APPROVED
By Olivia Yu at 11:02 am, Jun 15, 2018

June 5, 2018 Reference No. 11135250-07

NMOCD grants closure to 1RP-4735.

Ms. Olivia Yu
New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
1625 N. French Dr.
Hobbs, New Mexico 88240

Mr. Ryan Mann
New Mexico State Land Office
Remediation Specialist
Field Operation Division
2827 N. Dal Paso
Suite 117
Hobbs, New Mexico 88240

Dear Ms. Yu and Mr. Mann:

**Re: Closure Request**
**2A-20 Inch (1RP-4735)**
**ETC Field Services LLC**
**Site Location: Unit J, Sec. 32, T 23-S, R 37-E**
**(Lat 32.25972N°, Long -103.18139W°)**
**Lea County, New Mexico**

On behalf of ETC Field Services LLC (ETC), GHD Services, Inc. (GHD) is requesting that no further action status be granted for the 2A-20" pipeline (hereafter referred to as the "Site") release. The Site is located approximately 10.25 miles east of Jal, New Mexico (see Figure 1).

In an Assessment Report dated February 21, 2018 (attached) GHD recommended the following scope items be completed following delineation of the soil impacts in order to achieve no further action:

- The excavation (Figure 2) should be backfilled with clean fill material and wheel compacted to grade.
- Fertilizing and reseeding of the disturbed area with an appropriate seed mix. Blue Gramma 1# was used.

The work scope was approved by Ms. Yu with the NMOCD on April 2, 2018 and by Mr. Ryan Mann on April 25, 2018. As of the date of this letter, the above scope items have been completed and are documented in the attached completion photographs and final C-141 for the Site; therefore, No Further Action is being requested for the Site.

GHD
6121 Indian School Road NE Suite 200 Albuquerque New Mexico 87110 USA
T 505 884 0672 F 505 884 4932 W www.ghd.com

Should you have any questions, or require additional information regarding this submittal, please feel free to contact myself or Alan Brandon at (505) 884-0672 or Alan.Brandon@ghd.com.

Sincerely,

GHD

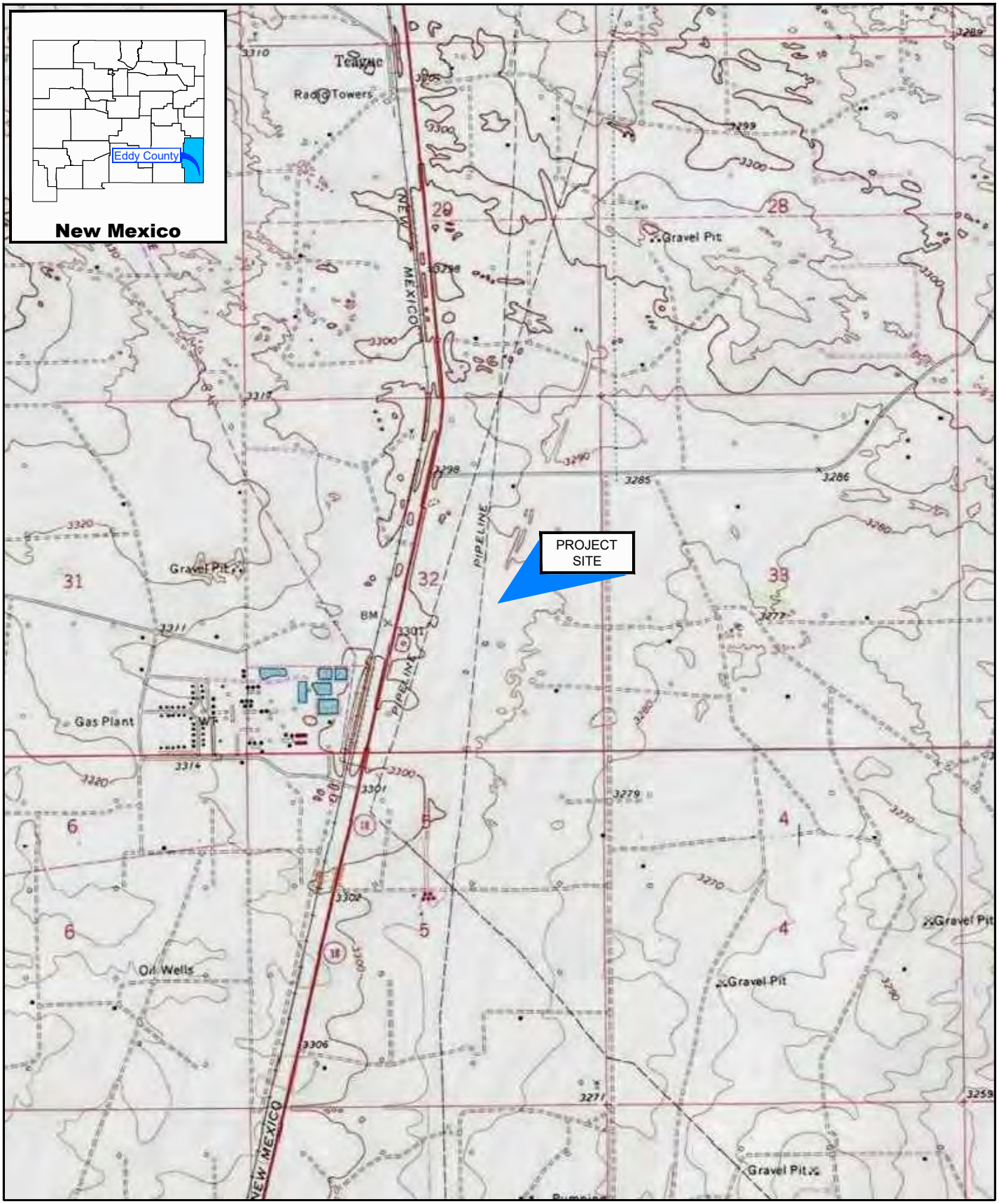
Christine Mathews
Project Scientist/Coordinator

