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 | |
| District RP | |
| Facility ID | |
| Application ID | |

# I Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party Hilcorp Energy | OGRID 372171 |
| Contact Name: Kate Kaufman | Contact Telephone: 346-237-2275 |
| Contact email: kkaufman@hilcorp.com | Incident # *(assigned by OCD)* nAPP2313243978 |
| Contact mailing address: 1111 Travis St. Houston, TX 77471 | |

## Location of Release Source

Latitude 36.690871 Longitude -107.861444
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name: Abrams L #1 | Site Type: Well Site |
| Date Release Discovered: 2/16/2023 | API# *(if applicable)* 30-045-25970 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| J | 23 | 029N | 011W | San Juan |

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* Ledfors)

## Nature and Volume of Release

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

| | | |
|---|---|---|
| ☐ Crude Oil | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Produced Water | Volume Released (bbls) | Volume Recovered (bbls) |
| | Is the concentration of dissolved chloride in the produced water >10,000 mg/l? | ☐ Yes ☐ No |
| ☐ Condensate | Volume Released (bbls) | Volume Recovered (bbls) |
| ☐ Natural Gas | Volume Released (Mcf) | Volume Recovered (Mcf) |
| ☒ Other (describe) Historic Hydrocarbon | Volume/Weight Released (provide units) Estimated 29 bbls | Volume/Weight Recovered (provide units) Estimated 29 bbls |

Cause of Release

Historic contamination was discovered during BGT permit closure operations. Initial sample results were received on 2/16/2023. Hilcorp proceeded with delineation and determined an estimated release volume on 5/11/2023.

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Page 2

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | |
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| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☒ Yes ☐ No | If YES, for what reason(s) does the responsible party consider this a major release?<br><br>Estimated release volume is greater than 25 bbls. |

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Notification was made to Nelson Velez by Kate Kaufman via phone and email on 5/12/2023.

## 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:

This is a historic release and there was no active source at the time of discovery.

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: __Kate Kaufman_____ Title: __Environmental Specialist_____

Signature: Kathryn Kaufman _____ Date: __5/12/2023_____

email: __kkaufman@hilcorp.com_____ Telephone: _____346-237-2275_____

**OCD Only**

Received by: _____ Date: _____

| | |
|---|---|
| Incident ID | NAPP2313243978 |
| 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 (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.

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State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | NAPP2313243978 |
| District RP | |
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| Application ID | |

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

Printed Name: ____Kathryn H Kaufman_____ Title: ____Environmental Specialist_____

Signature:_____ _____ Date: _5/16/2023_____

email: ___kkaufman@hilcorp.com_____ Telephone: __346-237-2275_____

**OCD Only**

Received by: Jocelyn Harimon Date: 05/17/2023

| | |
|---|---|
| Incident ID | NAPP2313243978 |
| 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: _Kathryn H. Kaufman_____ Title: _Environmental Specialist_____

Signature: _____ _____ Date: ____5/16/2023_____

email: kkaufman@hilcorp.com_____ Telephone: _346-237-2275_____

**OCD Only**

Received by: Jocelyn Harimon Date: 05/17/2023

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: Nelson Velez Date: 05/17/2023

Printed Name: Nelson Velez Title: Environmental Specialist - Adv

# Executive Summary – Incident #nAPP2313243978

Hilcorp removed a below ground tank (BGT) at the Abrams L 1 wellsite (API 30-045-25670) on February 7, 2023. The closure sample results were above permit limits and above the NMOCD action criteria in NMAC 19.15.29 Table 1 for total petroleum hydrocarbons (TPH).

Hilcorp proceeded with delineation and removed approximately 500 $yds^3$ of clean and potentially impacted soil from the excavation. Impacted material will be hauled offsite for disposal. The final excavation dimensions were approximately 30'w x 30'l x 20' below ground surface. The historic hydrocarbon release volume was estimated to be approximately 29 bbls. Release volume estimate attached.

Five 5-point composite samples were collected from the base and sidewalls on 5/2/2023 and 5/5/2023. Analytical results from this sampling event were below NMOCD action criteria noted in NMAC 19.15.29 Table 1. Sample results are included at the end of this summary report.

# Scaled Site Map

**Lat: 36.690871**
**Long: -107.861444**

**Abrams L 1 Wellsite**
**API: 30-045-25670**

**Historic Release Area**


N

# Depth to groundwater determination.

Estimated depth to groundwater at the Abrams L 1 wellsite is <50'. Note siting criteria for the Morris Gas Com 1R, which is ~1,000' NE of the Abrams L 1 wellsite.

**Lodestar Services, Inc.**
PO Box 4465, Durango, CO 81302

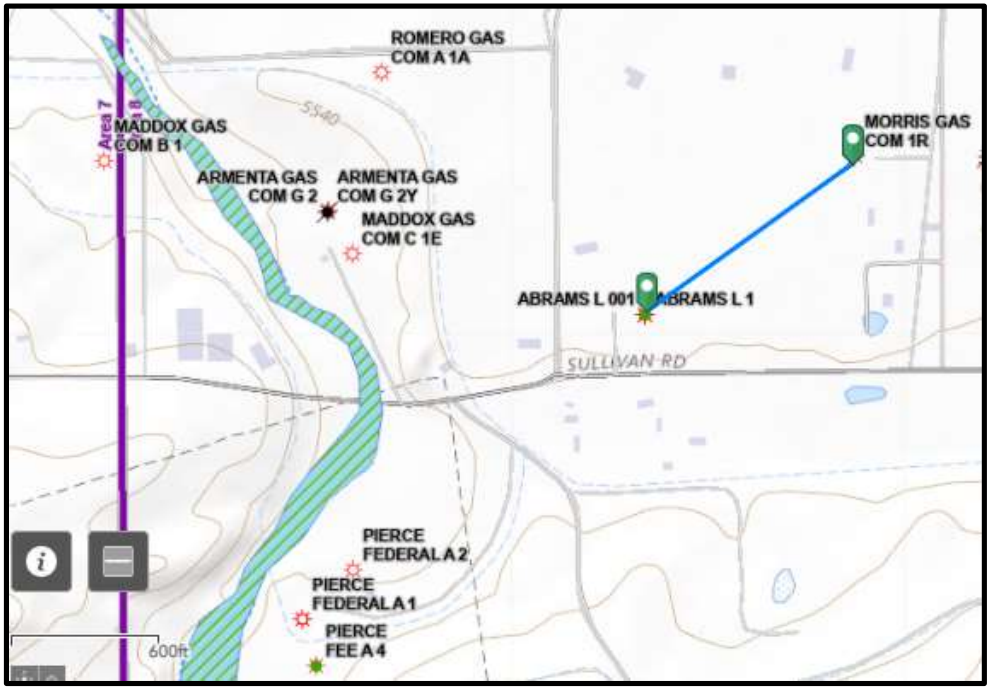
**Pit Permit Siting Criteria Information Sheet**

| | |
|---|---|
| Client: | XTO Energy |
| Project: | Pit Permits |
| Revised: | 19-Nov-08 |
| Prepared by: | Devin Hencmann |

