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	nAPP2218030491
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Hilcorp Energy Company	OGRID 372171
Contact Name Mitch Killough	Contact Telephone 713-757-5247
Contact email mkillough@hilcorp.com	Incident # nAPP2218030491
Contact mailing address 1111 Travis Street, Houston, Texas 77002	

Location of Release Source

Latitude 36.7791252 Longitude -107.8594666
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Grenier A 4	Site Type Well
Date Release Discovered: 6/17/2022 @ 11:10 am (MT)	API# 30-045-09127

Unit Letter	Section	Township	Range	County
M	26	30N	10W	San Juan

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private

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) 28.29 bbls	Volume Recovered (bbls) 0 bbls
☒ Produced Water	Volume Released (bbls) 4.83 bbls	Volume Recovered (bbls) 0 bbls
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release
A release of approximately 33.12 bbls oil/produced water was released from a 100-bbl oil tank. The manway developed a pin hole on the bottom left hand corner. Released fluids flowed downgradient to the 120 bbl BGT and settled around/under the pit. Fluids did not migrate horizontally outside of secondary containment. Despite all fluids remaining on location and inside the bermed area, no fluids could be recovered due to soaking into the ground surface. OCD will be notified 48 hours prior to closure confirmation sampling.

The spill amount was determined by operator's monthly tank gauging data.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2218030491
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The spill amount exceeded 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Mitch Killough notified the NMOCD via 24-hour email notification on 06/17/2022 at 4:43 pm CT.	

Initial Response

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

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

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

In the case of this release, the spilled fluids soaked vertically into the ground surface near the BGT and 100-bbl oil storage tank. If any free liquids could have been recovered, Hilcorp would have certainly done so.

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

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

Printed Name: Mitch Killough Title: Environmental Specialist

Signature: _____ Date: 06/29/2022

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

OCD Only

Received by: Jocelyn Harimon Date: 06/30/2022

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

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

CONDITIONS

Action 121696

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 121696
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	6/30/2022

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2218030491
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2218030491
District RP	
Facility ID	
Application ID	

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

Printed Name: __Mitch Killough_____ Title: _____Environmental Specialist_____

Signature: _____ _____ Date: 12/28/2022_____

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

OCD Only

Received by: _____Jocelyn Harimon_____ Date: __12/29/2022_____

Incident ID	NAPP2218030491
District RP	
Facility ID	
Application ID	

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: Mitch Killough Title: Environmental Specialist

Signature: Date: 12/28/2022

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

OCD Only

Received by: Jocelyn Harimon Date: 12/29/2022

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: Nelson Velez Date: 01/12/2023

Printed Name: Nelson Velez Title: Environmental Specialist – Adv

ENSOLUM

December 29, 2022

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

Re: Remediation Report and Closure Request
Grenier A 4
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident No: nAPP2218030491

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Remediation Report and Closure Request* for a release at the Grenier A 4 natural gas production well (Site). The Site is located on federal land managed by the Bureau of Land Management (BLM) in Unit M, Section 26, Township 30 North, Range 10 West, in San Juan County, New Mexico (Figure 1). The work described in this report was performed in order to remediate petroleum hydrocarbon impacted soil originating from a release of crude oil and produced water from an aboveground storage tank. Based on the remediation activities performed and laboratory analytical results, Hilcorp is requesting closure and no further action for Incident Number nAPP2218030491.

SITE BACKGROUND

On June 17, 2022, Hilcorp personnel discovered a release of crude oil and produced water originating from a pin hole on the manway cover of an aboveground storage tank. Based on tank gauging data, a total of 33.12 barrels (bbls) of fluids were released, of which 28.29 bbls were crude oil and 4.83 bbls were produced water. All released fluids remained within the tank's secondary containment; however, no fluids were recovered. Upon discovery of the release, Hilcorp immediately notified the New Mexico Oil Conservation Division (NMOCD) on June 17, 2022, and submitted an initial *Form C-141 Release Notification* on June 29, 2022. NMOCD assigned the release incident number nAPP2218030491.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site is located on BLM surface approximately 4 miles north of Blanco, New Mexico. As part of the site investigation, local geology/hydrogeology and nearby sensitive receptors were assessed in accordance with Title 19, Chapter 15, Part 29, Sections 11 and 12 (19.15.29.11 and 12) of the New Mexico Administrative Code (NMAC).

The Site is located in the Tertiary San Jose Formation. In the report titled "Hydrogeology and Water Resources of San Juan Basin, New Mexico" (Stone, et. al., 1983), the San Jose Formation is characterized by various lithologies including course-grained arkose, mudstones, and lenses of claystone, siltstone, and poorly consolidated sandstone. This formation ranges in thickness

Released to Imaging: 1/12/2023 7:39:17 AM

from 200 feet to 2,700 feet. Stone and others state that the aquifers in the San Jose Formation are largely untested and display variable hydrologic properties dependent on location. Where sufficient yield is present, the primary use of water from this formation is for domestic and/or livestock supply. The San Jose Formation is underlain by the Nacimiento Formation.

The nearest significant watercourse is an unnamed dry wash located 250 feet to the south of the Site and is a first-order tributary of Slane Canyon. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland (Figure 1). The nearest fresh-water well is New Mexico Office of the State Engineer (NMOSE) permitted well SJ-01059 (Appendix A), located approximately 0.85 miles southwest of the Site. The recorded depth to water on the NMOSE database is 75 feet below ground surface (bgs). No wellhead protection areas, springs, or domestic/stock wells are located within a ½-mile from the Site. The Site is not within a 100-year floodplain, overlying a subsurface mine, or located within an area underlain by unstable geology (area designated as low potential karst by the BLM). Schools, hospitals, institutions, churches, and/or other occupied permanent residence or structures are not located within 300 feet of the Site.

Based on the information presented above and in accordance with the *Table I, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 of the NMAC), the following closure criteria is applied to the Site based on the proximity to a significant watercourse:

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

EXCAVATION SOIL SAMPLING ACTIVITIES

In response to the release, Hilcorp performed initial excavation activities in July 2022 to remove soil impacted by hydrocarbons. Based on field screening and soil analytical results from samples collected from the excavation, additional soil removal was performed on October 4 and December 1, 2022 using a trackhoe and transportation vehicle. To direct excavation activities during these events, Ensolum personnel field screened soil for volotile organic compounds (VOCs) using a calibrated photoionization detector (PID). Additionally, if laboratory analytical results from sidewall and/or floor samples exceeded the applicable Closure Criteria, additional soil was removed from that area and a subsequent sample representing the newly exposed area was collected.

