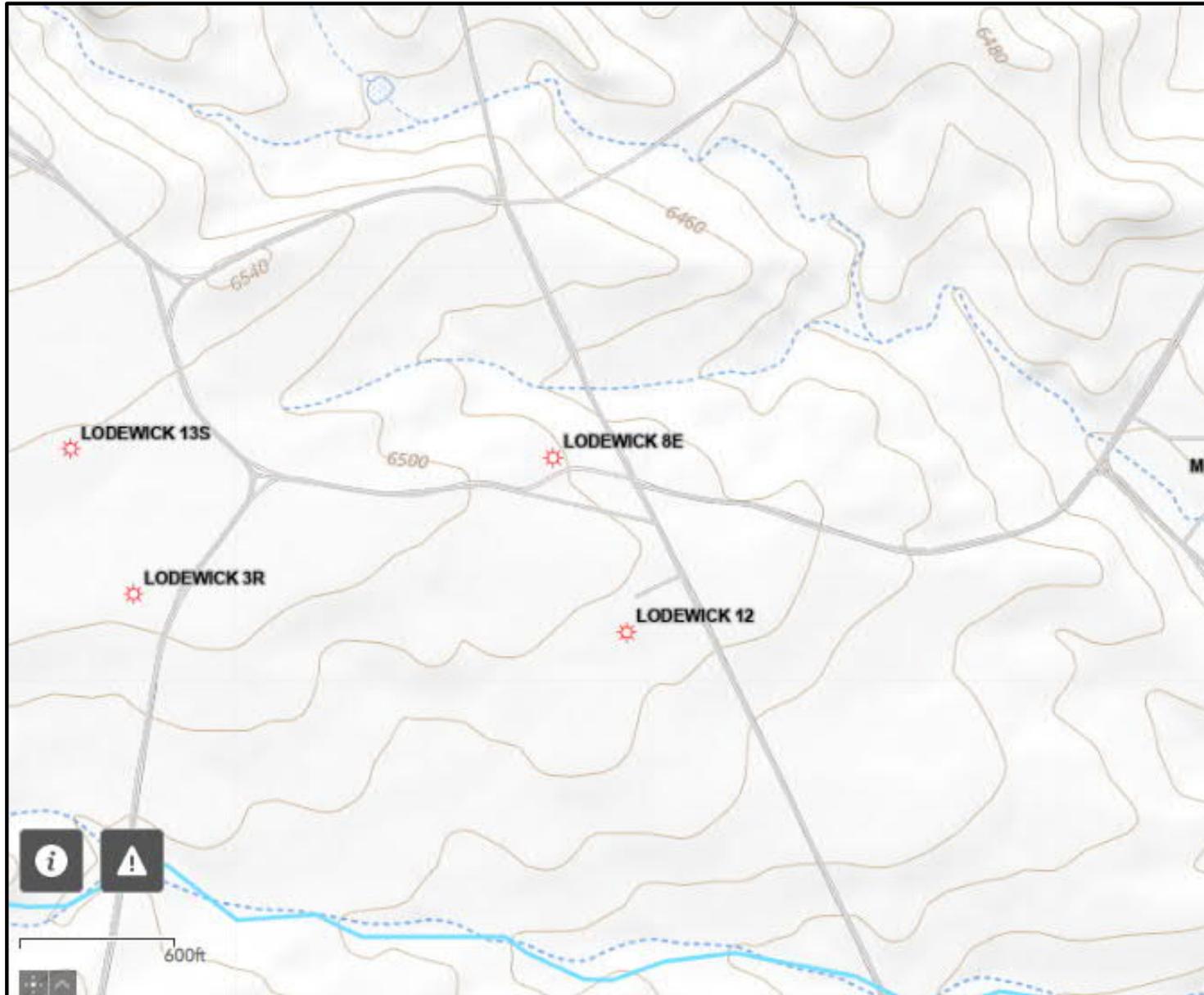
## Sample Photos – West to East



# Sample Photos – North to South



# Topographic Map



Analytical Data, Sample Collected 11/10/2022.

See attached Lab Report.

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** FC1

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 12:55:00 PM

**Lab ID:** 2211695-001

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 4:28:17 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/16/2022 4:28:17 AM
Surr: DNOP	102	21-129		%Rec	1	11/16/2022 4:28:17 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/15/2022 1:38:00 AM
Surr: BFB	98.1	37.7-212		%Rec	1	11/15/2022 1:38:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.023		mg/Kg	1	11/15/2022 1:38:00 AM
Toluene	ND	0.047		mg/Kg	1	11/15/2022 1:38:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	11/15/2022 1:38:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	11/15/2022 1:38:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	11/15/2022 1:38:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 7:09:56 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** FC2