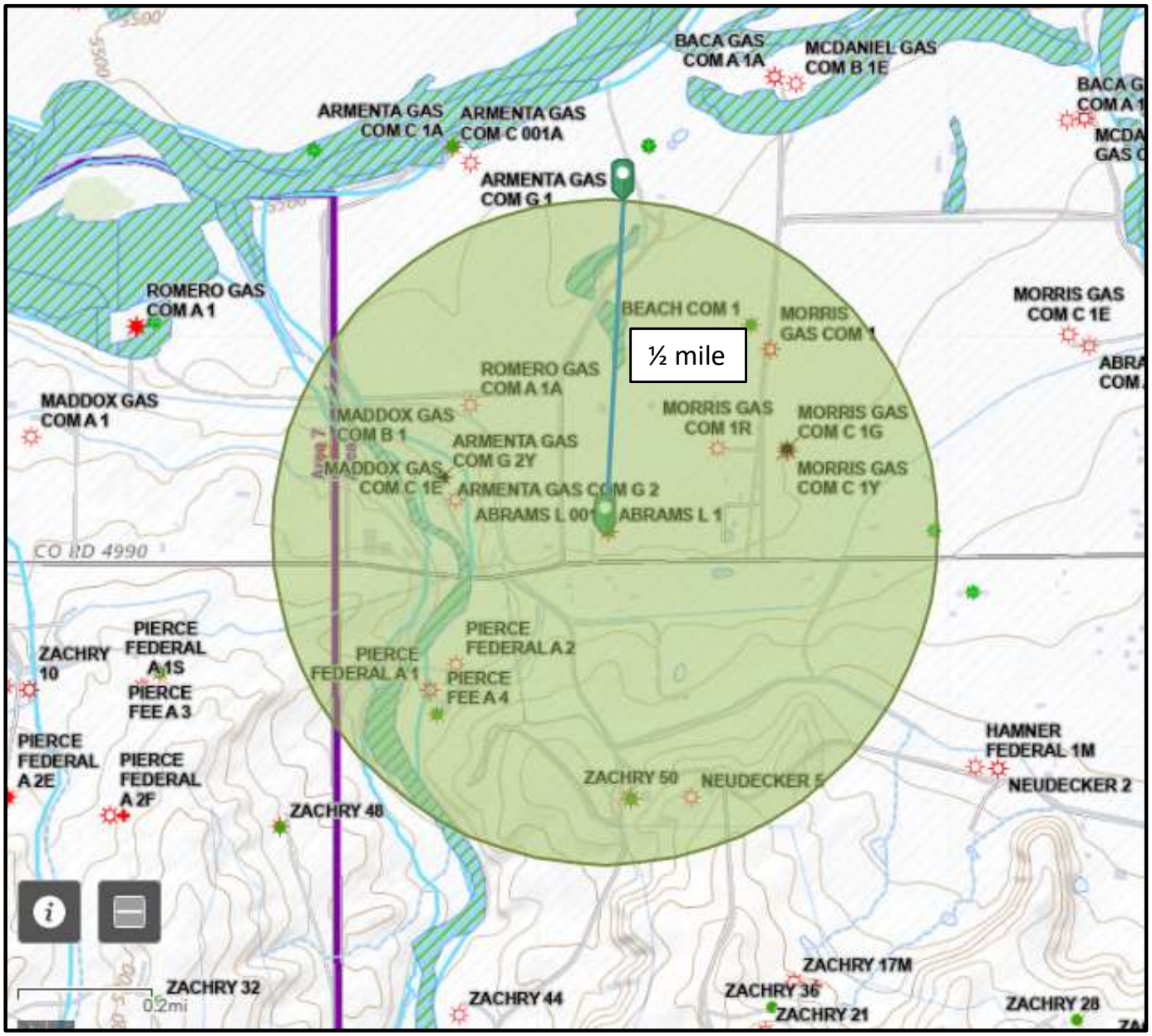
| | | | |
|---|---|---|---|
| API#: | 3004530070 | USPLSS: | 29N, 10W, 26M |
| Name: | MORRIS GAS COM #1R | Lat/Long: | 36.69231/-107.85827 |
| Depth to groundwater: | < 50' | Geologic formation: | Naciemento |
| Distance to closest continuously flowing watercourse: | 3,000' N to the 'San Juan River' | | |
| Distance to closest significant watercourse, lakebed, playa lake, or sinkhole: | 3,445' E to Munoz Canyon wash | | |
| | | Soil Type: | Entisols |
| Permanent residence, school, hospital, institution or church within 300' | 248' SE to residence | | |
| | | Annual Precipitation: | Bloomfield: 8.71" , Farmington: 8.21", Otis: 10.41" |
| Domestic fresh water well or spring within 500' | No | Precipitation Notes: | Historical daily max: Bloomfield (4.19") |
| Any other fresh water well or spring within 1000' | No | | |
| Within incorporated municipal boundaries | No | Attached Documents: | i-Waters report pdf |
| Within defined municipal fresh water well field | No | | Topo map pdf, Aerial pdf, Mines and Quarries Map pdf,i-Waters Ground Water Data Map pdf, FEMA flood zone map pdf |
| Wetland within 500' | No | Mining Activity: | 1,845' NW to materials pit<br>2,680' NE to materials pit |
| Within unstable area | No | | |
| Within 100 year flood plain | No-FEMA Zone 'X' | | |

Additional Notes:

1,177' SE to concrete lined irrigation canal



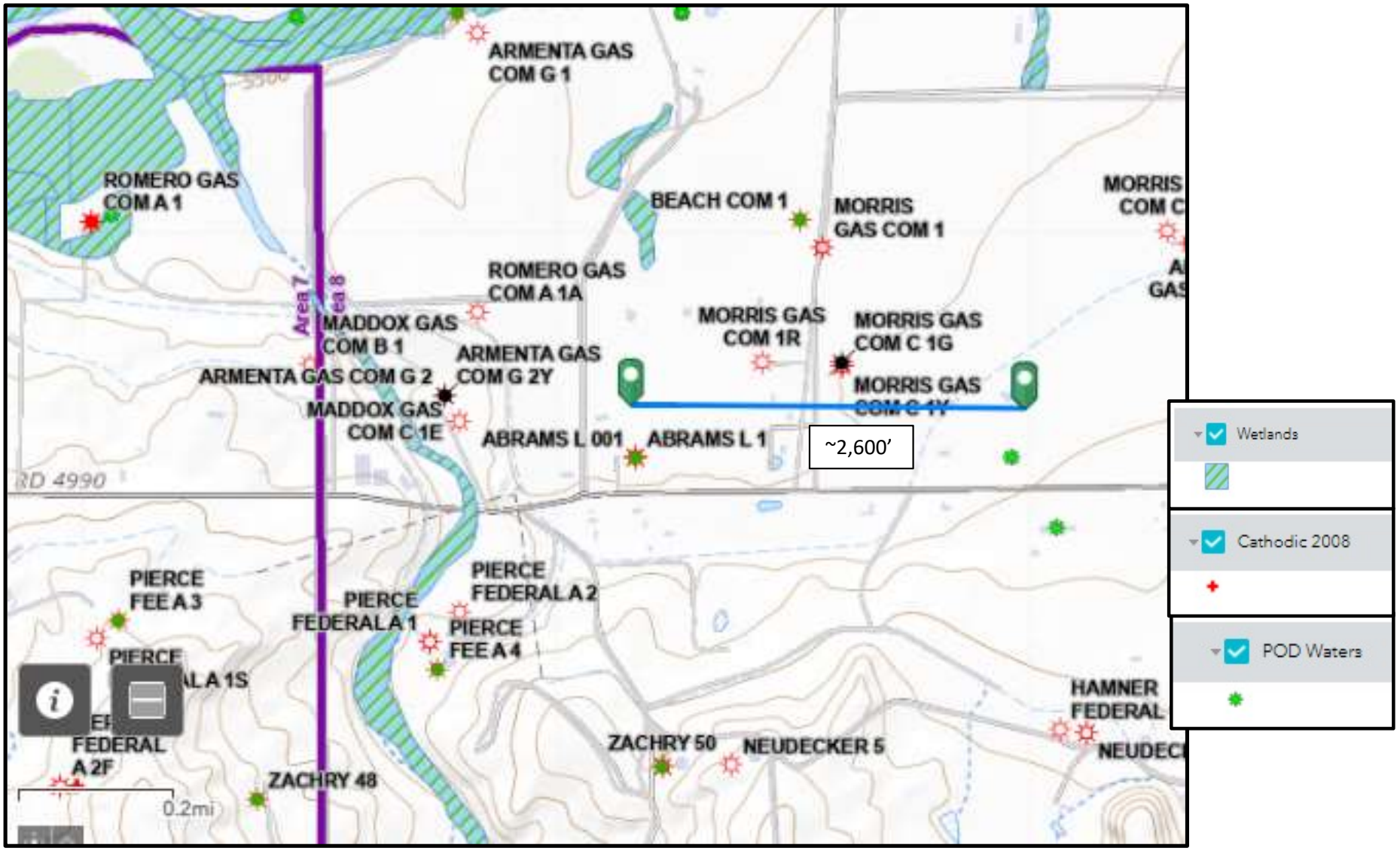
# Determination of water sources and significant watercourses within ½ mile of the lateral extent of the release




**Note 1:** Release point is not within 300 ft of a continuously flowing watercourse or other significant water course.

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

Distance to mapped water wells.




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

# Data table of soil contaminant concentrations

| Sample Name | Sample Date | Abrams L #1 Laboratory Results | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Chloride (mg/kg) | TPH as DRO (mg/kg) | TPH as GRO (mg/kg) | TPH as MRO (mg/kg) | Total TPH (mg/kg) | TPH as GRO + DRO (mg/kg) | Benzene (mg/kg) | Toluene (mg/kg) | Ethylbenzene (mg/kg) | Total Xylene (mg/kg) | Total BTEX (mg/kg) |
| **BGT Permit Closure Criteria < 50'** | | **600** | - | - | - | **100** | - | **10** | - | - | - | **50** |
| BGT Closure Sample | 02/07/23 | ND | 230 | 9 | 1100 | 1339 | 239 | ND | ND | ND | 0.42 | 0.42 |
| S-2 - 20-26' | 05/02/23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| North Wall Composite | 05/05/23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| South Wall Composite | 05/05/23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| East Wall Composite | 05/05/23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| West Wall Composite | 05/05/23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

Confirmation samples were collected on 5/2/2023 and 5/5/2023 by Hilcorp personnel and all results were below NMOCD 19.15.29.12.D Table 1 closure criteria.