Following removal of impacted soil, Ensolum notified the NMOCD and the BLM on November 23, 2022 (Appendix B). Hilcorp notified the NMOCD on November 28, 2022 (Appendix B) and performed confirmation soil sampling on December 1, 2022. Five-point composite soil samples were collected from the sidewalls and floor of the excavation at a frequency of one sample per 200 square feet. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 6 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico. Soil samples delivered to the laboratory the same day they are collected may not have equilibrated to the specified temperature but are considered to have been received in acceptable condition. All samples were submitted for analyses by BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH following EPA Method 8015M/D; and chloride following EPA Method 300.0.

The excavation was completed to depths ranging between 10 and 20 feet bgs to the lateral extent shown in Figure 2. Based on the area of the floor and sidewalls, four floor samples and eight sidewall samples were collected as presented on Figure 2. In total, approximately 832 cubic yards of soil were removed from the excavation and transported for disposal at the Envirotech Landfarm in San Juan County, New Mexico.

Based on the analytical results, all confirmation samples were in compliance with NMOCD Table I Closure Criteria. Analytical results are summarized in Table 1, with complete laboratory reports attached as Appendix C. Photographs taken by Hilcorp and Ensolum during the excavation work are included in Appendix D.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the release of produced water and crude oil that occurred on June 17, 2022. Laboratory analytical results for the excavation soil samples, collected from the final excavation extent, indicate that concentrations are compliant with the Site Closure Criteria and no further remediation is required. With NMOCD approval, Hilcorp will backfill the excavation with clean material and recontour the Site to match pre-existing conditions. Excavation of impacted soil has mitigated impacts at this Site and these remedial actions are protective of human health, the environment, and groundwater. As such, Hilcorp respectfully requests closure for Incident Number nAPP2218030491.

Sincerely,

ENSOLUM, LLC

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

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

Attachments:

Figure 1: Site Location Map
Figure 2: Excavation Site Map

Table 1: Soil Sample Analytical Results

Appendix A: NMOSE Well Summary
Appendix B: NMOCD Correspondence
Appendix C: Laboratory Analytical Reports
Appendix D: Photographic Log

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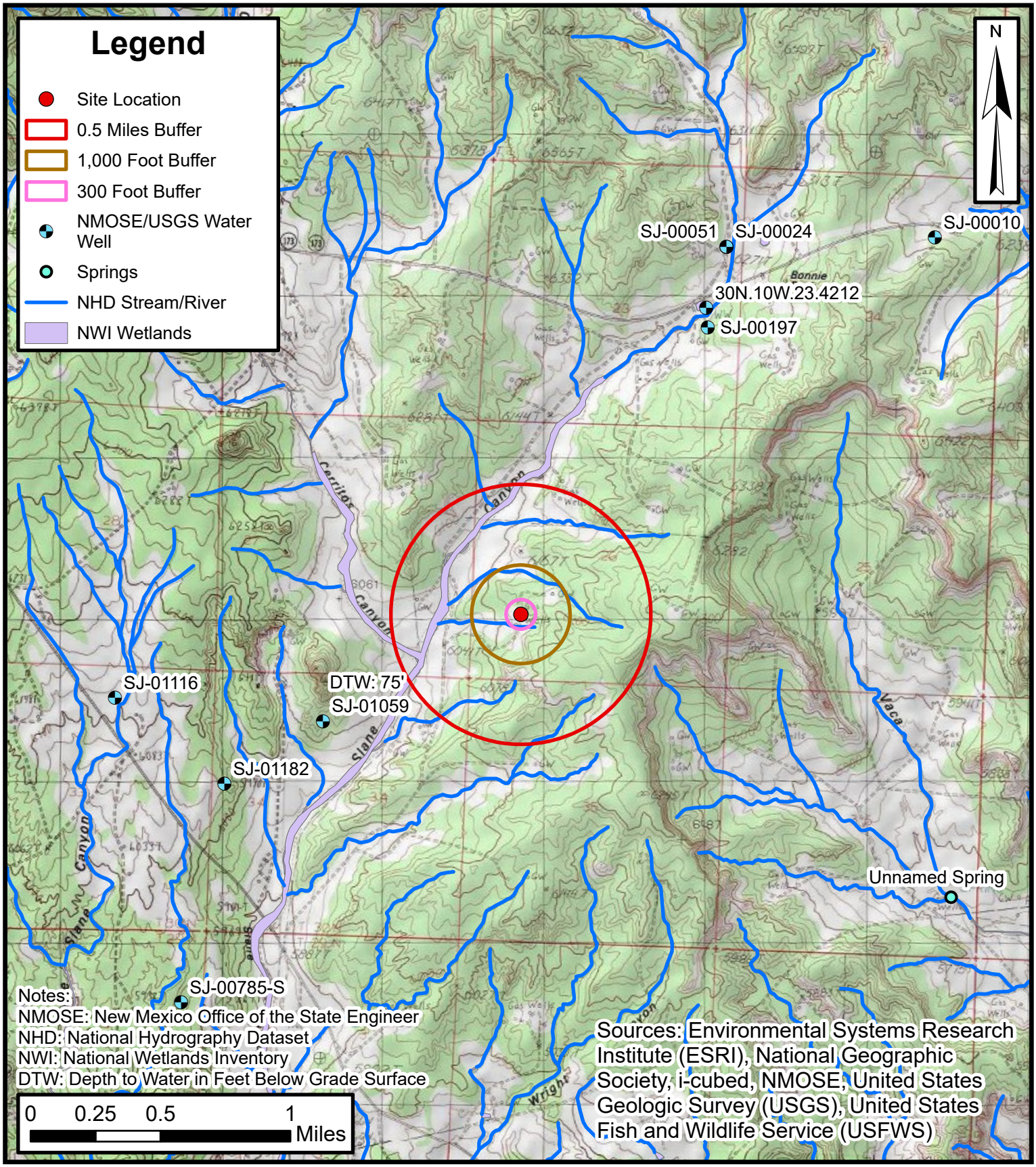
FIGURES



