

Incident ID	nAPP2314353244
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: 10/24/2023

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

### OCD Only

Received by: Shelly Wells Date: 10/24/2023

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_



October 23, 2023

**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**  
Salty Dog SWD 4  
San Juan County, New Mexico  
Hilcorp Energy Company  
NMOCD Incident Number: NAPP2314353244

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Remediation Report and Closure Request* associated with a release discovered at the Salty Dog Saltwater Disposal (SWD) 4 injection well site (Site). The Site is located on Federal land managed by the Bureau of Land Management (BLM) in Unit K, Section 1, Township 30 North, Range 14 West in San Juan County, New Mexico (Figure 1).

**SITE BACKGROUND**

On May 8, 2023, 10.2 barrels (bbls) of produced water was released from the Salty Dog 4 SWD wellhead when a pressure gauge tied to the casing valve failed. Upon discovery during a routine inspection on May 8, 2023, the operator closed the valve to stop the leak. A trash pump was used to recover approximately 5 bbls of standing produced water surrounding the wellhead. In total, 5.2 barrels of produced water migrated south of the wellhead along the ground surface and was not able to be recovered. All release fluids remained on the well pad. The spill volume was determined based on Hilcorp's Supervisory Control and Data Acquisition (SCADA) software (i.e., Cygnet). The release was reported to the New Mexico Oil Conservation Division (NMOCD) on May 23, 2023, on a Form C-141, *Release Notification*. The release was assigned NMOCD Incident Number NAPP2314353244.

**SITE CHARACTERIZATION AND CLOSURE CRITERIA**

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 within the Nacimiento Geologic Formation. In the report titled "*Hydrogeology and Water Resources of San Juan Basin, New Mexico*" (Stone, et. al., 1983), the Nacimiento Formation is characterized by interbedded black carbonaceous mudstones and white, coarse-grained sandstones, which ranges in thickness from 418 feet to 2,232 feet. The hydrogeologic properties of the Nacimiento Formation display variable 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 Nacimiento Formation is underlain by the Ojo Alamo sandstone (Stone et. al, 1983).

The closest significant watercourse is Coyne Arroyo, located approximately 140 feet southeast of the Site. There are no known springs or fresh-water wells located within 500 feet of the Site. The nearest groundwater well (SJ-03326) is located approximately 1.75 miles east of the Site (Figure 1). Depth to water information from this well indicates groundwater is approximately 30 feet below ground surface (bgs) at the location of the water well. The ground surface elevation at well SJ-03326 is approximately 5,639 feet above mean sea level (amsl). The Site is located at an elevation of approximately 5,726 feet amsl. Based on the elevation difference between the Site and depth to water in well SJ-03326, depth to water at the Site is assumed to be greater than 100 feet bgs. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland. Surface land use surrounding the Site consists primarily of oil and gas development and livestock grazing. 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. Sensitive receptors are depicted on Figure 1.

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 NMAC), the following Closure Criteria was applied to the Site constituents of concern (COCs):

- 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

Prior to conducting remediation work, Hilcorp was requested to obtain approval from the BLM to excavate the impacted soil resulting from the release. Once approved, Hilcorp began excavating soil on August 30, 2023. At least 48 hours prior to conducting remediation and sampling work, notification was provided to the BLM and NMOCD, with correspondence attached in Appendix A. To direct excavation activities during excavation, Ensolum personnel field screened soil for volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) and chloride using Hach® QuanTab® test strips.

Once field screening indicated impacted soil had been removed, five-point composite soil samples (FS01 through FS06) were collected from the floor of the excavation at a frequency of one sample per 200 square feet. Due to the shallow nature of the excavation, sidewalls were incorporated into the composite sample. 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 under proper chain of custody procedures to Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico and submitted for analyses of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Analytical results from the August 30, 2023, sampling event indicated TPH and/or chloride concentrations exceeded the NMOCD Table I Closure Criteria for samples FS02 and FS06. Analytical results from soil samples FS01, FS03, FS04, and FS05 indicated all COC concentrations were in compliance with the NMOCD Table I Closure Criteria. To remove the limited remaining impacted soil from the Site, Hilcorp excavated additional soil in the vicinity of samples FS02 and FS06 on

September 20, 2023. Sampling notification was provided to the NMOCD and BLM at least 48 hours prior to work and correspondence is included in Appendix A. Once additional soil was removed, floor samples FS02a and FS06a were collected, with analytical results indicating all COC concentrations were in compliance with the NMOCD Table I Closure Criteria.

Based on the analytical results, all confirmation samples were in compliance with NMOCD Table I Closure Criteria. The excavation was completed to depths ranging from 0.5 feet to 2 feet bgs to the lateral extent shown in Figure 2. Soil analytical results are summarized in Table 1 and depicted on Figure 2, with complete laboratory analytical reports attached as Appendix B. Photographs taken by Ensolum during the excavation work are included in Appendix C. Of note, samples SS06 and SS07 collected on September 20, 2023 (analytical included in Appendix B) were collected for disposal purposes from a soil stockpile on-Site.