Alan Brandon
Senior Project Manager

CM/ji/02

Encl.

# Figures




Source: USGS 7.5 Minute Quad "Rattlesnake Canyon and Jal NW, New Mexico"

Lat/Long: 32.25972° North, 103.18139° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

ETC FIELD SERVICES
LEA COUNTY, NEW MEXICO
2A-20"

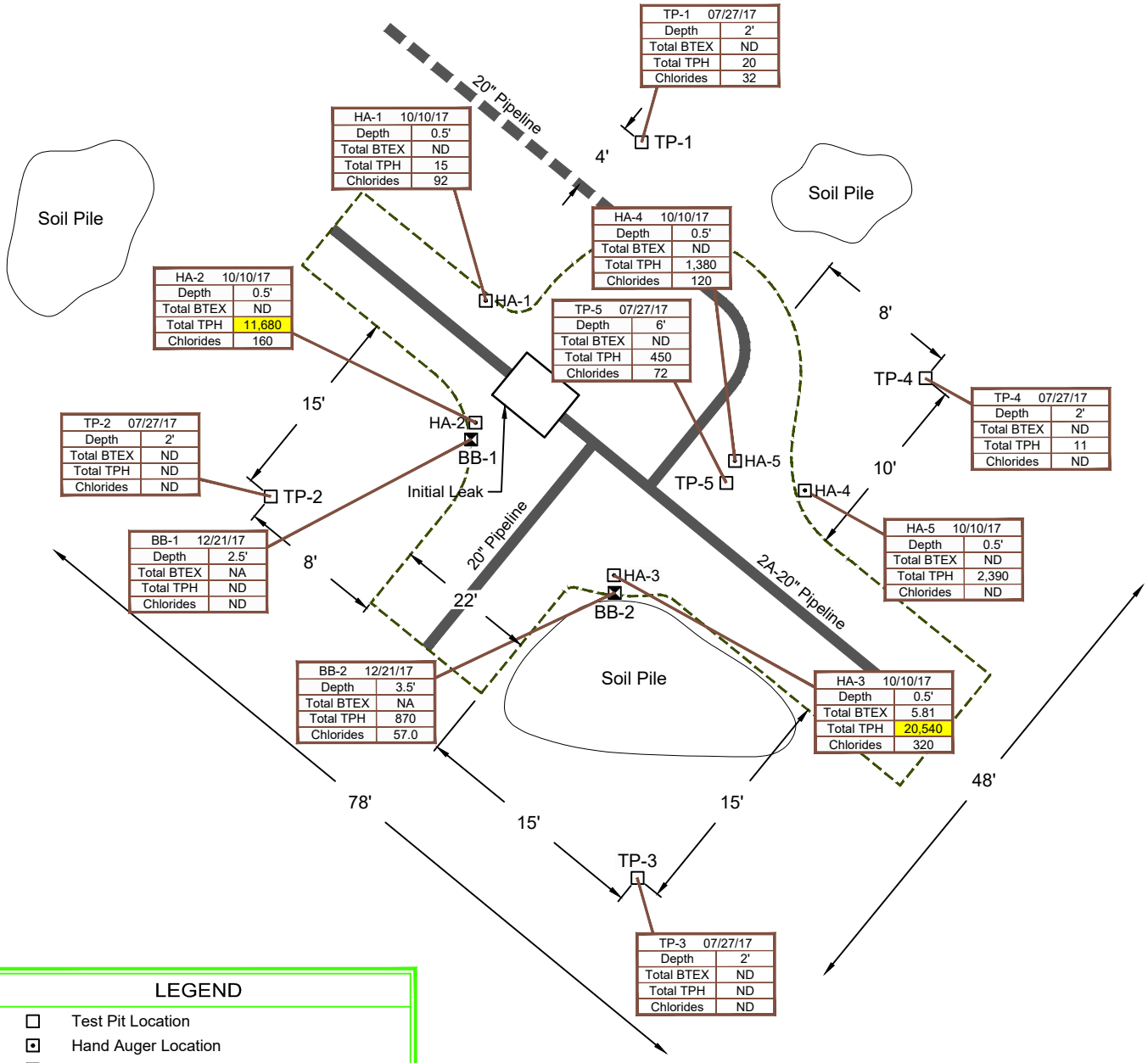
11135250-07

Aug 23, 2017

# SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135250-ETC Field Services\11135250-07(000)GN-DL001.dwg




## LEGEND

| | |
|---|---|
| ☐ | Test Pit Location |
| ⊡ | Hand Auger Location |
| ⊠ | Sample Location |
| ~ | Excavation Limits |
| BTEX | Benzene, Toluene, Ethylbenzene and Xylenes Concentration (mg/kg) |
| TPH | Total Petroleum Hydrocarbons Concentration (mg/kg) |
| ND | Not Detected |
| NA | Not Analyzed |

*NOTES:*

1. All site locations are approximate.
2. All results are in milligrams per kilogram (mg/kg).

Not to Scale

ETC FIELD SERVICES
LEA COUNTY, NEW MEXICO
2A-20"

11135250-07

Mar 21, 2018

# SOIL SAMPLE LOCATION

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135250-ETC Field Services\11135250-07(000)GN-DL001.dwg

# Attachments

# Attachment A
# Site Photographs


Photo 1 - Backfilled excavation


Photo 2 - Backfilled excavation

## Site Photographs

Photo 3 - Reseeding the backfilled excavation

Photo 3 - Hydrating the seeded area

# Attachment B
# Final Form C-141

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