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 12:58:00 PM

**Lab ID:** 2211695-002

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 4:38:46 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/16/2022 4:38:46 AM
Surr: DNOP	103	21-129		%Rec	1	11/16/2022 4:38:46 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/15/2022 2:17:00 AM
Surr: BFB	100	37.7-212		%Rec	1	11/15/2022 2:17:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.023		mg/Kg	1	11/15/2022 2:17:00 AM
Toluene	ND	0.047		mg/Kg	1	11/15/2022 2:17:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	11/15/2022 2:17:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	11/15/2022 2:17:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	11/15/2022 2:17:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 7:22:21 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** FC3

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:04:00 PM

**Lab ID:** 2211695-003

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 4:49:13 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/16/2022 4:49:13 AM
Surr: DNOP	104	21-129		%Rec	1	11/16/2022 4:49:13 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/15/2022 2:36:00 AM
Surr: BFB	98.5	37.7-212		%Rec	1	11/15/2022 2:36:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 2:36:00 AM
Toluene	ND	0.048		mg/Kg	1	11/15/2022 2:36:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/15/2022 2:36:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	11/15/2022 2:36:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	11/15/2022 2:36:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	61		mg/Kg	20	11/15/2022 7:59:34 PM

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

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-N1

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:07:00 PM

**Lab ID:** 2211695-004

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 4:59:40 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/16/2022 4:59:40 AM
Surr: DNOP	103	21-129		%Rec	1	11/16/2022 4:59:40 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/15/2022 2:56:00 AM
Surr: BFB	97.2	37.7-212		%Rec	1	11/15/2022 2:56:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 2:56:00 AM
Toluene	ND	0.048		mg/Kg	1	11/15/2022 2:56:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/15/2022 2:56:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	11/15/2022 2:56:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	11/15/2022 2:56:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 8:11:59 PM

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

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-N2

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:10:00 PM

**Lab ID:** 2211695-005

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	28	14		mg/Kg	1	11/16/2022 5:10:06 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/16/2022 5:10:06 AM
Surr: DNOP	105	21-129		%Rec	1	11/16/2022 5:10:06 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/15/2022 3:16:00 AM
Surr: BFB	107	37.7-212		%Rec	1	11/15/2022 3:16:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 3:16:00 AM
Toluene	ND	0.048		mg/Kg	1	11/15/2022 3:16:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/15/2022 3:16:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	11/15/2022 3:16:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	11/15/2022 3:16:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	61		mg/Kg	20	11/15/2022 8:49:12 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-E

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:13:00 PM

**Lab ID:** 2211695-006

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 5:20:30 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/16/2022 5:20:30 AM
Surr: DNOP	106	21-129		%Rec	1	11/16/2022 5:20:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/15/2022 3:35:00 AM
Surr: BFB	95.9	37.7-212		%Rec	1	11/15/2022 3:35:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.025		mg/Kg	1	11/15/2022 3:35:00 AM
Toluene	ND	0.049		mg/Kg	1	11/15/2022 3:35:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	11/15/2022 3:35:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	11/15/2022 3:35:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	11/15/2022 3:35:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 9:01:37 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-S1

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:14:00 PM

**Lab ID:** 2211695-007

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 5:30:52 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/16/2022 5:30:52 AM
Surr: DNOP	102	21-129		%Rec	1	11/16/2022 5:30:52 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/15/2022 3:55:00 AM
Surr: BFB	98.0	37.7-212		%Rec	1	11/15/2022 3:55:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 3:55:00 AM
Toluene	ND	0.048		mg/Kg	1	11/15/2022 3:55:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/15/2022 3:55:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	11/15/2022 3:55:00 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/15/2022 3:55:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 9:14:02 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-W

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:17:00 PM

**Lab ID:** 2211695-008

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 5:41:09 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/16/2022 5:41:09 AM
Surr: DNOP	107	21-129		%Rec	1	11/16/2022 5:41:09 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/15/2022 4:14:00 AM
Surr: BFB	96.4	37.7-212		%Rec	1	11/15/2022 4:14:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 4:14:00 AM
Toluene	ND	0.049		mg/Kg	1	11/15/2022 4:14:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	11/15/2022 4:14:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	11/15/2022 4:14:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	11/15/2022 4:14:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 9:26:26 PM

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

**Qualifiers:**

- |     |   |    |   |
|-----|---|----|---|
| *   | Value exceeds Maximum Contaminant Level.                                      | B  | Analyte detected in the associated Method Blank |
| D   | Sample Diluted Due to Matrix  | E  | Above Quantitation Range/Estimated Value        |
| H   | Holding times for preparation or analysis exceeded                            | J  | Analyte detected below quantitation limits      |
| ND  | Not Detected at the Reporting Limit   | P  | Sample pH Not In Range                          |
| PQL | Practical Quantitative Limit  | RL | Reporting Limit                                 |
| S   | % Recovery outside of standard limits. If undiluted results may be estimated. |    |   |