## CLOSURE REQUEST

Site excavation and sampling activities were conducted at the Site to address the release of produced water discovered on May 8, 2023. Laboratory analytical results for the excavation confirmation soil samples, collected from the final excavation extent, indicate all COC concentrations were compliant with the Site Closure Criteria and no further remediation is required. 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 NAPP2314353244.

## REFERENCES


Stone, W.; Lyford, F.; Frenzel, P.; Mizell, N.; and Padgett, E. (1983). *Hydrogeology and Water Resources of San Juan Basin, New Mexico*. Socorro: New Mexico Bureau of Mines and Mineral Resources.

We appreciate the opportunity to provide this document to the NMOCD. If you should have any questions or comments regarding this document, please contact the undersigned.

Sincerely,  
**Ensolum, LLC**



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



Daniel R. Moir, PG  
Senior Managing Geologist  
(303) 887-2946  
dmoir@ensolum.com

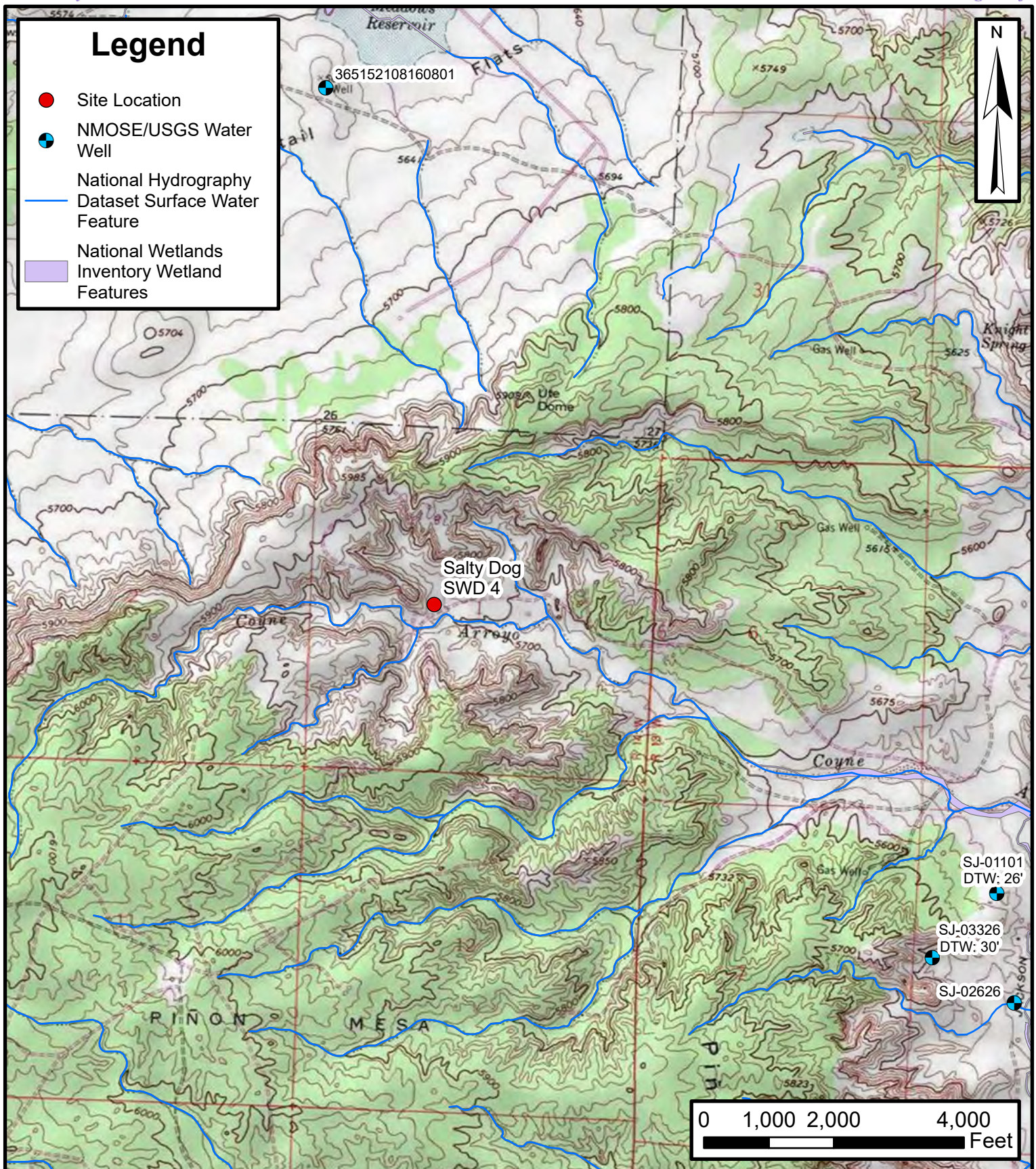
## Attachments:

- |             |   |
|-------------|---|
| Figure 1:   | Site Receptor Map                           |
| Figure 2:   | Excavation Soil Sample Results              |
| Table 1:    | Confirmation Soil Sample Analytical Results |
| Appendix A: | Agency Sampling Notifications               |
| Appendix B: | Laboratory Analytical Reports               |
| Appendix C: | Photographic Log                            |