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

# Release Notification and Corrective Action

## OPERATOR

☐ Initial Report ☒ Final Report

| | |
|---|---|
| Name of Company: ETC Field Services | Contact: Dean Ericson |
| Address: 600 N. Marienfeld Ste 700, Midland, TX 79701 | Telephone No.: 817-302-9758 (office) 432-238-2142 (cell) |
| Facility Name: 2A-20" | Facility Type: Pipeline |

| | | |
|---|---|---|
| Surface Owner: State of New Mexico | Mineral Owner: State | API No. |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| J | 32 | 23S | 37E | 2,207.9 | South | 1,500 | East | Lea |

**Latitude** 32.25972N **Longitude** 103.18139W

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Natural gas/Oil | Volume of Release: N/A bbls | Volume Recovered: 12bbls |
| Source of Release: Pipeline | Date and Hour of Occurrence 6/19/17 at 11am | Date and Hour of Discovery 6/19/17 at 11am |
| Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required | If YES, To Whom? Hobbs District Office | |
| By Whom? | Date and Hour | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. N/A | |

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
External corrosion caused an approx.. 2" x 8" hole to develop on a section of pipeline segment 2A-20". This section was uncovered, clampled and is currently shut in. Vaccum Truck responded and removed approx.. 12 bbls of standing fluid.