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** FC4

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:20:00 PM

**Lab ID:** 2211695-009

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/16/2022 5:51:26 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/16/2022 5:51:26 AM
Surr: DNOP	107	21-129		%Rec	1	11/16/2022 5:51:26 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/15/2022 4:34:00 AM
Surr: BFB	101	37.7-212		%Rec	1	11/15/2022 4:34:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>RAA</b>
Benzene	ND	0.024		mg/Kg	1	11/15/2022 4:34:00 AM
Toluene	ND	0.048		mg/Kg	1	11/15/2022 4:34:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/15/2022 4:34:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	11/15/2022 4:34:00 AM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	11/15/2022 4:34:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 9:38:50 PM

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

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-E2

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:25:00 PM

**Lab ID:** 2211695-010

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/15/2022 8:57:40 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/15/2022 8:57:40 PM
Surr: DNOP	104	21-129		%Rec	1	11/15/2022 8:57:40 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/14/2022 4:53:31 PM
Surr: BFB	89.7	37.7-212		%Rec	1	11/14/2022 4:53:31 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	11/14/2022 4:53:31 PM
Toluene	ND	0.048		mg/Kg	1	11/14/2022 4:53:31 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/14/2022 4:53:31 PM
Xylenes, Total	ND	0.096		mg/Kg	1	11/14/2022 4:53:31 PM
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	11/14/2022 4:53:31 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 9:51:15 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2211695

Date Reported: 11/18/2022

**CLIENT:** HILCORP ENERGY

**Client Sample ID:** WC-S2B

**Project:** Lodewick 8E

**Collection Date:** 11/10/2022 1:28:00 PM

**Lab ID:** 2211695-011

**Matrix:** SOIL

**Received Date:** 11/11/2022 6:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	11/15/2022 9:29:31 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	11/15/2022 9:29:31 PM
Surr: DNOP	111	21-129		%Rec	1	11/15/2022 9:29:31 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/14/2022 5:17:10 PM
Surr: BFB	90.5	37.7-212		%Rec	1	11/14/2022 5:17:10 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	11/14/2022 5:17:10 PM
Toluene	ND	0.049		mg/Kg	1	11/14/2022 5:17:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/14/2022 5:17:10 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/14/2022 5:17:10 PM
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	11/14/2022 5:17:10 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>NAI</b>
Chloride	ND	60		mg/Kg	20	11/15/2022 10:28:29 PM

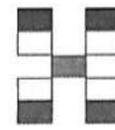
Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

# Chain-of-Custody Record

Client: Hilcorp  
 Attn: Kate Kaufman  
 Mailing Address:  
 Phone #:  
 email or Fax#: KKaufman@hilcorp.com  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Accreditation:  Az Compliance  
 NELAC  Other  
 EDD (Type)

Turn-Around Time:  
5-day  
 Standard  Rush  
 Project Name:  
Lodewick 8E  
 Project #:  
 Project Manager:  
Stuart Hyde  
shyde@ensolum.com  
 Sampler: Reece Hanson  
 On Ice:  Yes  No  
 # of Coolers: 1  
 Cooler Temp (including CP): 6.50 = 0.5 (°C)



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8024)	TPH: 8015D (GRO / DRO / MRO)	8081 Pesticides (8082 PCB's)	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub>	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
11/10/22	1255	Soil	FC1	1,402	Cool	2211695 001	X	X					X			
	1258		FC2			002										
	1304		FC3			003										
	1307		WC-N1			004										
	1310		WC-N2			005										
	1313		WC-E			006										
	1314		WC-S1			007										
	1317		WC-W			008										
	1320		FC4			009										
	1325		WC-E2			010										
	1328		WC-S2B			011										

Date: 11/10/22 Time: 1452 Relinquished by: [Signature]  
 Received by: [Signature] Via: [Signature] Date: 11/10/22 Time: 1452  
 Date: 11/16/22 Time: 1802 Relinquished by: [Signature]  
 Received by: [Signature] Via: [Signature] Date: 11/16/22 Time: 6:35

Remarks: cc: rhanson@ensolum.com

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



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

November 18, 2022

Stuart Hyde

HILCORP ENERGY

PO Box 4700

Farmington, NM 87499

TEL: (505) 564-0733

FAX:

RE: Lodewick 8E

OrderNo.: 2211695

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 11 sample(s) on 11/11/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>MB-71526</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71526</b>	RunNo: <b>92584</b>								
Prep Date: <b>11/15/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3331242</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-71526</b>	SampType: <b>lcs</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71526</b>	RunNo: <b>92584</b>								
Prep Date: <b>11/15/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3331243</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.5	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 Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>2211695-010AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>WC-E2</b>	Batch ID: <b>71475</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3330989</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	14	46.00	0	94.0	36.1	154			
Surr: DNOP	5.4		4.600		117	21	129			