FIGURE

---



## Site Receptor Map

Salty Dog SWD 4  
Hilcorp Energy Company

36.8428015, -108.2629109  
San Juan County, New Mexico

FIGURE

1

**ENSOLUM**  
Environmental, Engineering and  
Hydrogeologic Consultants



## Excavation Soil Sampling Results

Salty Dog SWD 4  
Hilcorp Energy Company

36.8428015, -108.2629109  
San Juan County, New Mexico

FIGURE  
**2**



TABLES



TABLE 1 CONFIRMATION SOIL SAMPLE ANALYTICAL RESULTS Salty Dog SWD 4 Hilcorp Energy Company San Juan County, New Mexico												
Sample ID	Date	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria			10	NE	NE	NE	50	NE	NE	NE	100	600
FS01	8/30/2023	1.5	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	<9.6	<48	<48	230
FS02	8/30/2023	1.5	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	100	140	240	650
FS02a	9/20/2023	2.0	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.9	<50	<50	130
FS03	8/30/2023	0.5	<0.024	<0.048	<0.048	<0.097	<0.097	<4.8	<9.3	<46	<46	87
FS04	8/30/2023	0.5	<0.023	<0.046	<0.046	<0.093	<0.093	<4.6	<9.4	<47	<47	66
FS05	8/30/2023	0.5	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	10	<48	10	160
FS06	8/30/2023	0.5	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	130	85	215	200
FS06a	9/20/2023	1.0	<0.024	<0.048	<0.048	<0.095	<0.095	<4.8	17	<50	17	250

Notes:

bgs: below ground surface

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

mg/kg: milligrams per kilogram

NE: Not Established

NMOCD: New Mexico Oil Conservation Division

': feet

<: indicates result less than the stated laboratory reporting limit

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

MRO: Motor Oil/Lube Oil Range Organics

TPH: Total Petroleum Hydrocarbon

Concentrations in **bold** exceed the New Mexico Oil Conservation Division Table I Closure Criteria for Soils Impacted by a Release

*Grey* text indicates soil sample removed during excavation activities



## APPENDIX A

### Agency Sampling Notifications

---

**From:** [Velez, Nelson, EMNRD](#)  
**To:** [Stuart Hyde](#); [Adeloye, Abiodun A](#)  
**Cc:** [Mitch Killough](#); [Devin Hencmann](#); [Reece Hanson](#); [Jamie Huffman](#); [Christopher Bramwell](#); [Bobby Spearman](#)  
**Subject:** Re: [EXTERNAL] RE: NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling  
**Date:** Friday, September 15, 2023 12:07:53 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[Outlook-edd5zfib.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 or from an OCD pre-approved sampling plan. 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](mailto:nelson.velez@emnrd.nm.gov)  
<http://www.emnrd.state.nm.us/OCD/>



---

**From:** Stuart Hyde <[shyde@ensolum.com](mailto:shyde@ensolum.com)>  
**Sent:** Friday, September 15, 2023 11:46 AM  
**To:** Velez, Nelson, EMNRD <[Nelson.Velez@emnrd.nm.gov](mailto:Nelson.Velez@emnrd.nm.gov)>; Adeloye, Abiodun A <[aadeloye@blm.gov](mailto:aadeloye@blm.gov)>  
**Cc:** Mitch Killough <[mkillough@hilcorp.com](mailto:mkillough@hilcorp.com)>; Devin Hencmann <[dhencmann@ensolum.com](mailto:dhencmann@ensolum.com)>; Reece Hanson <[rhanson@ensolum.com](mailto:rhanson@ensolum.com)>; Jamie Huffman <[jhuffman@hilcorp.com](mailto:jhuffman@hilcorp.com)>; Christopher Bramwell <[cbramwell@hilcorp.com](mailto:cbramwell@hilcorp.com)>; Bobby Spearman <[bspearman@hilcorp.com](mailto:bspearman@hilcorp.com)>  
**Subject:** [EXTERNAL] RE: NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling

---

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

All,

Hilcorp and Ensolum will be conducting additional soil removal and confirmation soil sampling at the Salty Dog SWD 4 site beginning at 8 AM on Wednesday September 20, 2023. Please reach out with any questions or comments. Thanks.



**Stuart Hyde, LG**

Senior Geologist

970-903-1607

**Ensolum, LLC**

in f 

---

**From:** Stuart Hyde

**Sent:** Thursday, August 24, 2023 12:06 PM

**To:** Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>

**Cc:** Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhenemann@ensolum.com>; Reece Hanson <rhanson@ensolum.com>; Jamie Huffman <jhuffman@hilcorp.com>; Christopher Bramwell <cbramwell@hilcorp.com>; Bobby Spearman <bspearman@hilcorp.com>

**Subject:** NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling

All,

On behalf of Hilcorp Energy Company, we are submitting this notification for confirmation soil sampling at the Salty Dog SWD 4 site located at coordinates 36.842775, -108.262324 in San Juan County, NM. Sampling will be conducted on Wednesday August 30, 2023 at approximately 9 AM. Please reach out with any questions or comments regarding the upcoming work. Thank you and have a great day.