Describe Area Affected and Cleanup Action Taken.*
The area affected was approximately 22'x28'x4'. All standing fluid was removed. Impacted soil was stockpiled and sampled for disposal options. Impacted soil was excavated in the area until analytical results indicated that levels of BTEX, TPH and chloride were below site Recommended Remedial Action Limits (RRALs). A soil assessment report was submitted to the NMOCD with the analytical results and permission to backfill the excavation was received. Subsequently the excavation was backfilled with clean soil, wheel compacted, and reseeded with BLM mix #2 with no love grass. Remedial efforts were completed as of May 16, 2018.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

| | |
|---|---|
| Signature: Dean R. Ericson | OIL CONSERVATION DIVISION |
| Printed Name: Dean Ericson | Approved by Environmental Specialist: |
| Title: Sr. Environmental Specialist | Approval Date: / Expiration Date: |
| E-mail Address: Dean.Ericson@energyTransfer.com | Conditions of Approval: / Attached ☐ |
| Date: Phone: 817-302-9758 | |

* Attach Additional Sheets If Necessary

# Attachment C
# Remediation Summary Report

February 21, 2018 Reference No. 11135250-7

Mr. Dean Ericson
ETC Field Services LLC
600 N. Marienfeld
Suite 700
Midland, TX 79701

Dear Mr. Ericson:

**Re: Remediation Summary Report**
**2A-20" (1 RP-4735)**
**ETC Field Services LLC**
**Site Location: Unit J, Section 32, Township 23-South, Range 37-East**
**(Lat 32.25972N°, Long -103.18139W°)**
**Lea County, New Mexico**

GHD Services, Inc. (GHD) is pleased to present this report for the above referenced site. The 2A-20" (hereafter referred to as the "Site") is located within Unit J, Section 32, Township 23 South, Range 37 East, in Lea County, New Mexico (see Figure 1). The property is owned by the New Mexico State Land Office (NMSLO).

A release of an unknown quantity of natural gas and oil was reported to the State of New Mexico Oil Conservation Division (NMOCD) on June 21, 2017 via Form C-141. Corrosion caused an approximate 2-inch by 8-inch hole to develop on a section of the pipeline. Twelve barrels of the fluids were recovered with a vacuum truck. Contaminated soils were excavated and stockpiled on site (see Figure 2). NMOCD release number 1RP-4735 was assigned.

## 1. Recommended Remediation Action Limit

Based on information available from the New Mexico Office of the State Engineer New Mexico Water Rights Reporting System website, the closest well with a recorded depth to water is approximately 0.5 mile from the Site. The depth to groundwater measured in this well was 103 feet below ground surface (ft bgs).

Based on information available from the United States Geologic Survey (USGS) National Water Information System, the depth to groundwater at the Site is approximately 111 ft bgs. This is based on a water well that is located approximately 2 miles east, southeast of the Site (see Appendix A, Water Well Reports for depth to water). In addition to the USGS identified well, GHD performs groundwater monitoring at a site that is located approximately 0.8 mile to the east. Depth to water at that site is approximately 112 ft bgs.

There are no well head protection areas or surface water bodies within 1000 feet of the Site. Therefore, the preliminary total ranking score is 0.

Based on this score, the applicable NMOCD Site specific Recommended Remediation Action Limits (RRALs) are 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), 5,000 mg/kg for total petroleum hydrocarbons (TPH), and 600 mg/kg for chlorides.

| New Mexico Oil Conservation Division Site Assessment | |
|---|---|
| Ranking Criteria | Score |
| Depth to Ground Water (>100 ft bgs) | 0 |
| Wellhead Protection Area (>1000 ft from water source, > 200 ft from domestic source) | 0 |
| Distance to Surface Body Water (>1000 ft) | 0 |
| **Ranking Criteria Total Score** | **0*** |
| ***Because the ranking criteria total score is 0, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 5,000 mg/kg for total TPH and 600 ppm for chlorides[1]. | |

1. NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993 and recent discussions with Mr. Jim Griswold with the NMOCD.

## 2. Assessment Activities

The impacted area had initially been excavated to a depth of approximately 6 ft bgs and the soils stockpiled on site. Following the release, GHD's Site assessment activities began with initial background soil sampling and analysis and limited excavation on July 27, 2017. Initial assessment activities were performed by excavating test pits and field screening the soil using the PetroFLAG Hydrocarbon Analysis System and a Hach chloride field kit. Soil samples were collected from the base of the excavation (TP-5) and four test pits (TP-1 through TP-4). Excavation activities were performed by Diamondback Disposal Services, Inc. of Hobbs, New Mexico (Diamondback).