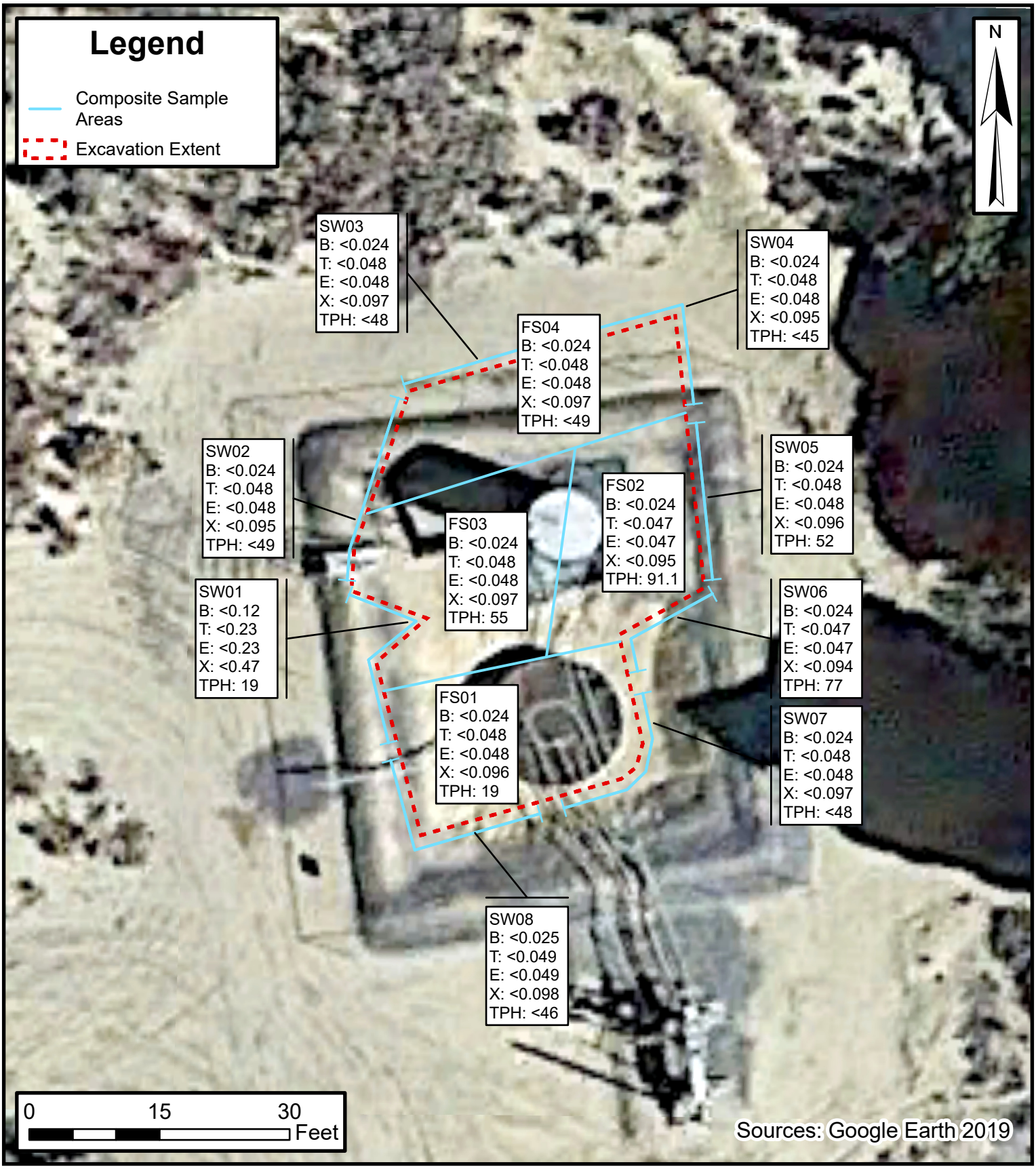
ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

Grenier A 4
Hilcorp Energy Company

36.779506, -107.85319
San Juan County, New Mexico

FIGURE
1



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Excavation Site Map

Grenier A 4
Hilcorp Energy Company

36.779506, -107.85319
San Juan County, New Mexico

FIGURE
2

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Grenier A 4
Hilcorp Energy Company
San Juan County, New Mexico

Sample Identification	Date	Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			**10**	**50**	**NE**	**NE**	**NE**	**100**	**600**
Initial Excavation Soil Samples									
~~S-1 @10'~~	~~07/22/2022~~	~~10~~	~~<0.024~~	~~1.194~~	~~26~~	~~210~~	~~<45~~	~~**236.0**~~	~~<61~~
SSW-B	10/04/2022	0 - 10	<0.017	<0.067	<3.4	<14	<47	<47	<59
~~WSW~~	~~10/05/2022~~	~~0 - 10~~	~~<0.12~~	~~<0.5~~	~~85~~	~~520~~	~~<46~~	~~**605**~~	~~<60~~
~~NSW-B~~	~~10/05/2022~~	~~0 - 10~~	~~<0.12~~	~~2.9~~	~~180~~	~~1100~~	~~<450~~	~~**1,280**~~	~~<60~~
~~S-4~~	~~10/05/2022~~	~~18~~	~~<0.12~~	~~<0.47~~	~~31~~	~~260~~	~~<45~~	~~**291**~~	~~<60~~
Final Excavation Confirmation Soil Samples									
SW01	12/01/2022	0 - 20	<0.12	<0.47	<23	19	<43	19	<60
SW02	12/01/2022	0 - 10	<0.024	<0.095	<4.8	<15	<49	<49	<60
SW03	12/01/2022	0 - 10	<0.024	<0.097	<4.8	<14	<48	<48	<59
SW04	12/01/2022	0 - 10	<0.024	<0.095	<4.8	<14	<45	<45	<60
SW05	12/01/2022	0 - 20	<0.024	<0.096	<4.8	52	<44	52	<60
SW06	12/01/2022	0 - 12	<0.024	<0.094	<4.7	77	<47	77	<59
SW07	12/01/2022	0 - 10	<0.024	<0.097	<4.8	<14	<48	<48	<61
SW08	12/01/2022	0 - 10	<0.025	<0.098	<4.9	<14	<46	<46	<60
FS01	12/01/2022	10	<0.024	<0.096	<4.8	19	<47	19	<60
FS02	12/01/2022	12	<0.024	<0.095	6.1	85	<49	91.1	<60
FS03	12/01/2022	20	<0.024	<0.097	7	48	<48	55	<60
FS04	12/01/2022	10	<0.024	<0.097	<4.8	<15	<49	<49	<60

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

MRO: Motor Oil Range Organics

TPH: Total Petroleum Hydrocarbon

*Concentrations in **bold** exceed the NMOCD Table I Closure Criteria*

~~Grey~~ and strikethrough text indicates samples representing areas that have been excavated

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APPENDIX A

NMOSE Well Summary

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twn	Rng	(NAD83 UTM in meters) X	Y
	SJ 01059	4	2	1	34	30N	10W	243585	4073570*

Driller License:	717	**Driller Company:**	WESTERN WATER WELLS		
Driller Name:	HOOD, TERRY				
Drill Start Date:	09/20/1979	**Drill Finish Date:**	09/24/1979	**Plug Date:**	
Log File Date:	09/28/1979	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	20 GPM
Casing Size:	5.00	**Depth Well:**	115 feet	**Depth Water:**	75 feet

Water Bearing Stratifications:	Top	Bottom	Description
	98	115	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	95	115

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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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APPENDIX B

NMOCD Correspondence

Mitch Killough

From:	Mitch Killough
Sent:	Friday, June 17, 2022 4:43 PM
To:	Velez, Nelson, EMNRD
Cc:	Matt Henderson; Adeloye, Abiodun A; OCD.Enviro@state.nm.us
Subject:	Hilcorp Energy Company - 24-Hour Release Notification - Grenier A 4

Hi Nelson.