**Stuart Hyde, LG**

Senior Geologist

970-903-1607

**Ensolum, LLC**

in f 

**From:** [Velez, Nelson, EMNRD](#)  
**To:** [Adeloye, Abiodun A](#); [Stuart Hyde](#)  
**Cc:** [Mitch Killough](#); [Devin Hencmann](#); [Reece Hanson](#); [Jamie Huffman](#); [Christopher Bramwell](#); [Bobby Spearman](#)  
**Subject:** Re: [EXTERNAL] NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling  
**Date:** Monday, August 28, 2023 11:00:36 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[Outlook-vieu5dyg.png](#)

---

[ \*\*EXTERNAL EMAIL\*\* ]

Good morning 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 or from an OCD pre-approved sampling plan. 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](mailto:nelson.velez@emnrd.nm.gov)  
<http://www.emnrd.state.nm.us/OCD/>



---

**From:** Adeloye, Abiodun A <aadeloye@blm.gov>  
**Sent:** Monday, August 28, 2023 9:50 AM  
**To:** Stuart Hyde <shyde@ensolum.com>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

**Cc:** Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhenemann@ensolum.com>; Reece Hanson <rhanson@ensolum.com>; Jamie Huffman <jhuffman@hilcorp.com>; Christopher Bramwell <cbramwell@hilcorp.com>; Bobby Spearman <bspearman@hilcorp.com>  
**Subject:** RE: [EXTERNAL] NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling

Thank you, Stuart, Hilcorp can proceed with sampling if the BLM representative is not present on Wednesday at 9:00 AM for the sampling. Please notify the BLM immediately if the schedule changed.  
Thank you.

Abiodun Adeloje (Emmanuel)  
Natural Resources Specialist (NRS)  
6251 College Blvd., Suite A  
Farmington, NM 87402  
Office: 505-564-7665  
Mobile: 505-635-0984

---


**From:** Stuart Hyde <shyde@ensolum.com>  
**Sent:** Thursday, August 24, 2023 12:06 PM  
**To:** Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloje, Abiodun A <aadeloje@blm.gov>  
**Cc:** Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhenemann@ensolum.com>; Reece Hanson <rhanson@ensolum.com>; Jamie Huffman <jhuffman@hilcorp.com>; Christopher Bramwell <cbramwell@hilcorp.com>; Bobby Spearman <bspearman@hilcorp.com>  
**Subject:** [EXTERNAL] NAPP2314353244 - Salty Dog SWD 4 Confirmation Sampling

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

All,

On behalf of Hilcorp Energy Company, we are submitting this notification for confirmation soil sampling at the Salty Dog SWD 4 site located at coordinates 36.842775, -108.262324 in San Juan County, NM. Sampling will be conducted on Wednesday August 30, 2023 at approximately 9 AM. Please reach out with any questions or comments regarding the upcoming work. Thank you and have a great day.



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

**From:** Velez, Nelson, EMNRD  
**To:** [Stuart Hyde](#)  
**Cc:** [Devin Hencmann](#); [Mitch Killough](#)  
**Subject:** Re: [EXTERNAL] nAPP2314353244 - Salty Dog SWD 4 Extension Request  
**Date:** Tuesday, August 8, 2023 8:12:59 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[Outlook-ib15nafc.png](#)

---

[ \*\*EXTERNAL EMAIL\*\* ]

Stuart,

90-day time extension request is approved. Remediation Due date of 11/06/2023 has been updated within the incident page.

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](mailto:nelson.velez@emnrd.nm.gov)  
<http://www.emnrd.state.nm.us/OCD/>



---

**From:** Stuart Hyde <[shyde@ensolum.com](mailto:shyde@ensolum.com)>  
**Sent:** Friday, August 4, 2023 12:14 PM  
**To:** Velez, Nelson, EMNRD <[Nelson.Velez@emnrd.nm.gov](mailto:Nelson.Velez@emnrd.nm.gov)>  
**Cc:** Devin Hencmann <[dhencmann@ensolum.com](mailto:dhencmann@ensolum.com)>; Mitch Killough <[mkillough@hilcorp.com](mailto:mkillough@hilcorp.com)>  
**Subject:** [EXTERNAL] nAPP2314353244 - Salty Dog SWD 4 Extension Request

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

Nelson,

On behalf of Hilcorp Energy Company, we are requesting an extension to the August 6, 2023 reporting deadline for the Salty Dog SWD 4 site located at coordinates 36.842775, -108.262324 in San Juan County, NM. At this time, Hilcorp is waiting on approval from the BLM to conduct

excavation of impacted soil on the well pad. Once approved, Hilcorp plans to remove impacted soil and dispose off-site at the Envirotech landfarm. Hilcorp is requesting an extension of 90 days (November 3, 2023) in order to receive BLM approval, conduct excavation and sampling work, and prepare a closure report for submittal to the NMOCD.

Please reach out with any questions or comments regarding the site or request. Thank you and have a great weekend.