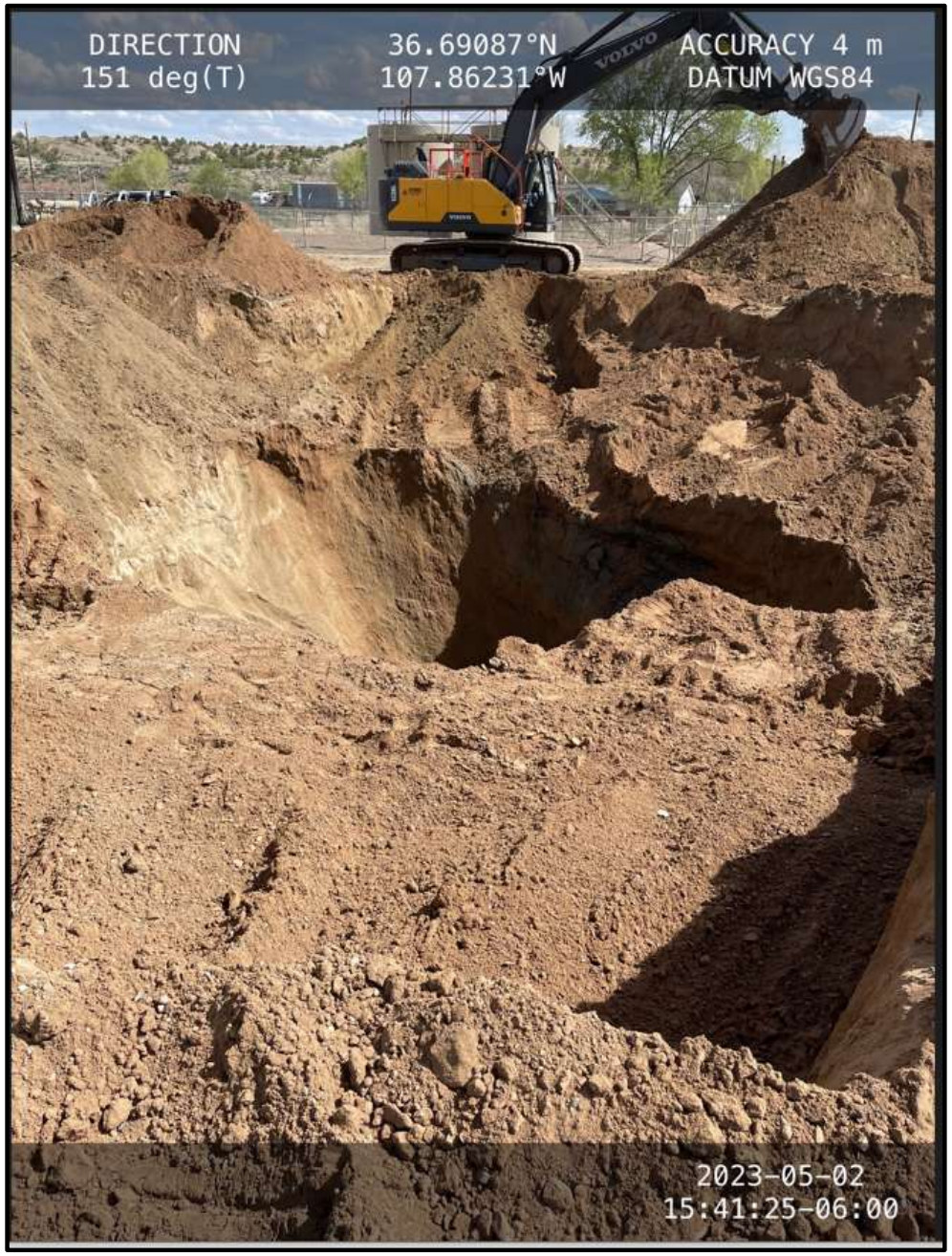
# Field Sample Diagram

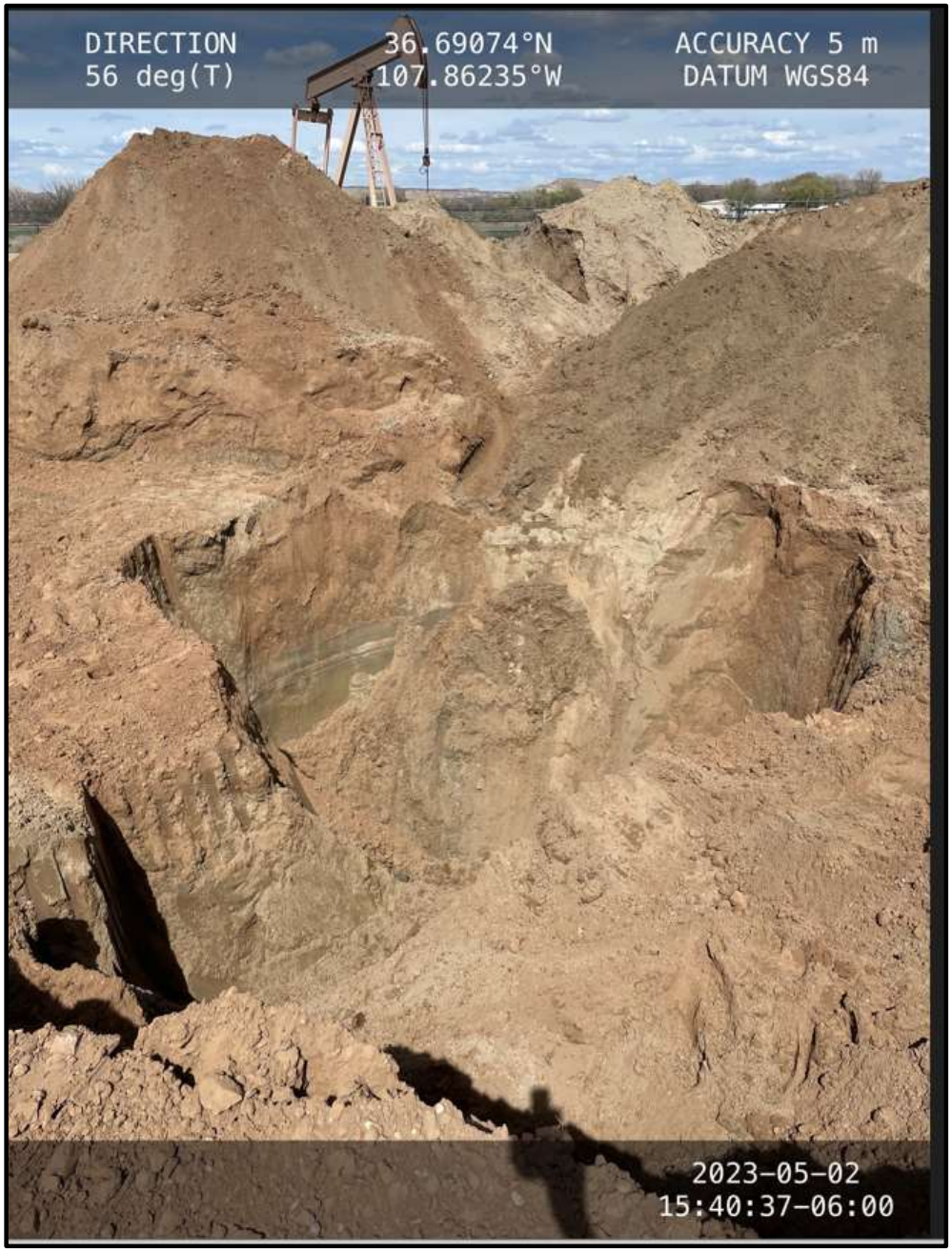
Samples were collected on 5/2/2023 and 5/5/2023.