Sample ID: <b>2211695-010AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>WC-E2</b>	Batch ID: <b>71475</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3330990</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	13	43.67	0	103	36.1	154	4.40	33.9	
Surr: DNOP	5.0		4.367		115	21	129	0	0	

Sample ID: <b>LCS-71475</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71475</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3331023</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	15	50.00	0	87.3	64.4	127			
Surr: DNOP	5.4		5.000		108	21	129			

Sample ID: <b>LCS-71478</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71478</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/16/2022</b>	SeqNo: <b>3331024</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.00	0	99.9	64.4	127			
Surr: DNOP	6.2		5.000		123	21	129			

Sample ID: <b>MB-71475</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71475</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/15/2022</b>	SeqNo: <b>3331025</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		120	21	129			

**Qualifiers:**

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- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>MB-71478</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71478</b>	RunNo: <b>92583</b>								
Prep Date: <b>11/14/2022</b>	Analysis Date: <b>11/16/2022</b>	SeqNo: <b>3331026</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	21	129			

**Qualifiers:**

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- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>mb-71451</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328235</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.7	37.7	212			

Sample ID: <b>ics-71451</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328236</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	72.3	137			
Surr: BFB	1900		1000		193	37.7	212			

Sample ID: <b>2211695-010ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>WC-E2</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328238</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.44	0	87.0	70	130			
Surr: BFB	1800		977.5		186	37.7	212			

Sample ID: <b>2211695-010amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>WC-E2</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328239</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.53	0	92.5	70	130	6.54	20	
Surr: BFB	1800		981.4		187	37.7	212	0	0	

Sample ID: <b>ics-71448</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71448</b>	RunNo: <b>92569</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328730</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.6	72.3	137			
Surr: BFB	2300		1000		227	37.7	212			S

Sample ID: <b>mb-71448</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71448</b>	RunNo: <b>92569</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328731</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>mb-71448</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71448</b>	RunNo: <b>92569</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328731</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.2	37.7	212			

**Qualifiers:**

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>mb-71451</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328269</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	70	130			

Sample ID: <b>LCS-71451</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328270</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.6	80	120			
Toluene	0.94	0.050	1.000	0	93.8	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.5	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.4	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		93.8	70	130			

Sample ID: <b>2211695-011ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>WC-S2B</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328273</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	0.9843	0	91.8	68.8	120			
Toluene	0.93	0.049	0.9843	0	94.8	73.6	124			
Ethylbenzene	0.94	0.049	0.9843	0	95.4	72.7	129			
Xylenes, Total	2.8	0.098	2.953	0	95.4	75.7	126			
Surr: 4-Bromofluorobenzene	0.92		0.9843		93.2	70	130			

Sample ID: <b>2211695-011amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>WC-S2B</b>	Batch ID: <b>71451</b>	RunNo: <b>92559</b>								
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>	SeqNo: <b>3328274</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.024	0.9728	0	94.0	68.8	120	1.29	20	
Toluene	0.93	0.049	0.9728	0	96.1	73.6	124	0.135	20	
Ethylbenzene	0.93	0.049	0.9728	0	95.9	72.7	129	0.652	20	
Xylenes, Total	2.8	0.097	2.918	0	96.2	75.7	126	0.426	20	
Surr: 4-Bromofluorobenzene	0.90		0.9728		93.0	70	130	0	0	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2211695

18-Nov-22

**Client:** HILCORP ENERGY

**Project:** Lodewick 8E

Sample ID: <b>ics-71448</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>71448</b>		RunNo: <b>92569</b>							
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>		SeqNo: <b>3328782</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	111	80	120			
Xylenes, Total	3.3	0.10	3.000	0	111	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	70	130			

Sample ID: <b>mb-71448</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>71448</b>		RunNo: <b>92569</b>							
Prep Date: <b>11/11/2022</b>	Analysis Date: <b>11/14/2022</b>		SeqNo: <b>3328783</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		109	70	130			

**Qualifiers:**

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



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

Sample Log-In Check List

Client Name: Hilcorp Energy Work Order Number: 2211695 RptNo: 1

Received By: Juan Rojas 11/1/2022 6:35:00 AM
Completed By: Cheyenne Cason 11/11/2022 7:24:58 AM
Reviewed By: JMC 11/11/22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [ ] Not Present [ ]
2. How was the sample delivered? Client

Log In

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

# of preserved bottles checked for pH: (<2 or >12 unless noted) Adjusted? Checked by: JMC 11/11/22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [ ] No [ ] NA [checked]

Person Notified: Date: By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions:

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 0.5, Good, Not Present, , ,

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

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

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

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

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

CONDITIONS  
 Action 166602

**CONDITIONS**

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 166602
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
nvez	None	12/23/2022