On 6/17/2022 at approximately 11:10 am (MT), Hilcorp Energy Company (Hilcorp) discovered a 33.12-bbl release of oil/produced water at the Grenier A 4 (API: 30-045-09127) in San Juan County, NM (36.77911, -107.85902). Based on initial assessments conducted by Hilcorp personnel, the cause of the release was determined to be a pin hole that had formed on the manway cover (bottom left corner) on a 100-bbl oil storage tank. Released fluids flowed downgradient on the surface within secondary containment, but did not migrate horizontally outside of this area. No released fluids could be recovered. At this time, the site has been shut-in, One Call was processed today, and cleanup of visually-impacted soils will commence on 6/20/2022. Note that this will also involve a further inspection of the 100-bbl oil storage tank.

An initial C-141 will be submitted to the NMOCD no later than 7/2/2022. Please contact me if you have any questions.

Thanks.

Mitch Killough
Environmental Specialist
Hilcorp Energy Company
1111 Travis Street
Houston, TX 77002
713-757-5247 (office)
281-851-2338 (cell)
mkillough@hilcorp.com

From: Velez, Nelson, EMNRD
To: Stuart Hyde; Adeloye, Abiodun A
Cc: Mitch Killough; Devin Hencmann
Subject: RE: [EXTERNAL] nAPP2218030491 Grenier A 4 - Sampling Notification
Date: Thursday, September 29, 2022 9:42:42 AM
Attachments: image001.png
image002.png
image003.png
image004.png

[**EXTERNAL EMAIL**]

Stuart,

Thank you for the notice. If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

The OCD requires a copy of all correspondence relative to remedial activities be included in all proposals and/or final closure reports. Correspondence required to be included in reports may include, but not limited to, notifications for liner inspections, sample events, spill/release/fire, and request for time extensions or variances.

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

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

From: Stuart Hyde <shyde@ensolum.com>
Sent: Thursday, September 29, 2022 8:56 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>
Subject: [EXTERNAL] nAPP2218030491 Grenier A 4 - Sampling Notification

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

On behalf of Hilcorp Energy Company, Ensolum is submitting this notification for sampling at the Grenier A 4 site located in San Juan County, New Mexico (coordinates 36.77912, -107.85946). Sampling activities will begin on Tuesday October 4, 2022 at 9 AM. Please reach out with any questions regarding the upcoming activities.

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

From: Velez, Nelson, EMNRD
To: Stuart Hyde; Adeloye, Abiodun A
Cc: Mitch Killough; Chad Perkins; Devin Hencmann; Greg Palese
Subject: RE: [EXTERNAL] 24-Hour Sampling Notification - Grenier A 4 (nAPP2218030491)
Date: Wednesday, November 23, 2022 9:14:44 AM
Attachments: image006.png
image007.png
image008.png
image009.png

[**EXTERNAL EMAIL**]

Stuart,

Thank you for the notice. If an OCD representative is not on-site on the date &/or time given, please sample per 19.15.29 NMAC. For whatever reason, if the sampling timeframe is altered, please notify the OCD as soon as possible so we may adjust our schedule(s). Failure to notify the OCD of this change may result in the closure sample(s) not being accepted.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

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 *NOTE NEW EMAIL ADDRESS*
http://www.emnrd.state.nm.us/OCD/

From: Stuart Hyde <shyde@ensolum.com>
Sent: Wednesday, November 23, 2022 4:53 AM
To: Adeloye, Abiodun A <aadeloye@blm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Chad Perkins <cperkins@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Greg Palese <gpalese@ensolum.com>
Subject: [EXTERNAL] 24-Hour Sampling Notification - Grenier A 4 (nAPP2218030491)

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

Nelson and Emmanuel,

On behalf of Hilcorp Energy Company, we are providing notice of confirmation soil sampling to take place at the Grenier A 4 site in San Juan County, NM. The sampling will commence on Wednesday November 30, 2022 at 9:00 AM MT. Please call or email with any questions.

Grenier A 4	30-045-09127	Area 3	0305	San Juan	36.779110	-107.859020	OCD/BLM	nAPP2218030491	Spill Event

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

ENSOLUM

APPENDIX C

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 01, 2022

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

RE: Grenier A 004 OrderNo.: 2207B87

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/23/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2207B87**
Date Reported: **8/1/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** S-1 10'
Project: Grenier A 004 **Collection Date:** 7/22/2022 2:10:00 PM
Lab ID: 2207B87-001 **Matrix:** SOIL **Received Date:** 7/23/2022 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	210	13		mg/Kg	1	7/27/2022 9:30:27 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/27/2022 9:30:27 PM
Surr: DNOP	93.6	21-129		%Rec	1	7/27/2022 9:30:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	26	4.7		mg/Kg	1	7/27/2022 4:47:00 PM
Surr: BFB	185	37.7-212		%Rec	1	7/27/2022 4:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	7/27/2022 4:47:00 PM
Toluene	0.084	0.047		mg/Kg	1	7/27/2022 4:47:00 PM
Ethylbenzene	0.11	0.047		mg/Kg	1	7/27/2022 4:47:00 PM
Xylenes, Total	1.0	0.095		mg/Kg	1	7/27/2022 4:47:00 PM
Surr: 4-Bromofluorobenzene	121	70-130		%Rec	1	7/27/2022 4:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	61		mg/Kg	20	7/29/2022 7:46:33 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2207B87**

01-Aug-22

Client: HILCORP ENERGY

Project: Grenier A 004

Sample ID: **MB-69169**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **69169**	RunNo: **89897**							
Prep Date: **7/29/2022**	Analysis Date: **7/29/2022**	SeqNo: **3203452**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-69169**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **69169**	RunNo: **89897**							
Prep Date: **7/29/2022**	Analysis Date: **7/29/2022**	SeqNo: **3203453**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2207B87**

01-Aug-22

Client: HILCORP ENERGY

Project: Grenier A 004

Sample ID: **LCS-69066** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **69066** RunNo: **89825**

Prep Date: **7/26/2022** Analysis Date: **7/27/2022** SeqNo: **3198929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	15	50.00	0	84.9	64.4	127			
Surr: DNOP	4.2		5.000		84.4	21	129			

Sample ID: **MB-69066** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **69066** RunNo: **89825**

Prep Date: **7/26/2022** Analysis Date: **7/27/2022** SeqNo: **3198930** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	21	129			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2207B87**

01-Aug-22

Client: HILCORP ENERGY

Project: Grenier A 004

Sample ID: **lcs-69042**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **69042**	RunNo: **89847**
Prep Date: **7/25/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199596** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	72.3	137			
Surr: BFB	2000		1000		201	37.7	212			

Sample ID: **mb-69042**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **69042**	RunNo: **89847**
Prep Date: **7/25/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		94.6	37.7	212			

Sample ID: **lcs-69077**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **69077**	RunNo: **89847**
Prep Date: **7/26/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199620** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2100		1000		207	37.7	212			