**Stuart Hyde, LG**

Senior Geologist

970-903-1607

**Ensolum, LLC**

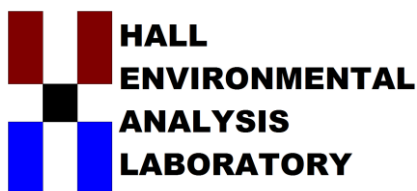
in f 



## APPENDIX B

### Laboratory Analytical Reports

---



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

September 12, 2023

Stuart Hyde

HILCORP ENERGY

PO Box 4700

Farmington, NM 87499

TEL: (505) 564-0733

FAX:

RE: Salty Dog 4

OrderNo.: 2308G98

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/31/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS01

Project: Salty Dog 4

Collection Date: 8/30/2023 1:05:00 PM

Lab ID: 2308G98-001

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/6/2023 4:00:45 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/6/2023 4:00:45 AM
Surr: DNOP	90.7	69-147		%Rec	1	9/6/2023 4:00:45 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/6/2023 4:28:55 PM
Surr: BFB	123	15-244		%Rec	1	9/6/2023 4:28:55 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	9/6/2023 4:28:55 PM
Toluene	ND	0.048		mg/Kg	1	9/6/2023 4:28:55 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/6/2023 4:28:55 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/6/2023 4:28:55 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/6/2023 4:28:55 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	230	60		mg/Kg	20	9/6/2023 3:11:40 PM

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

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

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS02

Project: Salty Dog 4

Collection Date: 8/30/2023 1:08:00 PM

Lab ID: 2308G98-002

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	100	9.6		mg/Kg	1	9/6/2023 4:11:30 AM
Motor Oil Range Organics (MRO)	140	48		mg/Kg	1	9/6/2023 4:11:30 AM
Surr: DNOP	82.6	69-147		%Rec	1	9/6/2023 4:11:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/6/2023 4:52:38 PM
Surr: BFB	104	15-244		%Rec	1	9/6/2023 4:52:38 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	9/6/2023 4:52:38 PM
Toluene	ND	0.048		mg/Kg	1	9/6/2023 4:52:38 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/6/2023 4:52:38 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/6/2023 4:52:38 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/6/2023 4:52:38 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	650	60		mg/Kg	20	9/6/2023 3:24:04 PM

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

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

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS03

Project: Salty Dog 4

Collection Date: 8/30/2023 1:10:00 PM

Lab ID: 2308G98-003

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	9/6/2023 4:22:11 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/6/2023 4:22:11 AM
Surr: DNOP	90.3	69-147		%Rec	1	9/6/2023 4:22:11 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/6/2023 5:16:23 PM
Surr: BFB	102	15-244		%Rec	1	9/6/2023 5:16:23 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	9/6/2023 5:16:23 PM
Toluene	ND	0.048		mg/Kg	1	9/6/2023 5:16:23 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/6/2023 5:16:23 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/6/2023 5:16:23 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/6/2023 5:16:23 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	87	60		mg/Kg	20	9/6/2023 3:36:28 PM

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

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

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS04

Project: Salty Dog 4

Collection Date: 8/30/2023 1:12:00 PM

Lab ID: 2308G98-004

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/6/2023 4:32:48 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/6/2023 4:32:48 AM
Surr: DNOP	97.0	69-147		%Rec	1	9/6/2023 4:32:48 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/6/2023 5:40:09 PM
Surr: BFB	101	15-244		%Rec	1	9/6/2023 5:40:09 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	9/6/2023 5:40:09 PM
Toluene	ND	0.046		mg/Kg	1	9/6/2023 5:40:09 PM
Ethylbenzene	ND	0.046		mg/Kg	1	9/6/2023 5:40:09 PM
Xylenes, Total	ND	0.093		mg/Kg	1	9/6/2023 5:40:09 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/6/2023 5:40:09 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	66	60		mg/Kg	20	9/6/2023 3:48:53 PM

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

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

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS05

Project: Salty Dog 4

Collection Date: 8/30/2023 1:15:00 PM

Lab ID: 2308G98-005

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	9/6/2023 4:43:24 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/6/2023 4:43:24 AM
Surr: DNOP	92.8	69-147		%Rec	1	9/6/2023 4:43:24 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/6/2023 6:03:54 PM
Surr: BFB	99.4	15-244		%Rec	1	9/6/2023 6:03:54 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	9/6/2023 6:03:54 PM
Toluene	ND	0.048		mg/Kg	1	9/6/2023 6:03:54 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/6/2023 6:03:54 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/6/2023 6:03:54 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	9/6/2023 6:03:54 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	160	60		mg/Kg	20	9/6/2023 2:33:38 PM

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

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

## Analytical Report

Lab Order 2308G98

Date Reported: 9/12/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS06

Project: Salty Dog 4

Collection Date: 8/30/2023 1:18:00 PM

Lab ID: 2308G98-006

Matrix: SOIL

Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	130	9.8		mg/Kg	1	9/6/2023 4:54:05 AM
Motor Oil Range Organics (MRO)	85	49		mg/Kg	1	9/6/2023 4:54:05 AM
Surr: DNOP	86.7	69-147		%Rec	1	9/6/2023 4:54:05 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/6/2023 6:27:38 PM
Surr: BFB	98.2	15-244		%Rec	1	9/6/2023 6:27:38 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	9/6/2023 6:27:38 PM
Toluene	ND	0.048		mg/Kg	1	9/6/2023 6:27:38 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/6/2023 6:27:38 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/6/2023 6:27:38 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/6/2023 6:27:38 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	200	60		mg/Kg	20	9/6/2023 2:45:59 PM