# Sample Photos – Aerial Image, 5/5/20203

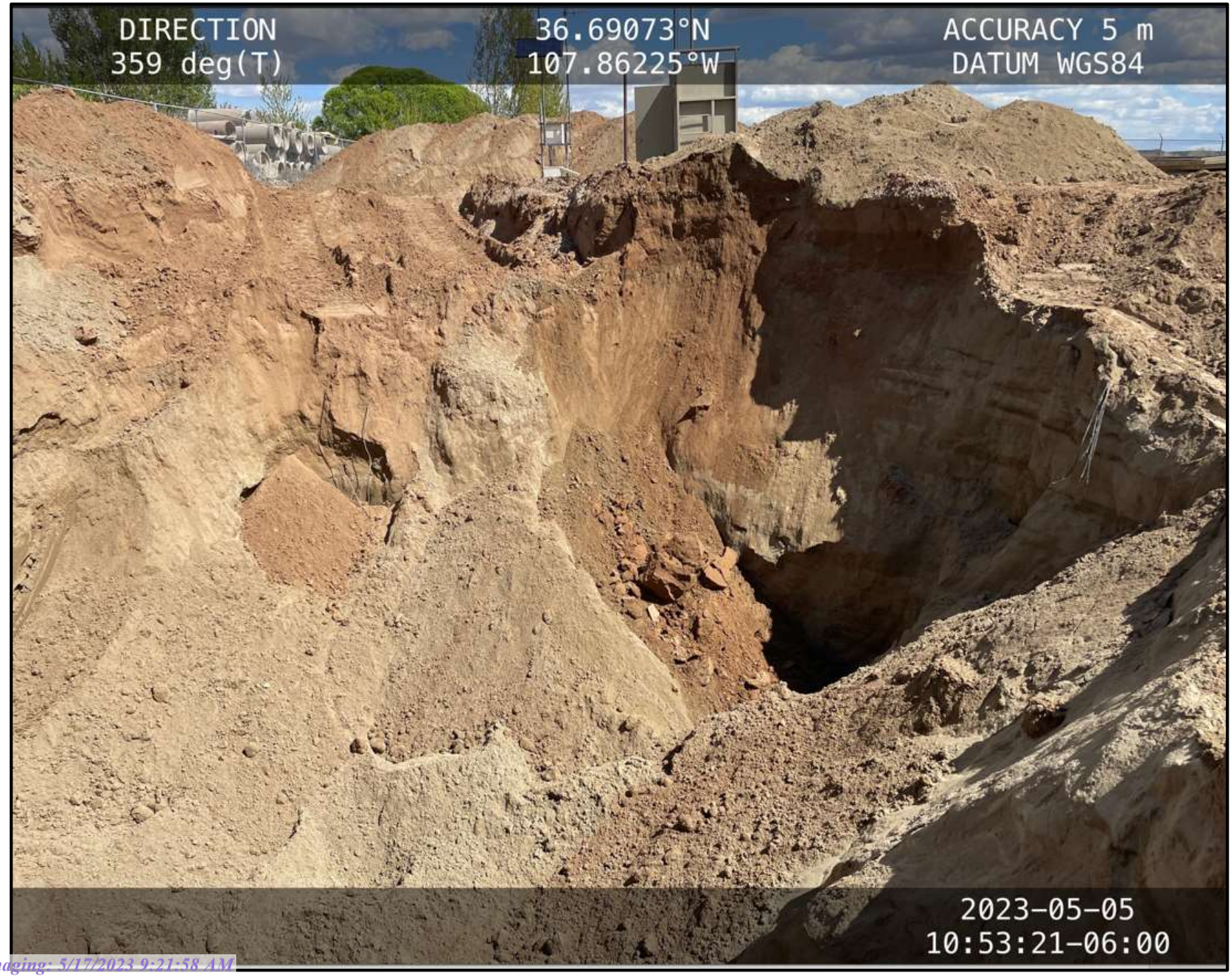
N

# Sample Photos

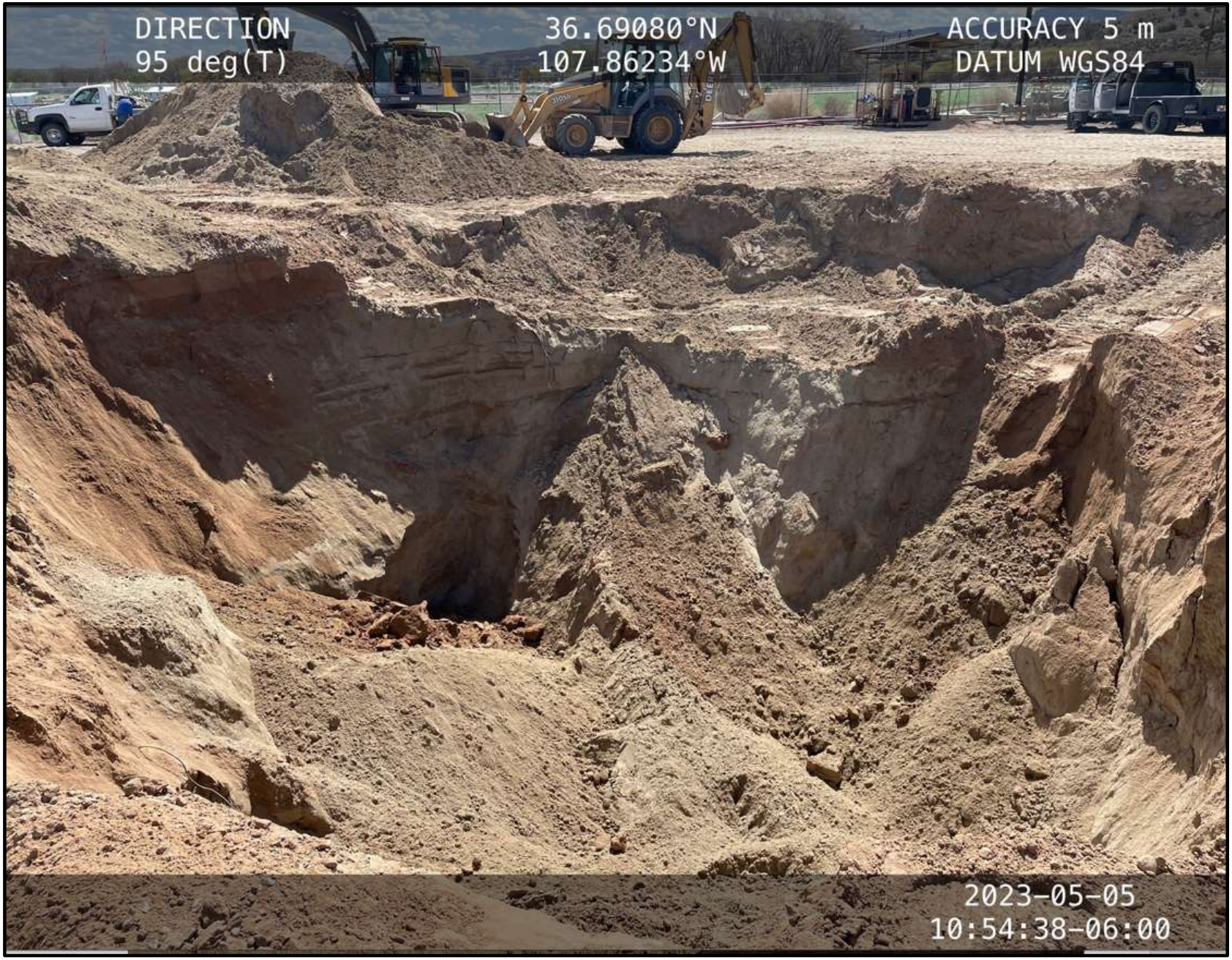


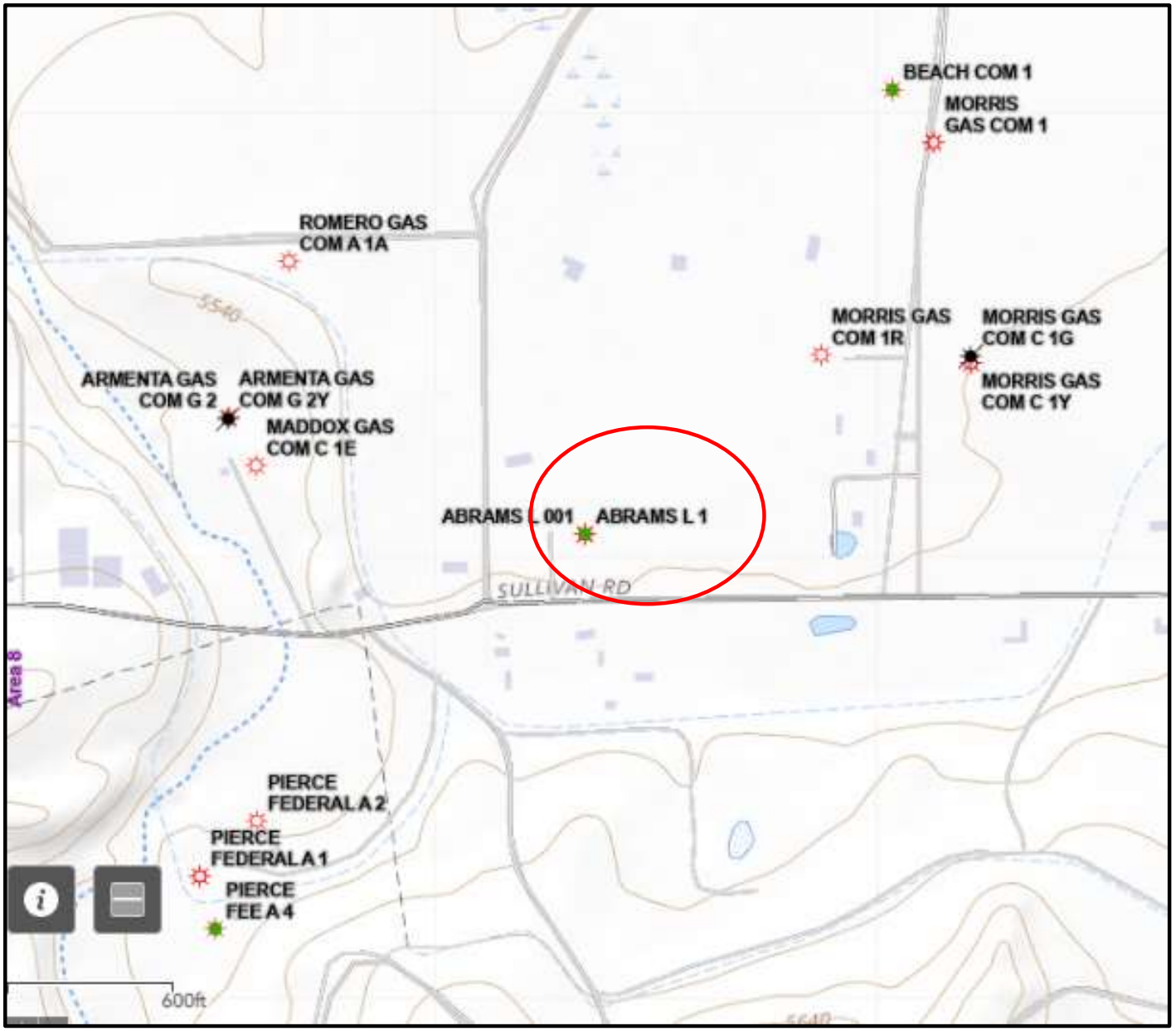
# Sample Photos



# Sample Photos



# Topographic Map




N

**ESTIMATED RELEASE VOLUME TOOL**
**ABRAMS L1 BGT**
**HILCORP ENERGY COMPANY**

***This tool estimates a release volume based on the size and concentration of a dry excavation.***

**Instructions: Input the excavation parameters (dimensions) in red text, and the spreadsheet calculates a potential spill volume. Other parameters can be changed as appropriate.**

| Tool Inputs | |
|---|---|
| Soil Density | 99.88473696 *lbs/ft³* |
| Crude Oil Density | 7.093593783 *lbs/gal* |

| Excavation Parameters | |
|---|---|
| Average Hydrocarbon Concentration | 1211.14 *mg/kg* |
| Length | *ft* |
| Width | *ft* |
| Depth | *ft* |
| Expansion Factor | *%* |
| **Total Soil Volume** | **500 *yds³*** |

*Choose the appropriate column for the released product*

| | Crude Oil/Condensate | Produced Water |
|---|---|---|
| **Hydrocarbon Concentration (Percent)** | 25 % | 75 % |

***CALCULATED SPILL VOLUME***

| | | |
|---|---|---|
| **Hydrocarbon Mass** | 1,633 *lbs* | 1,633 *lbs* |
| **Hydrocarbon (Release) Volume** | 921 *gal*<br>**21.9 *bbls*** | 307 *gal*<br>**7 *bbls*** |

**Notes**

| | | | |
|---|---|---|---|
| % - percent | ft - feet | kg - kilograms | mg - milligrams |
| bbls - barrels | gal -gallons | lbs - pounds | yd - yard |

Red values are variable and can be changed according to site specific information.

# Analytical Data, Samples Collected 5/2/2023 and 5/5/2023

See attached Lab 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*

May 11, 2023

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

RE: Abrams L1 OrderNo.: 2305355

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 4 sample(s) on 5/6/2023 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 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** North Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:30:00 AM
**Lab ID:** 2305355-001 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 5/8/2023 10:55:42 AM |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 5/8/2023 10:55:42 AM |
| Surr: DNOP | 87.6 | 69-147 | | %Rec | 1 | 5/8/2023 10:55:42 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.3 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Surr: BFB | 81.7 | 15-244 | | %Rec | 1 | 5/8/2023 12:22:01 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.021 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Toluene | ND | 0.043 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Ethylbenzene | ND | 0.043 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Xylenes, Total | ND | 0.086 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Surr: 4-Bromofluorobenzene | 89.0 | 39.1-146 | | %Rec | 1 | 5/8/2023 12:22:01 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | 190 | 60 | | mg/Kg | 20 | 5/8/2023 12:34:24 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** South Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:40:00 AM