Sample ID: **mb-69077**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **69077**	RunNo: **89847**
Prep Date: **7/26/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199621** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	930		1000		93.4	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2207B87**

01-Aug-22

Client: HILCORP ENERGY

Project: Grenier A 004

Sample ID: **lcs-69042**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **69042**	RunNo: **89847**
Prep Date: **7/25/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199634** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.0	80	120			
Toluene	0.92	0.050	1.000	0	92.2	80	120			
Ethylbenzene	0.93	0.050	1.000	0	93.5	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.1	80	120			
Surr: 4-Bromofluorobenzene	0.88		1.000		88.5	70	130			

Sample ID: **mb-69042**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **69042**	RunNo: **89847**
Prep Date: **7/25/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199635** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.9	70	130			

Sample ID: **lcs-69077**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **69077**	RunNo: **89847**
Prep Date: **7/26/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199654** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		87.4	70	130			

Sample ID: **mb-69077**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **69077**	RunNo: **89847**
Prep Date: **7/26/2022**	Analysis Date: **7/27/2022**	SeqNo: **3199655** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		87.1	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2207B87 RcptNo: 1

Received By: **Juan Rojas** 7/23/2022 8:10:00 AM

Completed By: **Juan Rojas** 7/23/2022 9:15:14 AM

Reviewed By: CMC 7/25/22

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: JR 7/23/22

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.6	Good				

Released to Imaging: 1/12/2023 7:39:17 AM
Received by OCD: 12/29/2022 4:11:32 PM

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#: brandon.sinclair@hilcorp.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
5 days
☑ Standard ☐ Rush

Project Name: Grenier A #004

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.8+0.2=1.0 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2207857	BTEX / ~~MTBE~~ / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Analysis Request
7-22	1410	soil	S-1 10'	4oz jar	cool	-001	✓	✓					✓				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7-22	1557				7/22/22	1557
7.22.22	1811			courier	7/23/22	8:10

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 13, 2022

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

RE: Grenier A4 OrderNo.: 2210135

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/5/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2210135**
Date Reported: **10/13/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SSW-B
Project: Grenier A4
Collection Date: 10/4/2022 4:00:00 PM
Lab ID: 2210135-001 **Matrix:** SOIL **Received Date:** 10/5/2022 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/5/2022 10:34:01 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/5/2022 10:34:01 AM
Surr: DNOP	76.7	21-129		%Rec	1	10/5/2022 10:34:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **BRM**
Gasoline Range Organics (GRO)	ND	3.4		mg/Kg	1	10/5/2022 1:25:00 PM
Surr: BFB	106	37.7-212		%Rec	1	10/5/2022 1:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BRM**
Benzene	ND	0.017		mg/Kg	1	10/5/2022 1:25:00 PM
Toluene	ND	0.034		mg/Kg	1	10/5/2022 1:25:00 PM
Ethylbenzene	ND	0.034		mg/Kg	1	10/5/2022 1:25:00 PM
Xylenes, Total	ND	0.067		mg/Kg	1	10/5/2022 1:25:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/5/2022 1:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	59		mg/Kg	20	10/5/2022 10:04:35 AM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210135**

13-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID:	**MB-70607**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**70607**	RunNo:	**91550**					
Prep Date:	**10/5/2022**	Analysis Date:	**10/5/2022**	SeqNo:	**3280992**	Units:	**mg/Kg**			

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

Sample ID:	**LCS-70607**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**70607**	RunNo:	**91550**					
Prep Date:	**10/5/2022**	Analysis Date:	**10/5/2022**	SeqNo:	**3280993**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210135**

13-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **LCS-70606**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **70606**	RunNo: **91556**
Prep Date: **10/5/2022**	Analysis Date: **10/5/2022**	SeqNo: **3279813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	34	15	50.00	0	68.5	64.4	127			
Surr: DNOP	3.3		5.000		65.3	21	129			

Sample ID: **MB-70606**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **70606**	RunNo: **91556**
Prep Date: **10/5/2022**	Analysis Date: **10/5/2022**	SeqNo: **3279814** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.2	21	129			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210135**

13-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A91552**	RunNo: **91552**
Prep Date:	Analysis Date: **10/5/2022**	SeqNo: **3280157** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.6	72.3	137			
Surr: BFB	2200		1000		223	37.7	212			S

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **A91552**	RunNo: **91552**
Prep Date:	Analysis Date: **10/5/2022**	SeqNo: **3280158** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		110	37.7	212			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210135**

13-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B91552**	RunNo: **91552**
Prep Date:	Analysis Date: **10/5/2022**	SeqNo: **3280141** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	96.9	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B91552**	RunNo: **91552**
Prep Date:	Analysis Date: **10/5/2022**	SeqNo: **3280159** Units: **mg/Kg**

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

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2210135 RcptNo: 1

Received By: Juan Rojas 10/5/2022 7:00:00 AM

Completed By: Juan Rojas 10/5/2022 7:24:50 AM

Reviewed By: JMR 10/5/22

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JMR 10/5/22

Special Handling (if applicable)

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

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

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good				

Page 38 of 71

Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Mitch Killough
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☒ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush Same day
Project Name: Grenier A4
Project #:
Project Manager: Stuart Hyde
Sampler: Greg P
On Ice: ☐ Yes ☐ No
# of Coolers: 1
Cooler Temp(Including CF): 0.8-0=0.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 221035	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10/4	1600	Soil	SSW-B	1,4oz	Cool	-001	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/4/22	1700	Brandon Parker				
10/4/22	1840	Grant Walker		courier	10/5/22	7:00

Remarks: cc: shyde@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.

Received by OCD: 12/29/2022 4:11:32 PM
Released to Imaging: 1/12/2023 7:39:17 AM

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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Website: www.hallenvironmental.com