The soil samples were collected by GHD and analyzed by Hall Environmental Analysis Laboratory (HEAL) of Albuquerque, New Mexico The soil samples were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, total petroleum hydrocarbons (TPH) by EPA Method 8015 full range and chloride by EPA Method 300.0 (Table 1).

BTEX was not detected above the laboratory reporting limit (LRL) in any of the samples, total TPH concentrations ranged from below the LRL to 450 mg/kg, and chloride concentrations ranged from below the LRL to 72 mg/kg. The highest detected concentrations were found in the sample collected from TP-5. Laboratory analytical data can be found summarized in Table 1 and Figure 2 and the laboratory report can be found in Appendix B.

None of the samples analyzed contained concentrations exceeding the RRALs for the constituents that were analyzed.

An additional assessment was performed by GHD on October 10, 2017 that included hand auguring at five points (HA-1 through HA-5) closer to the release area. Samples were collected from a depth of 6 inches bgs and submitted to HEAL for BTEX, TPH, and chloride analyses. TPH concentrations in two of the sample locations, HA-2 and HA-3, exceeded the RRAL with concentrations of 11,680 and 20,540 mg/kg, respectively. All other detected concentrations were below the RRALs.

Additional excavation was performed by Diamondback in the areas of HA-2 and HA-3. GHD collected two additional soil samples from these areas on December 21, 2018 following the removal of the impacted soil. One sample, BB-1, was collected near HA-2 at a depth of 2.5 ft. bgs and BB-2 was collected near HA-3 at a depth of 3.5 ft. bgs. The samples were submitted to HEAL for TPH and chloride analyses. Both total TPH and chloride concentrations were below the RRALs for both samples.

## 3. Summary and Recommendations

Based on the assessment and excavation activities, it appears that the horizontal and vertical extent of hydrocarbon and chloride impacted soil has been assessed and the impacted soils removed. The soil sample collected from the base of the excavation at a depth of 6 ft bgs (see Figure 2) was submitted for laboratory analysis. The laboratory analytical results are below the RRALs for the constituents that were analyzed. The two areas containing TPH concentrations above the RRAL were excavated and re-sampled. All detected concentrations were below the RRALs.

Based on the laboratory results, GHD recommends backfilling the excavation with clean fill material and wheel compacting to grade. Following completion of the backfilling, revegetation of the Site will be performed. Disturbed areas associated with the remediation efforts will be re-seeded. If, after one growing season, the vegetation has not taken hold, seeding may need to be repeated until revegetation is successful, as determined by the State Land Office. The seed will be planted utilizing a drill. The proposed seed mix will consist of Bureau of Land Management mix #2 with no love grass.

The Site will be visited on a quarterly basis to assess the establishment of vegetative growth. Staff personnel performing the site visit will also look for the presence of noxious weeds at the Site as indicated on the New Mexico Noxious Weeds List specified on the United States Department of Agriculture website. If a noxious weed is observed at the Site, the New Mexico State Land Office will be contacted to determine the most effective manner to eradicate it.

Following completion of the above activities, a request for no further action will be made for the Site. Should you have any questions, or require additional information regarding this submittal, please feel free to contact myself or Bernie Bockisch at (505) 884-0672.