**Lab ID:** 2305355-002 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.6 | | mg/Kg | 1 | 5/8/2023 11:06:18 AM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 5/8/2023 11:06:18 AM |
| Surr: DNOP | 86.1 | 69-147 | | %Rec | 1 | 5/8/2023 11:06:18 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.2 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Surr: BFB | 84.1 | 15-244 | | %Rec | 1 | 5/8/2023 12:45:25 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.016 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Toluene | ND | 0.032 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Ethylbenzene | ND | 0.032 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Xylenes, Total | ND | 0.063 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Surr: 4-Bromofluorobenzene | 88.1 | 39.1-146 | | %Rec | 1 | 5/8/2023 12:45:25 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:11:37 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** East Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:50:00 AM
**Lab ID:** 2305355-003 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.2 | | mg/Kg | 1 | 5/8/2023 11:21:39 AM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 5/8/2023 11:21:39 AM |
| Surr: DNOP | 90.1 | 69-147 | | %Rec | 1 | 5/8/2023 11:21:39 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.6 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Surr: BFB | 81.4 | 15-244 | | %Rec | 1 | 5/8/2023 1:08:51 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.018 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Toluene | ND | 0.036 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Ethylbenzene | ND | 0.036 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Xylenes, Total | ND | 0.072 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Surr: 4-Bromofluorobenzene | 88.6 | 39.1-146 | | %Rec | 1 | 5/8/2023 1:08:51 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:24:01 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 Quanitative Limit | RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. | | |

**Analytical Report**
Lab Order **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** West Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 11:00:00 AM
**Lab ID:** 2305355-004 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 5/8/2023 11:32:14 AM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 5/8/2023 11:32:14 AM |
| Surr: DNOP | 89.8 | 69-147 | | %Rec | 1 | 5/8/2023 11:32:14 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.3 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Surr: BFB | 74.8 | 15-244 | | %Rec | 1 | 5/8/2023 1:32:15 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.017 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Toluene | ND | 0.033 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Ethylbenzene | ND | 0.033 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Xylenes, Total | ND | 0.067 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Surr: 4-Bromofluorobenzene | 87.1 | 39.1-146 | | %Rec | 1 | 5/8/2023 1:32:15 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:36:26 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical 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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **MB-74803** | SampType: **MBLK** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **74803** | RunNo: **96588** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502959** Units: **mg/Kg** |