October 27, 2022

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

RE: Grenier A4 OrderNo.: 2210429

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 6 sample(s) on 10/8/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2210429**
Date Reported: **10/27/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: WSW
Project: Grenier A4
Collection Date: 10/5/2022 5:00:00 PM
Lab ID: 2210429-001 **Matrix:** SOIL **Received Date:** 10/8/2022 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	520	14		mg/Kg	1	10/13/2022 6:05:14 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/13/2022 6:05:14 AM
Surr: DNOP	93.8	21-129		%Rec	1	10/13/2022 6:05:14 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	85	25		mg/Kg	5	10/12/2022 10:25:36 AM
Surr: BFB	281	37.7-212	S	%Rec	5	10/12/2022 10:25:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12	D	mg/Kg	5	10/12/2022 10:25:36 AM
Toluene	ND	0.25	D	mg/Kg	5	10/12/2022 10:25:36 AM
Ethylbenzene	ND	0.25	D	mg/Kg	5	10/12/2022 10:25:36 AM
Xylenes, Total	ND	0.50	D	mg/Kg	5	10/12/2022 10:25:36 AM
Surr: 4-Bromofluorobenzene	100	70-130	D	%Rec	5	10/12/2022 10:25:36 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	10/14/2022 12:16:58 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210429**
Date Reported: **10/27/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: NSW-B
Project: Grenier A4
Collection Date: 10/5/2022 5:03:00 PM
Lab ID: 2210429-002 **Matrix:** SOIL
Received Date: 10/8/2022 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	1100	140		mg/Kg	10	10/21/2022 10:23:07 AM
Motor Oil Range Organics (MRO)	ND	450	D	mg/Kg	10	10/21/2022 10:23:07 AM
Surr: DNOP	0	21-129	S	%Rec	10	10/21/2022 10:23:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	180	24		mg/Kg	5	10/12/2022 10:49:05 AM
Surr: BFB	364	37.7-212	S	%Rec	5	10/12/2022 10:49:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12	D	mg/Kg	5	10/12/2022 10:49:05 AM
Toluene	ND	0.24	D	mg/Kg	5	10/12/2022 10:49:05 AM
Ethylbenzene	ND	0.24	D	mg/Kg	5	10/12/2022 10:49:05 AM
Xylenes, Total	2.9	0.47	D	mg/Kg	5	10/12/2022 10:49:05 AM
Surr: 4-Bromofluorobenzene	107	70-130	D	%Rec	5	10/12/2022 10:49:05 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	10/14/2022 12:29:22 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2210429**
Date Reported: **10/27/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** S-4
Project: Grenier A4 **Collection Date:** 10/5/2022 4:50:00 PM
Lab ID: 2210429-006 **Matrix:** SOIL **Received Date:** 10/8/2022 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	260	14		mg/Kg	1	10/13/2022 6:26:07 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	10/13/2022 6:26:07 AM
Surr: DNOP	92.6	21-129		%Rec	1	10/13/2022 6:26:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	31	24		mg/Kg	5	10/12/2022 11:12:35 AM
Surr: BFB	138	37.7-212		%Rec	5	10/12/2022 11:12:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12	D	mg/Kg	5	10/12/2022 11:12:35 AM
Toluene	ND	0.24	D	mg/Kg	5	10/12/2022 11:12:35 AM
Ethylbenzene	ND	0.24	D	mg/Kg	5	10/12/2022 11:12:35 AM
Xylenes, Total	ND	0.47	D	mg/Kg	5	10/12/2022 11:12:35 AM
Surr: 4-Bromofluorobenzene	96.0	70-130	D	%Rec	5	10/12/2022 11:12:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	10/14/2022 12:41:48 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2210429**

27-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **MB-70820**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **70820**	RunNo: **91800**
Prep Date: **10/13/2022**	Analysis Date: **10/13/2022**	SeqNo: **3291259** Units: **mg/Kg**

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

Sample ID: **LCS-70820**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **70820**	RunNo: **91800**
Prep Date: **10/13/2022**	Analysis Date: **10/13/2022**	SeqNo: **3291260** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	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 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#: **2210429**

27-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **LCS-70748**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **70748**	RunNo: **91700**
Prep Date: **10/11/2022**	Analysis Date: **10/13/2022**	SeqNo: **3291224** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	15	50.00	0	75.3	46.9	103			
Surr: DNOP	4.0		5.000		80.2	21	129			

Sample ID: **MB-70748**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **70748**	RunNo: **91700**
Prep Date: **10/11/2022**	Analysis Date: **10/13/2022**	SeqNo: **3291225** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		98.5	21	129			

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 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#: **2210429**

27-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **mb-70734**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **70734**	RunNo: **91747**
Prep Date: **10/11/2022**	Analysis Date: **10/12/2022**	SeqNo: **3289015** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.7	37.7	212			

Sample ID: **lcs-70734**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **70734**	RunNo: **91747**
Prep Date: **10/11/2022**	Analysis Date: **10/12/2022**	SeqNo: **3289016** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.3	72.3	137			
Surr: BFB	1800		1000		184	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of 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#: **2210429**

27-Oct-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **mb-70734**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **70734**	RunNo: **91747**
Prep Date: **10/11/2022**	Analysis Date: **10/12/2022**	SeqNo: **3289053** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		95.7	70	130			

Sample ID: **LCS-70734**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **70734**	RunNo: **91747**
Prep Date: **10/11/2022**	Analysis Date: **10/12/2022**	SeqNo: **3289054** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.5	80	120			
Toluene	0.96	0.050	1.000	0	96.5	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.8	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.1	70	130			

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **HILCORP ENERGY** Work Order Number: **2210429** RcptNo: **1**

Received By: **Cheyenne Cason** **10/8/2022 8:30:00 AM** Chel

Completed By: **Cheyenne Cason** **10/8/2022 9:23:39 AM** Chel

Reviewed By: JO 10/08

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by CMC 10/8/22

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good	Yes			

Released to Imaging: 1/12/2023 7:39:17 AM

Received by OCD: 12/29/2022 4:11:32 PM

Chain-of-Custody Record

Client: Hilcorp Energy Company

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time: due 10/14/2022

☒ Standard ☐ Rush

Project Name: Grenier A 4

Project #:

Project Manager: Stuart Hyde

Sampler: Greg Pakse

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.3 -0 =5.3 (°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. 2210429	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Hold
10/5	17:00	Soil	WSW	1, 4oz	cool	001	X	X					X				
	17:03		NSW-B			002	X	X					X				
	17:05		NE SW-B			003											X
	17:07		ESW			004											X
	17:10		SESW			005											X
↓	16:50	↓	S-4	↓	↓	006	X	X					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/6	16:50	Greg Pakse			10-7	11:00
10/7	1204				10/7/22	1204

Remarks:

cc: shyde@ensolum.com
gpakse@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.