Sincerely,

GHD

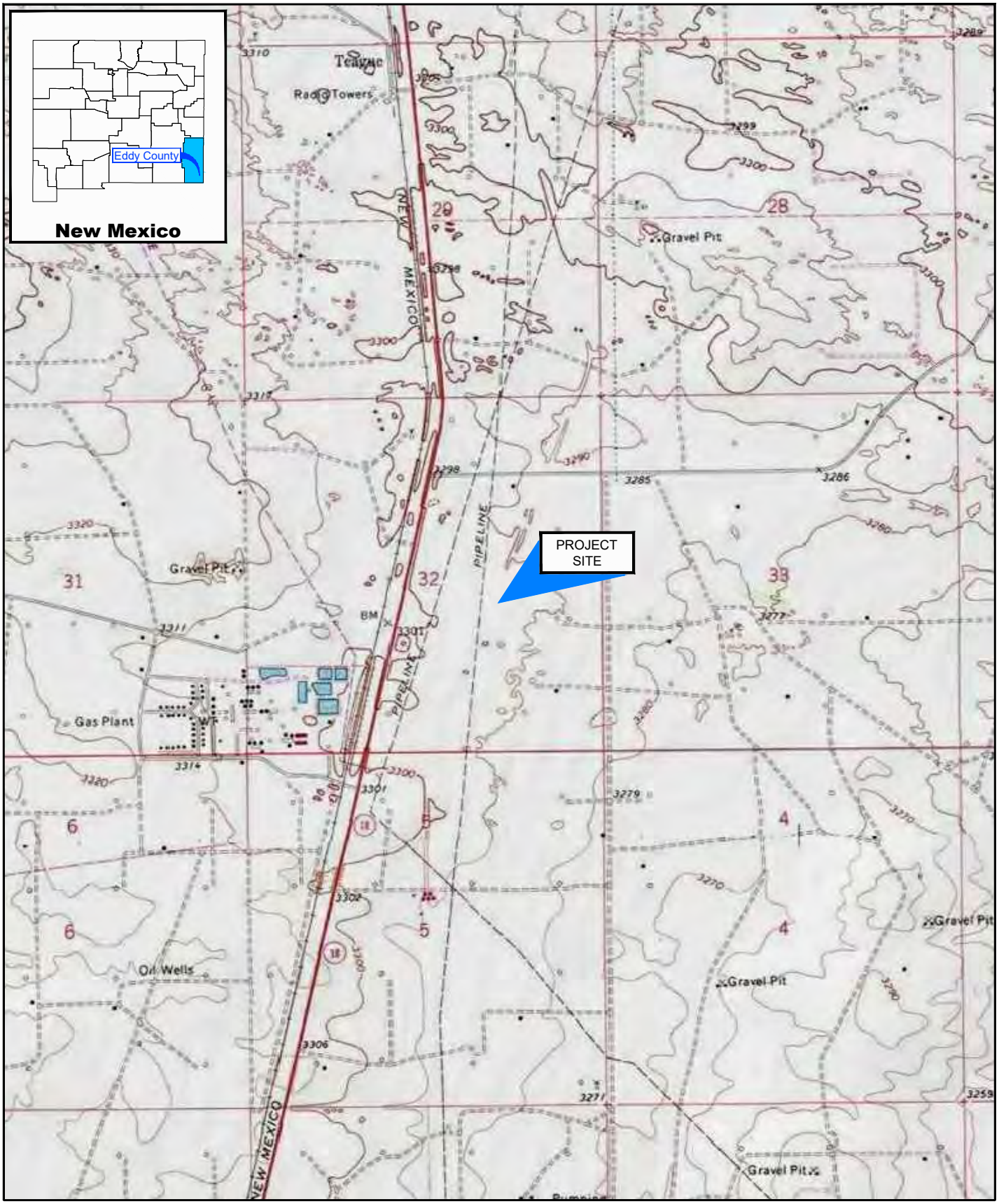
Alan Brandon
Senior Project Manager

Bernard Bockisch
New Mexico Operations Manager

AB/pd/01

Attachments: Figure 1
Figure 2
Table 1 – Soil Analytical Results Summary
Appendix A – Water Well Reports
Appendix B – Certified Laboratory Report

# Figures




Source: USGS 7.5 Minute Quad "Rattlesnake Canyon and Jal NW, New Mexico"

Lat/Long: 32.25972° North, 103.18139° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

ETC FIELD SERVICES
LEA COUNTY, NEW MEXICO
2A-20"