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

| Sample ID: **LCS-74803** | SampType: **LCS** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **74803** | RunNo: **96588** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502960** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 15 | 1.5 | 15.00 | 0 | 97.8 | 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 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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **LCS-74794** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3501910** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 41 | 10 | 50.00 | 0 | 82.5 | 61.9 | 130 | | | |
| Surr: DNOP | 4.2 | | 5.000 | | 84.9 | 69 | 147 | | | |

| Sample ID: **MB-74794** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3501912** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 7.5 | | 10.00 | | 75.3 | 69 | 147 | | | |

| Sample ID: **2305355-001AMS** | SampType: **MS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502869** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 35 | 9.4 | 47.04 | 0 | 75.0 | 54.2 | 135 | | | |
| Surr: DNOP | 3.9 | | 4.704 | | 82.7 | 69 | 147 | | | |

| Sample ID: **2305355-001AMSD** | SampType: **MSD** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502870** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 38 | 9.5 | 47.53 | 0 | 80.2 | 54.2 | 135 | 7.67 | 29.2 | |
| Surr: DNOP | 4.2 | | 4.753 | | 88.5 | 69 | 147 | 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 |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **2.5ug gro lcs** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502072** 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 | 96.4 | 70 | 130 | | | |
| Surr: BFB | 4900 | | 1000 | | 486 | 15 | 244 | | | S |

| Sample ID: **mb** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502073** 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 | 720 | | 1000 | | 71.8 | 15 | 244 | | | |

| Sample ID: **2305355-001ams** | SampType: **MS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503076** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 20 | 4.3 | 21.41 | 0 | 93.5 | 70 | 130 | | | |
| Surr: BFB | 4300 | | 856.2 | | 501 | 15 | 244 | | | S |

| Sample ID: **2305355-001amsd** | SampType: **MSD** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503077** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 20 | 4.3 | 21.41 | 0 | 92.9 | 70 | 130 | 0.644 | 20 | |
| Surr: BFB | 4300 | | 856.2 | | 502 | 15 | 244 | 0 | 0 | S |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of 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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **100NG BTEX LCS** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502076** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 1.000 | 0 | 93.0 | 70 | 130 | | | |
| Toluene | 0.94 | 0.050 | 1.000 | 0 | 94.1 | 70 | 130 | | | |
| Ethylbenzene | 0.94 | 0.050 | 1.000 | 0 | 94.4 | 70 | 130 | | | |
| Xylenes, Total | 2.8 | 0.10 | 3.000 | 0 | 94.9 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.90 | | 1.000 | | 90.5 | 39.1 | 146 | | | |

| Sample ID: **mb** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502077** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.86 | | 1.000 | | 86.1 | 39.1 | 146 | | | |

| Sample ID: **2305355-002ams** | SampType: **MS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **South Comp** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503078** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.55 | 0.016 | 0.6305 | 0 | 87.4 | 70 | 130 | | | |
| Toluene | 0.56 | 0.032 | 0.6305 | 0 | 88.8 | 70 | 130 | | | |
| Ethylbenzene | 0.56 | 0.032 | 0.6305 | 0 | 89.2 | 70 | 130 | | | |
| Xylenes, Total | 1.7 | 0.063 | 1.892 | 0 | 89.1 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.57 | | 0.6305 | | 90.2 | 39.1 | 146 | | | |

| Sample ID: **2305355-002amsd** | SampType: **MSD** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **South Comp** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503079** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.53 | 0.016 | 0.6305 | 0 | 84.1 | 70 | 130 | 3.78 | 20 | |
| Toluene | 0.54 | 0.032 | 0.6305 | 0 | 85.2 | 70 | 130 | 4.14 | 20 | |
| Ethylbenzene | 0.54 | 0.032 | 0.6305 | 0 | 85.8 | 70 | 130 | 3.88 | 20 | |
| Xylenes, Total | 1.6 | 0.063 | 1.892 | 0 | 86.6 | 70 | 130 | 2.78 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.57 | | 0.6305 | | 90.8 | 39.1 | 146 | 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 |

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: 2305355 RcptNo: 1

Received By: Cheyenne Cason 5/6/2023 8:45:00 AM

Completed By: Cheyenne Cason 5/6/2023 9:04:56 AM

Reviewed By: JP 5/6/23

## 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? (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 5/6/23

## 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: _____

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 5.0 | Good | Yes | Yogi | | |

# 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:
☐ Standard ☑ Rush 5-8-23

Project Name: Abrams L 1

Project #:

Project Manager: Kate Kaufman

Sampler: Brandon Sinclair

On Ice: ☒ Yes ☐ No Yogi

# of Coolers: 1

Cooler Temp(Including CF): 5.0-0=5.0 (°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. 2305355 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5-5 | 1030 | soil | North Comp | 4oz jar | cool | 001 | ✓ | ✓ | | | | | ✓ | | | |
| | 1040 | | South Comp | | | 002 | | | | | | | | | | |
| | 1050 | | East Comp | | | 003 | | | | | | | | | | |
| | 1100 | | West Comp | | | 004 | | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via | Date | Time |
|---|---|---|---|---|---|---|
| 5-5 | 1445 | | | | 5/5/23 | 1445 |
| 5/5/23 | 1824 | | Emc courier | | 5/6/23 | 0845 |

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*

May 11, 2023

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

RE: Abrams L1 OrderNo.: 2305355

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 4 sample(s) on 5/6/2023 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 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** North Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:30:00 AM
**Lab ID:** 2305355-001 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 5/8/2023 10:55:42 AM |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 5/8/2023 10:55:42 AM |
| Surr: DNOP | 87.6 | 69-147 | | %Rec | 1 | 5/8/2023 10:55:42 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.3 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Surr: BFB | 81.7 | 15-244 | | %Rec | 1 | 5/8/2023 12:22:01 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.021 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Toluene | ND | 0.043 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Ethylbenzene | ND | 0.043 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Xylenes, Total | ND | 0.086 | | mg/Kg | 1 | 5/8/2023 12:22:01 PM |
| Surr: 4-Bromofluorobenzene | 89.0 | 39.1-146 | | %Rec | 1 | 5/8/2023 12:22:01 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | 190 | 60 | | mg/Kg | 20 | 5/8/2023 12:34:24 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** South Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:40:00 AM
**Lab ID:** 2305355-002 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.6 | | mg/Kg | 1 | 5/8/2023 11:06:18 AM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 5/8/2023 11:06:18 AM |
| Surr: DNOP | 86.1 | 69-147 | | %Rec | 1 | 5/8/2023 11:06:18 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.2 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Surr: BFB | 84.1 | 15-244 | | %Rec | 1 | 5/8/2023 12:45:25 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.016 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Toluene | ND | 0.032 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Ethylbenzene | ND | 0.032 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Xylenes, Total | ND | 0.063 | | mg/Kg | 1 | 5/8/2023 12:45:25 PM |
| Surr: 4-Bromofluorobenzene | 88.1 | 39.1-146 | | %Rec | 1 | 5/8/2023 12:45:25 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:11:37 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | 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 **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** East Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 10:50:00 AM
**Lab ID:** 2305355-003 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.2 | | mg/Kg | 1 | 5/8/2023 11:21:39 AM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 5/8/2023 11:21:39 AM |
| Surr: DNOP | 90.1 | 69-147 | | %Rec | 1 | 5/8/2023 11:21:39 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.6 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Surr: BFB | 81.4 | 15-244 | | %Rec | 1 | 5/8/2023 1:08:51 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.018 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Toluene | ND | 0.036 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Ethylbenzene | ND | 0.036 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Xylenes, Total | ND | 0.072 | | mg/Kg | 1 | 5/8/2023 1:08:51 PM |
| Surr: 4-Bromofluorobenzene | 88.6 | 39.1-146 | | %Rec | 1 | 5/8/2023 1:08:51 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:24:01 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 Quanitative Limit | RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. | | |