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

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

Page 6 of 10

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

WO#: 2308G98

12-Sep-23

**Client:** HILCORP ENERGY**Project:** Salty Dog 4

Sample ID: <b>MB-77315</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>77315</b>	RunNo: <b>99513</b>								
Prep Date: <b>9/6/2023</b>	Analysis Date: <b>9/6/2023</b>	SeqNo: <b>3633358</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-77315</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>77315</b>	RunNo: <b>99513</b>								
Prep Date: <b>9/6/2023</b>	Analysis Date: <b>9/6/2023</b>	SeqNo: <b>3633359</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

Sample ID: <b>MB-77320</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBS</b>	Batch ID: <b>77320</b>	RunNo: <b>99476</b>								
Prep Date: <b>9/6/2023</b>	Analysis Date: <b>9/6/2023</b>	SeqNo: <b>3633424</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-77320</b>	SampType: <b>lcs</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>77320</b>	RunNo: <b>99476</b>								
Prep Date: <b>9/6/2023</b>	Analysis Date: <b>9/6/2023</b>	SeqNo: <b>3633425</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 7 of 10

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

WO#: 2308G98

12-Sep-23

**Client:** HILCORP ENERGY**Project:** Salty Dog 4

Sample ID: 2308G98-006AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: FS06	Batch ID: 77306	RunNo: 99448								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631419 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	170	9.3	46.38	125.1	100	54.2	135			
Surr: DNOP	4.4		4.638		94.3	69	147			

Sample ID: 2308G98-006AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: FS06	Batch ID: 77306	RunNo: 99448								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631421 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	9.7	48.40	125.1	14.4	54.2	135	26.1	29.2	S
Surr: DNOP	3.5		4.840		73.2	69	147	0	0	

Sample ID: LCS-77306	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77306	RunNo: 99448								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631436 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.3	61.9	130			
Surr: DNOP	3.8		5.000		76.9	69	147			

Sample ID: MB-77306	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77306	RunNo: 99448								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631441 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		88.5	69	147			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 8 of 10

QC SUMMARY REPORT  
Hall Environmental Analysis Laboratory, Inc.

WO#: 2308G98  
12-Sep-23

Client: HILCORP ENERGY  
Project: Salty Dog 4

Sample ID: Ics-77293	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 77293	RunNo: 99471								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631703			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.2	70	130			
Surr: BFB	1900		1000		194	15	244			

Sample ID: MB-77293	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 77293	RunNo: 99471								
Prep Date: 9/5/2023	Analysis Date: 9/6/2023	SeqNo: 3631704			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		94.7	15	244			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2308G98****12-Sep-23****Client:** HILCORP ENERGY**Project:** Salty Dog 4

Sample ID: <b>LCS-77293</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>77293</b>		RunNo: <b>99471</b>							
Prep Date: <b>9/5/2023</b>	Analysis Date: <b>9/6/2023</b>		SeqNo: <b>3631710</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	70	130			
Toluene	1.1	0.050	1.000	0	110	70	130			
Ethylbenzene	1.1	0.050	1.000	0	111	70	130			
Xylenes, Total	3.4	0.10	3.000	0	112	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	39.1	146			

Sample ID: <b>MB-77293</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>77293</b>		RunNo: <b>99471</b>							
Prep Date: <b>9/5/2023</b>	Analysis Date: <b>9/6/2023</b>		SeqNo: <b>3631711</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		106	39.1	146			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank  
E Above Quantitation Range/Estimated Value  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Limit

Page 10 of 10



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: 2308G98

RcptNo: 1

Received By: Tracy Casarrubias 8/31/2023 6:10:00 AM

Completed By: Tracy Casarrubias 8/31/2023 7:02:50 AM

Reviewed By: *mc* 8/31/23

### 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? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: *mc* 8/31/23

### 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: \_\_\_\_\_

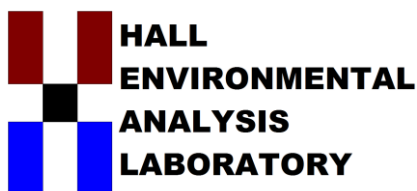
Client Instructions: Mailing address and Email/Fax are missing on COC- TMC 8/31/23

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.1	Good	Yes	Yogi		





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

September 27, 2023

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

RE: Salty Dog 4

OrderNo.: 2309B50

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 4 sample(s) on 9/21/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 2309B50

Date Reported: 9/27/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SS06

Project: Salty Dog 4

Collection Date: 9/20/2023 9:25:00 AM

Lab ID: 2309B50-001

Matrix: SOIL

Received Date: 9/21/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: JME
Diesel Range Organics (DRO)	19	9.9		mg/Kg	1	9/25/2023 8:36:13 AM
Motor Oil Range Organics (MRO)	70	49		mg/Kg	1	9/25/2023 8:36:13 AM
Surr: DNOP	96.2	69-147		%Rec	1	9/25/2023 8:36:13 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/22/2023 2:58:00 PM
Surr: BFB	93.8	15-244		%Rec	1	9/22/2023 2:58:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	9/22/2023 2:58:00 PM
Toluene	ND	0.050		mg/Kg	1	9/22/2023 2:58:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/22/2023 2:58:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/22/2023 2:58:00 PM
Surr: 4-Bromofluorobenzene	85.3	39.1-146		%Rec	1	9/22/2023 2:58:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	ND	60		mg/Kg	20	9/22/2023 1:18:51 PM