10/7/22 1810

Enc conv 10/8/22 0830

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

December 09, 2022

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

RE: Grenier A4 OrderNo.: 2212156

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 13 sample(s) on 12/3/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW01
Project: Grenier A4
Collection Date: 12/1/2022 4:45:00 PM
Lab ID: 2212156-002 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	19	13		mg/Kg	1	12/6/2022 2:13:04 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	12/6/2022 2:13:04 PM
Surr: DNOP	111	21-129		%Rec	1	12/6/2022 2:13:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	23		mg/Kg	5	12/6/2022 10:24:01 AM
Surr: BFB	91.8	37.7-212		%Rec	5	12/6/2022 10:24:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.12		mg/Kg	5	12/6/2022 10:24:01 AM
Toluene	ND	0.23		mg/Kg	5	12/6/2022 10:24:01 AM
Ethylbenzene	ND	0.23		mg/Kg	5	12/6/2022 10:24:01 AM
Xylenes, Total	ND	0.47		mg/Kg	5	12/6/2022 10:24:01 AM
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	5	12/6/2022 10:24:01 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 9:03:32 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW02
Project: Grenier A4
Collection Date: 12/1/2022 4:47:00 PM
Lab ID: 2212156-003 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/6/2022 2:27:10 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/6/2022 2:27:10 PM
Surr: DNOP	95.7	21-129		%Rec	1	12/6/2022 2:27:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 11:35:06 AM
Surr: BFB	91.6	37.7-212		%Rec	1	12/6/2022 11:35:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 11:35:06 AM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 11:35:06 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 11:35:06 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/6/2022 11:35:06 AM
Surr: 4-Bromofluorobenzene	92.9	70-130		%Rec	1	12/6/2022 11:35:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 9:15:56 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW03
Project: Grenier A4
Collection Date: 12/1/2022 4:49:00 PM
Lab ID: 2212156-004 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/6/2022 2:41:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/6/2022 2:41:28 PM
Surr: DNOP	110	21-129		%Rec	1	12/6/2022 2:41:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 11:58:41 AM
Surr: BFB	90.9	37.7-212		%Rec	1	12/6/2022 11:58:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 11:58:41 AM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 11:58:41 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 11:58:41 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/6/2022 11:58:41 AM
Surr: 4-Bromofluorobenzene	89.4	70-130		%Rec	1	12/6/2022 11:58:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	59		mg/Kg	20	12/6/2022 9:28:21 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW04
Project: Grenier A4
Collection Date: 12/1/2022 4:51:00 PM
Lab ID: 2212156-005 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/6/2022 2:55:55 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/6/2022 2:55:55 PM
Surr: DNOP	99.3	21-129		%Rec	1	12/6/2022 2:55:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 12:22:23 PM
Surr: BFB	91.4	37.7-212		%Rec	1	12/6/2022 12:22:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 12:22:23 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 12:22:23 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 12:22:23 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/6/2022 12:22:23 PM
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	1	12/6/2022 12:22:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 9:40:45 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW05
Project: Grenier A4
Collection Date: 12/1/2022 4:53:00 PM
Lab ID: 2212156-006 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	52	13		mg/Kg	1	12/6/2022 3:10:01 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/6/2022 3:10:01 PM
Surr: DNOP	98.0	21-129		%Rec	1	12/6/2022 3:10:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 12:46:00 PM
Surr: BFB	101	37.7-212		%Rec	1	12/6/2022 12:46:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 12:46:00 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 12:46:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 12:46:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/6/2022 12:46:00 PM
Surr: 4-Bromofluorobenzene	92.3	70-130		%Rec	1	12/6/2022 12:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 9:53:10 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW06
Project: Grenier A4
Collection Date: 12/1/2022 4:55:00 PM
Lab ID: 2212156-007 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	77	14		mg/Kg	1	12/6/2022 3:23:48 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/6/2022 3:23:48 PM
Surr: DNOP	103	21-129		%Rec	1	12/6/2022 3:23:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/6/2022 1:09:28 PM
Surr: BFB	94.1	37.7-212		%Rec	1	12/6/2022 1:09:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 1:09:28 PM
Toluene	ND	0.047		mg/Kg	1	12/6/2022 1:09:28 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/6/2022 1:09:28 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/6/2022 1:09:28 PM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	12/6/2022 1:09:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	59		mg/Kg	20	12/6/2022 10:05:35 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** SW07
Project: Grenier A4 **Collection Date:** 12/1/2022 4:57:00 PM
Lab ID: 2212156-008 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/6/2022 3:37:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/6/2022 3:37:43 PM
Surr: DNOP	99.3	21-129		%Rec	1	12/6/2022 3:37:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 1:32:51 PM
Surr: BFB	93.2	37.7-212		%Rec	1	12/6/2022 1:32:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 1:32:51 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 1:32:51 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 1:32:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/6/2022 1:32:51 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	12/6/2022 1:32:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	61		mg/Kg	20	12/6/2022 10:18:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: SW08
Project: Grenier A4
Collection Date: 12/1/2022 4:59:00 PM
Lab ID: 2212156-009 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	12/6/2022 3:51:29 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/6/2022 3:51:29 PM
Surr: DNOP	95.6	21-129		%Rec	1	12/6/2022 3:51:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/6/2022 1:56:13 PM
Surr: BFB	94.8	37.7-212		%Rec	1	12/6/2022 1:56:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	12/6/2022 1:56:13 PM
Toluene	ND	0.049		mg/Kg	1	12/6/2022 1:56:13 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/6/2022 1:56:13 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/6/2022 1:56:13 PM
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	12/6/2022 1:56:13 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 10:30:25 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY **Client Sample ID:** FS01
Project: Grenier A4 **Collection Date:** 12/1/2022 5:00:00 PM
Lab ID: 2212156-010 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	19	14		mg/Kg	1	12/6/2022 4:05:19 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/6/2022 4:05:19 PM
Surr: DNOP	98.1	21-129		%Rec	1	12/6/2022 4:05:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 2:19:39 PM
Surr: BFB	93.8	37.7-212		%Rec	1	12/6/2022 2:19:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 2:19:39 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 2:19:39 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 2:19:39 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/6/2022 2:19:39 PM
Surr: 4-Bromofluorobenzene	91.2	70-130		%Rec	1	12/6/2022 2:19:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 11:07:38 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FS02
Project: Grenier A4
Collection Date: 12/1/2022 5:02:00 PM
Lab ID: 2212156-011 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	85	15		mg/Kg	1	12/6/2022 4:19:10 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/6/2022 4:19:10 PM
Surr: DNOP	101	21-129		%Rec	1	12/6/2022 4:19:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.1	4.7		mg/Kg	1	12/6/2022 3:30:27 PM
Surr: BFB	134	37.7-212		%Rec	1	12/6/2022 3:30:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 3:30:27 PM
Toluene	ND	0.047		mg/Kg	1	12/6/2022 3:30:27 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/6/2022 3:30:27 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/6/2022 3:30:27 PM
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	12/6/2022 3:30:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 11:20:03 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FS03
Project: Grenier A4
Collection Date: 12/1/2022 5:04:00 PM
Lab ID: 2212156-012 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	48	14		mg/Kg	1	12/6/2022 4:32:41 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/6/2022 4:32:41 PM
Surr: DNOP	99.5	21-129		%Rec	1	12/6/2022 4:32:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.0	4.8		mg/Kg	1	12/6/2022 3:53:51 PM
Surr: BFB	147	37.7-212		%Rec	1	12/6/2022 3:53:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 3:53:51 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 3:53:51 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 3:53:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/6/2022 3:53:51 PM
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	12/6/2022 3:53:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 11:32:28 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2212156**
Date Reported: **12/9/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: FS04
Project: Grenier A4
Collection Date: 12/1/2022 5:06:00 PM
Lab ID: 2212156-013 **Matrix:** SOIL **Received Date:** 12/3/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	12/6/2022 4:46:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/6/2022 4:46:24 PM
Surr: DNOP	175	21-129	S	%Rec	1	12/6/2022 4:46:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/6/2022 4:17:15 PM
Surr: BFB	92.8	37.7-212		%Rec	1	12/6/2022 4:17:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	12/6/2022 4:17:15 PM
Toluene	ND	0.048		mg/Kg	1	12/6/2022 4:17:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/6/2022 4:17:15 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/6/2022 4:17:15 PM
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	12/6/2022 4:17:15 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	12/6/2022 11:44:53 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2212156**