**Analytical Report**
Lab Order **2305355**
Date Reported: **5/11/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** HILCORP ENERGY **Client Sample ID:** West Comp
**Project:** Abrams L1 **Collection Date:** 5/5/2023 11:00:00 AM
**Lab ID:** 2305355-004 **Matrix:** MEOH (SOIL) **Received Date:** 5/6/2023 8:45:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 5/8/2023 11:32:14 AM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 5/8/2023 11:32:14 AM |
| Surr: DNOP | 89.8 | 69-147 | | %Rec | 1 | 5/8/2023 11:32:14 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 3.3 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Surr: BFB | 74.8 | 15-244 | | %Rec | 1 | 5/8/2023 1:32:15 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.017 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Toluene | ND | 0.033 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Ethylbenzene | ND | 0.033 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Xylenes, Total | ND | 0.067 | | mg/Kg | 1 | 5/8/2023 1:32:15 PM |
| Surr: 4-Bromofluorobenzene | 87.1 | 39.1-146 | | %Rec | 1 | 5/8/2023 1:32:15 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **SNS** |
| Chloride | ND | 60 | | mg/Kg | 20 | 5/8/2023 1:36:26 PM |

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

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical 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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **MB-74803** | SampType: **MBLK** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **74803** | RunNo: **96588** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502959** Units: **mg/Kg** |

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

| Sample ID: **LCS-74803** | SampType: **LCS** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **74803** | RunNo: **96588** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502960** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 15 | 1.5 | 15.00 | 0 | 97.8 | 90 | 110 | | | |

**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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **LCS-74794** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3501910** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 41 | 10 | 50.00 | 0 | 82.5 | 61.9 | 130 | | | |
| Surr: DNOP | 4.2 | | 5.000 | | 84.9 | 69 | 147 | | | |

| Sample ID: **MB-74794** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3501912** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 7.5 | | 10.00 | | 75.3 | 69 | 147 | | | |

| Sample ID: **2305355-001AMS** | SampType: **MS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502869** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 35 | 9.4 | 47.04 | 0 | 75.0 | 54.2 | 135 | | | |
| Surr: DNOP | 3.9 | | 4.704 | | 82.7 | 69 | 147 | | | |

| Sample ID: **2305355-001AMSD** | SampType: **MSD** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **74794** | RunNo: **96580** |
| Prep Date: **5/8/2023** | Analysis Date: **5/8/2023** | SeqNo: **3502870** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 38 | 9.5 | 47.53 | 0 | 80.2 | 54.2 | 135 | 7.67 | 29.2 | |
| Surr: DNOP | 4.2 | | 4.753 | | 88.5 | 69 | 147 | 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 |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **2.5ug gro lcs** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502072** 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 | 96.4 | 70 | 130 | | | |
| Surr: BFB | 4900 | | 1000 | | 486 | 15 | 244 | | | S |

| Sample ID: **mb** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502073** 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 | 720 | | 1000 | | 71.8 | 15 | 244 | | | |

| Sample ID: **2305355-001ams** | SampType: **MS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503076** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 20 | 4.3 | 21.41 | 0 | 93.5 | 70 | 130 | | | |
| Surr: BFB | 4300 | | 856.2 | | 501 | 15 | 244 | | | S |

| Sample ID: **2305355-001amsd** | SampType: **MSD** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **North Comp** | Batch ID: **GS96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503077** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 20 | 4.3 | 21.41 | 0 | 92.9 | 70 | 130 | 0.644 | 20 | |
| Surr: BFB | 4300 | | 856.2 | | 502 | 15 | 244 | 0 | 0 | S |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of 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#: **2305355**

***11-May-23***

**Client:** HILCORP ENERGY

**Project:** Abrams L1

| Sample ID: **100NG BTEX LCS** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502076** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.93 | 0.025 | 1.000 | 0 | 93.0 | 70 | 130 | | | |
| Toluene | 0.94 | 0.050 | 1.000 | 0 | 94.1 | 70 | 130 | | | |
| Ethylbenzene | 0.94 | 0.050 | 1.000 | 0 | 94.4 | 70 | 130 | | | |
| Xylenes, Total | 2.8 | 0.10 | 3.000 | 0 | 94.9 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.90 | | 1.000 | | 90.5 | 39.1 | 146 | | | |

| Sample ID: **mb** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3502077** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 0.86 | | 1.000 | | 86.1 | 39.1 | 146 | | | |

| Sample ID: **2305355-002ams** | SampType: **MS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **South Comp** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503078** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.55 | 0.016 | 0.6305 | 0 | 87.4 | 70 | 130 | | | |
| Toluene | 0.56 | 0.032 | 0.6305 | 0 | 88.8 | 70 | 130 | | | |
| Ethylbenzene | 0.56 | 0.032 | 0.6305 | 0 | 89.2 | 70 | 130 | | | |
| Xylenes, Total | 1.7 | 0.063 | 1.892 | 0 | 89.1 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 0.57 | | 0.6305 | | 90.2 | 39.1 | 146 | | | |

| Sample ID: **2305355-002amsd** | SampType: **MSD** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **South Comp** | Batch ID: **R96584** | RunNo: **96584** |
| Prep Date: | Analysis Date: **5/8/2023** | SeqNo: **3503079** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.53 | 0.016 | 0.6305 | 0 | 84.1 | 70 | 130 | 3.78 | 20 | |
| Toluene | 0.54 | 0.032 | 0.6305 | 0 | 85.2 | 70 | 130 | 4.14 | 20 | |
| Ethylbenzene | 0.54 | 0.032 | 0.6305 | 0 | 85.8 | 70 | 130 | 3.88 | 20 | |
| Xylenes, Total | 1.6 | 0.063 | 1.892 | 0 | 86.6 | 70 | 130 | 2.78 | 20 | |
| Surr: 4-Bromofluorobenzene | 0.57 | | 0.6305 | | 90.8 | 39.1 | 146 | 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 |

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: 2305355 RcptNo: 1

Received By: Cheyenne Cason 5/6/2023 8:45:00 AM

Completed By: Cheyenne Cason 5/6/2023 9:04:56 AM

Reviewed By: JP 5/6/23

## 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? (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 5/6/23

## 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: _____

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 5.0 | Good | Yes | Yogi | | |

# 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:
☐ Standard ☑ Rush 5-8-23

Project Name: Abrams L 1

Project #:

Project Manager: Kate Kaufman

Sampler: Brandon Sinclair

On Ice: ☒ Yes ☐ No Yogi

# of Coolers: 1

Cooler Temp(Including CF): 5.0-0=5.0 (°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. 2305355 | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5-5 | 1030 | soil | North Comp | 4oz jar | cool | 001 | ✓ | ✓ | | | | | ✓ | | | |
| | 1040 | | South Comp | | | 002 | | | | | | | | | | |
| | 1050 | | East Comp | | | 003 | | | | | | | | | | |
| | 1100 | | West Comp | | | 004 | | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via | Date | Time |
|---|---|---|---|---|---|---|
| 5-5 | 1445 | | | | 5/5/23 | 1445 |
| 5/5/23 | 1824 | | Emc courier | | 5/6/23 | 0845 |

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.

**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 217405

## CONDITIONS

| | |
|---|---|
| Operator:<br>HILCORP ENERGY COMPANY<br>1111 Travis Street<br>Houston, TX 77002 | OGRID:<br>372171 |
| | Action Number:<br>217405 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| nvelez | None | 5/17/2023 |