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

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

## Analytical Report

Lab Order 2309B50

Date Reported: 9/27/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SS07

Project: Salty Dog 4

Collection Date: 9/20/2023 9:40:00 AM

Lab ID: 2309B50-002

Matrix: SOIL

Received Date: 9/21/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: JME
Diesel Range Organics (DRO)	12	9.9		mg/Kg	1	9/25/2023 8:46:45 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/25/2023 8:46:45 AM
Surr: DNOP	95.1	69-147		%Rec	1	9/25/2023 8:46:45 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/22/2023 3:20:00 PM
Surr: BFB	100	15-244		%Rec	1	9/22/2023 3:20:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	9/22/2023 3:20:00 PM
Toluene	ND	0.049		mg/Kg	1	9/22/2023 3:20:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/22/2023 3:20:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/22/2023 3:20:00 PM
Surr: 4-Bromofluorobenzene	86.8	39.1-146		%Rec	1	9/22/2023 3:20:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JTT
Chloride	250	60		mg/Kg	20	9/22/2023 1:31:15 PM

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

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

## Analytical Report

Lab Order 2309B50

Date Reported: 9/27/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS02a

Project: Salty Dog 4

Collection Date: 9/20/2023 3:00:00 PM

Lab ID: 2309B50-003

Matrix: SOIL

Received Date: 9/21/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/22/2023 1:03:16 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/22/2023 1:03:16 PM
Surr: DNOP	86.5	69-147		%Rec	1	9/22/2023 1:03:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/22/2023 2:14:00 PM
Surr: BFB	96.5	15-244		%Rec	1	9/22/2023 2:14:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	9/22/2023 2:14:00 PM
Toluene	ND	0.048		mg/Kg	1	9/22/2023 2:14:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/22/2023 2:14:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/22/2023 2:14:00 PM
Surr: 4-Bromofluorobenzene	86.3	39.1-146		%Rec	1	9/22/2023 2:14:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	130	60		mg/Kg	20	9/22/2023 1:43:40 PM

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

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

## Analytical Report

Lab Order 2309B50

Date Reported: 9/27/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: FS06a

Project: Salty Dog 4

Collection Date: 9/20/2023 10:35:00 AM

Lab ID: 2309B50-004

Matrix: SOIL

Received Date: 9/21/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	17	9.9		mg/Kg	1	9/22/2023 1:14:03 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/22/2023 1:14:03 PM
Surr: DNOP	98.9	69-147		%Rec	1	9/22/2023 1:14:03 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/22/2023 2:36:00 PM
Surr: BFB	97.9	15-244		%Rec	1	9/22/2023 2:36:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	9/22/2023 2:36:00 PM
Toluene	ND	0.048		mg/Kg	1	9/22/2023 2:36:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/22/2023 2:36:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/22/2023 2:36:00 PM
Surr: 4-Bromofluorobenzene	87.9	39.1-146		%Rec	1	9/22/2023 2:36:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JTT</b>
Chloride	250	60		mg/Kg	20	9/22/2023 1:56:05 PM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309B50  
27-Sep-23

Client: HILCORP ENERGY  
Project: Salty Dog 4

Sample ID: MB-77707	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 77707		RunNo: 99929							
Prep Date: 9/22/2023	Analysis Date: 9/22/2023		SeqNo: 3654631		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-77707	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 77707		RunNo: 99929							
Prep Date: 9/22/2023	Analysis Date: 9/22/2023		SeqNo: 3654632		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 Quantitative Limit

S

% Recovery outside of standard limits. If undiluted results may be estimated.
- B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

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

WO#: 2309B50

27-Sep-23

**Client:** HILCORP ENERGY**Project:** Salty Dog 4

Sample ID: <b>LCS-77702</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>77702</b>	RunNo: <b>99927</b>								
Prep Date: <b>9/22/2023</b>	Analysis Date: <b>9/22/2023</b>	SeqNo: <b>3655926</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.6	61.9	130			
Surr: DNOP	5.0		5.000		100	69	147			

Sample ID: <b>MB-77702</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>PBS</b>	Batch ID: <b>77702</b>	RunNo: <b>99927</b>								
Prep Date: <b>9/22/2023</b>	Analysis Date: <b>9/22/2023</b>	SeqNo: <b>3655928</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.8		10.00		98.4	69	147			

Sample ID: <b>2309B50-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>FS06a</b>	Batch ID: <b>77702</b>	RunNo: <b>99927</b>								
Prep Date: <b>9/22/2023</b>	Analysis Date: <b>9/22/2023</b>	SeqNo: <b>3655929</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	9.6	47.85	16.98	89.5	54.2	135			
Surr: DNOP	5.8		4.785		121	69	147			