09-Dec-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **MB-71864**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71864**	RunNo: **93070**
Prep Date: **12/6/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351864** Units: **mg/Kg**

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

Sample ID: **LCS-71864**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71864**	RunNo: **93070**
Prep Date: **12/6/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351865** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of 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#: **2212156**

09-Dec-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **MB-71857**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **71857**	RunNo: **93056**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351406** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.8		10.00		97.7	21	129			

Sample ID: **LCS-71857**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71857**	RunNo: **93056**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.00	0	99.6	64.4	127			
Surr: DNOP	5.0		5.000		99.4	21	129			

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 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#: **2212156**

09-Dec-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **mb-71848**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.5	37.7	212			

Sample ID: **lcs-71848**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351278** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	72.3	137			
Surr: BFB	1900		1000		192	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of 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#: **2212156**

09-Dec-22

Client: HILCORP ENERGY

Project: Grenier A4

Sample ID: **mb-71848**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351305** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.3	70	130			

Sample ID: **LCS-71848**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351306** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.7	80	120			
Toluene	0.91	0.050	1.000	0	91.5	80	120			
Ethylbenzene	0.91	0.050	1.000	0	90.8	80	120			
Xylenes, Total	2.7	0.10	3.000	0	91.4	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		93.7	70	130			

Sample ID: **2212156-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW01**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351309** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.12	0.9980	0	93.4	68.8	120			
Toluene	0.97	0.25	0.9980	0	96.9	73.6	124			
Ethylbenzene	0.97	0.25	0.9980	0	97.4	72.7	129			
Xylenes, Total	2.9	0.50	2.994	0	97.5	75.7	126			
Surr: 4-Bromofluorobenzene	4.5		4.990		91.1	70	130			

Sample ID: **2212156-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SW01**	Batch ID: **71848**	RunNo: **93052**
Prep Date: **12/5/2022**	Analysis Date: **12/6/2022**	SeqNo: **3351310** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.12	0.9940	0	92.3	68.8	120	1.58	20	
Toluene	0.96	0.25	0.9940	0	96.2	73.6	124	1.07	20	
Ethylbenzene	0.95	0.25	0.9940	0	95.8	72.7	129	2.05	20	
Xylenes, Total	2.9	0.50	2.982	0	96.7	75.7	126	1.24	20	
Surr: 4-Bromofluorobenzene	4.5		4.970		90.1	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 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

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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: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2212156 RcptNo: 1

Received By: Tracy Casarrubias 12/3/2022 8:45:00 AM

Completed By: Tracy Casarrubias 12/3/2022 10:16:45 AM

Reviewed By: JM 12/5/22

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: TMe 12/5/22

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			

Received by OCD: 12/29/2022 4:11:32 PM

Released to Imaging: 1/12/2023 7:39:17 AM

Chain-of-Custody Record

Client: Hilcorp

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time: 12/7/22

☐ Standard ☐ Rush

Project Name: Grenier A4

Project #:

Project Manager: Stuart Hyde

Sampler: Greg Palese

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): 2.3-0=2.3 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2212156	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Hold
12/1	1600	Soil	TP01 @ 25'	1, 4oz	cool	001	X	X					X				X
	1645		SW01			002	X	X					X				
	1647		SW02			003	X	X					X				
	1649		SW03			004	X	X					X				
	1651		SW04			005	X	X					X				
	1653		SW05			006	X	X					X				
	1655		SW06			007	X	X					X				
	1657		SW07			008	X	X					X				
	1659		SW08			009	X	X					X				
	1700		FS01			010	X	X					X				
	1702		FS02			011	X	X					X				
	1704		FS03			012	X	X					X				

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
12-2-2022	11:12	Gregory Palese		cour	12/3/22	8:45
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

cc: shyde @ ensolum.com
gpalese @ ensolum

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

Chain-of-Custody Record

Client: Hilcorp

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☒ EDD (Type) PDF

Turn-Around Time: 12/7/2022

☒ Standard ☐ Rush

Project Name: Grenier A4

Project #:

Project Manager: Stuart Hyde

Sampler: Greg Palese

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): 2.3-0.2=2.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2212156	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
~~12/1~~	~~1706~~	~~Soil~~	~~FS04~~													
12/1	1706	Soil	FS04	1, 4oz	Cool	013	X	X					X			

Date: 12.2.2022 Time: 11:12 Relinquished by: Gregory Palese

Received by: Via: Date: 12/7/22 Time: 8:45

Date: Time: Relinquished by:

Received by: Via: Date: Time:

Remarks: cc shyde@ensolum.com gpalese@ensolum

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.

ENSOLUM

APPENDIX D

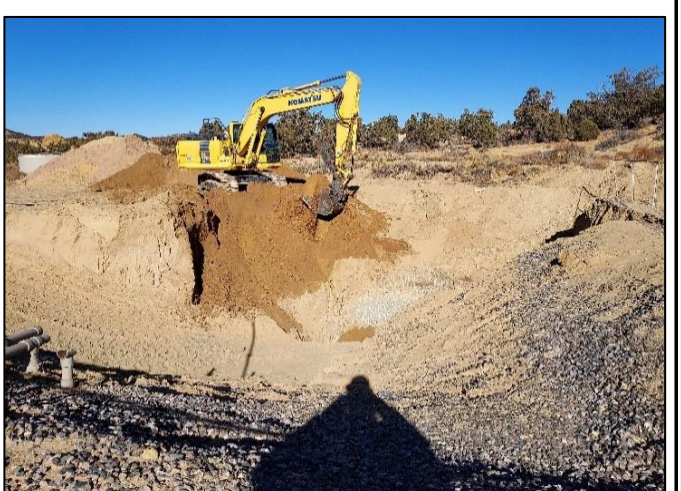
Photographic Log

ENSOLUM

Photographic Log
Hilcorp Energy Company
Grenier A 4

Photograph: 1 Date: 10/4/2022
Description: Initial Excavation
View: Northeast

Photograph: 2 Date: 10/5/2022
Description: Soil staining in excavation
View: North



Photograph: 3 Date: 11/30/2022
Description: Excavation activities
View: North

Photograph: 4 Date: 12/1/2022
Description: Final Excavation Extent
View: North

District I
1625 N. French Dr., Hobbs, NM 88240
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
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District IV
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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 171244

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 171244
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	1/12/2023