Sample ID: <b>2309B50-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>								
Client ID: <b>FS06a</b>	Batch ID: <b>77702</b>	RunNo: <b>99927</b>								
Prep Date: <b>9/22/2023</b>	Analysis Date: <b>9/22/2023</b>	SeqNo: <b>3655930</b> Units: <b>mg/Kg</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	9.4	46.77	16.98	82.6	54.2	135	7.25	29.2	
Surr: DNOP	4.8		4.677		102	69	147	0	0	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2309B50

27-Sep-23

Client: HILCORP ENERGY

Project: Salty Dog 4

Sample ID: <b>ics-77677</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>77677</b>		RunNo: <b>99907</b>							
Prep Date: <b>9/21/2023</b>	Analysis Date: <b>9/22/2023</b>		SeqNo: <b>3654558</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.9	70	130			
Surr: BFB	2100		1000		210	15	244			

Sample ID: <b>mb-77677</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>77677</b>		RunNo: <b>99907</b>							
Prep Date: <b>9/21/2023</b>	Analysis Date: <b>9/22/2023</b>		SeqNo: <b>3654559</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.7	15	244			

### Qualifiers:

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

**QC SUMMARY REPORT****Hall Environmental Analysis Laboratory, Inc.**WO#: **2309B50**

27-Sep-23

**Client:** HILCORP ENERGY**Project:** Salty Dog 4

Sample ID: <b>lcs-77677</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>77677</b>			RunNo: <b>99907</b>						
Prep Date: <b>9/21/2023</b>	Analysis Date: <b>9/22/2023</b>			SeqNo: <b>3654572</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	88.2	70	130			
Toluene	0.89	0.050	1.000	0	89.0	70	130			
Ethylbenzene	0.91	0.050	1.000	0	90.9	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.9	70	130			
Surr: 4-Bromofluorobenzene	0.88		1.000		88.1	39.1	146			

Sample ID: <b>mb-77677</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>77677</b>			RunNo: <b>99907</b>						
Prep Date: <b>9/21/2023</b>	Analysis Date: <b>9/22/2023</b>			SeqNo: <b>3654573</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		85.8	39.1	146			

**Qualifiers:**

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



Hall Environmental Analysis Laboratory  
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: 2309B50

RcptNo: 1

Received By: Tracy Casarrubias 9/21/2023 6:10:00 AM

Completed By: Tracy Casarrubias 9/21/2023 6:54:19 AM

Reviewed By: *[Signature]* 9-21-23

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☐ No ☒ NA ☐  
Awaiting approval.
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: 5  
( $<2$  or  $>12$  unless noted)  
Adjusted? Yes  
Checked by: Sam 9/21/23

### Special Handling (if applicable)

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

Person Notified: Stuart Hyde

Date: 9/21/2023

By Whom: Tracy Casarrubias

Via: ☐ eMail ☒ Phone ☒ Fax ☐ In Person

Regarding: High Temp.

Client Instructions: Let Stuart know that the samples arrived slightly over temp. Let him know we will continue

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	8.8	Good	Yes	Yogi		

# Chain-of-Custody Record

Client: Hilcorp attn: Mitch Killough

mkillouy@hilarcorp.com

Mailing Address:

Turn-Around Time:

☐ Standard

Project Name:

500 417 505 4

Project #:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NEI AC ☐ Other

□ EDD (Type)

Cooler Temp(Including CF):	9.8 - 0 - 9.8	(°C)
----------------------------	---------------	------

Date	Time	Matrix	Sample Name
------	------	--------	-------------

9/20/2016	925	soil	5505
-----------	-----	------	------

1	946	1	5507
---	-----	---	------

✓	1500		F502a
✓	1035	✓	F506a

Date:	Time:	Relinquished by:
-------	-------	------------------

100	100
-----	-----

Date: 12/1	Time:	Relinquished by:
------------	-------	------------------

Date: 12	Time:
----------	-------

Received by:	Via: <i>air</i>	Date	Time
--------------	-----------------	------	------

9/21/23 6:10

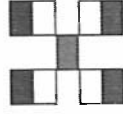
Received by:	Via:	Date	Time
--------------	------	------	------

Date	Time
------	------

Remarks: CC: dhencman@onsolun.com  
Zmyers

This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. Any sub-contracted data may be subcontracted to other accredited laboratories.

*Released to Imaging: 2/13/2024 11:10:49 AM*



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks: CC: dhencman@onsolum.com  
Zmyers



## APPENDIX C

### Photographic Log

---



**Photographic Log**  
Hilcorp Energy Company  
Salty Dog SWD 4  
San Juan County, New Mexico



Photograph: 1 Date: 8/30/2023  
Description: Excavation of areas FS01 and FS02  
View: West



Photograph: 2 Date: 8/30/2023  
Description: View of excavation from wellhead  
View: Southwest



Photograph: 3 Date: 9/20/2023  
Description: Additional excavation of FS02  
View: West



Photograph: 4 Date: 9/20/2023  
Description: Additional excavation of FS06  
View: Southeast

**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 278831

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 278831
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	2/13/2024