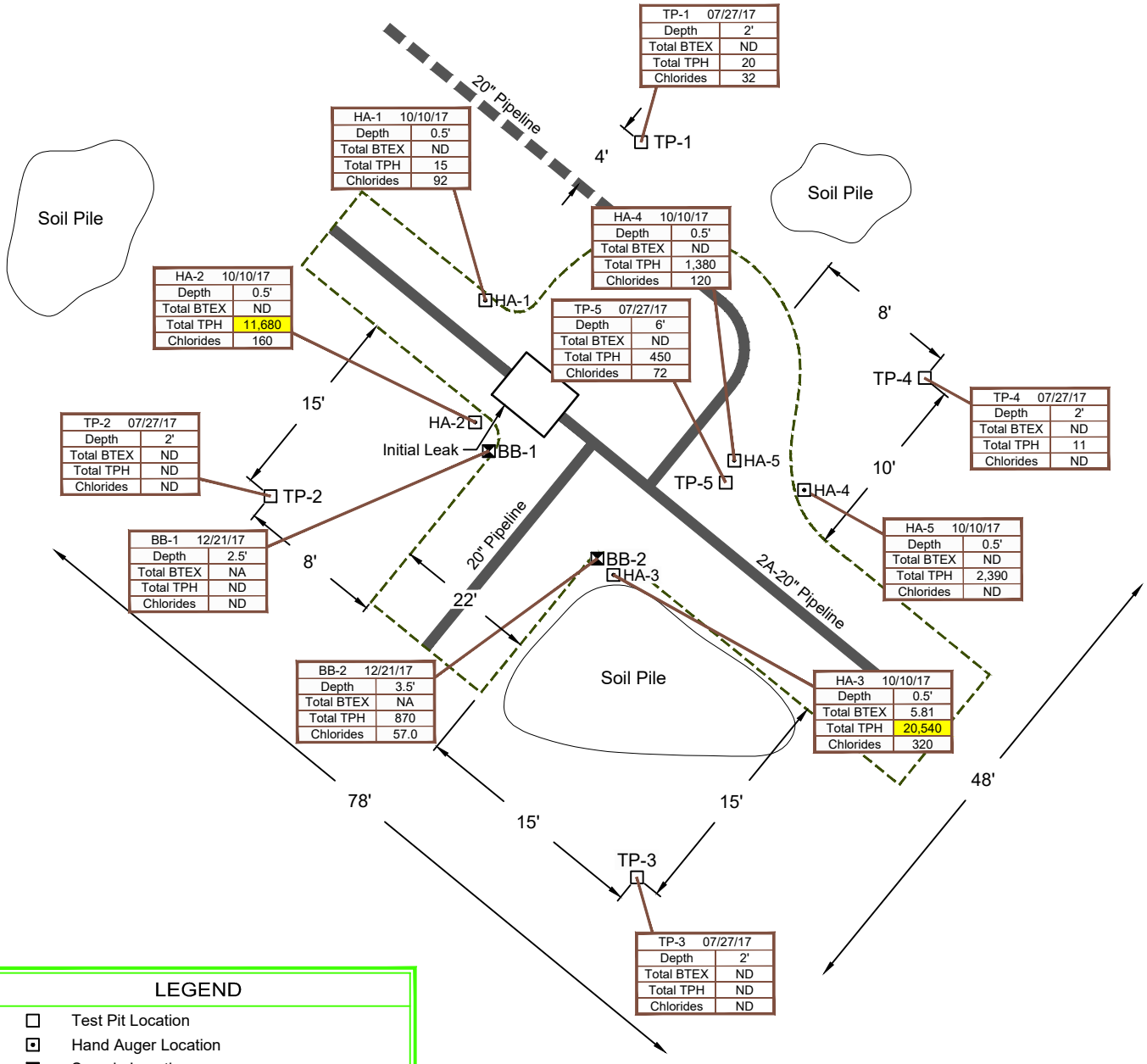
11135250-07

Aug 23, 2017

# SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135250-ETC Field Services\11135250-07(000)GN-DL001.dwg




## LEGEND

| | |
|---|---|
| ☐ | Test Pit Location |
| ⊡ | Hand Auger Location |
| ⊠ | Sample Location |
| ~ | Excavation Limits |
| BTEX | Benzene, Toluene, Ethylbenzene and Xylenes Concentration (mg/kg) |
| TPH | Total Petroleum Hydrocarbons Concentration (mg/kg) |
| ND | Not Detected |
| NA | Not Analyzed |

*NOTES:*

1. All site locations are approximate.
2. All results are in milligrams per kilogram (mg/kg).

Not to Scale

ETC FIELD SERVICES
LEA COUNTY, NEW MEXICO
2A-20"

11135250-07
Feb 7, 2018

SOIL SAMPLE LOCATION

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1113----\11135250-ETC Field Services\11135250-07(000)GN-DL001.dwg

# Tables

Table 1

ETC Field Services LLC - 2A-20"
Section 32, Township 23 South, Range 37 East
Lea County, New Mexico
Soil Analytical Results Summary

| Sample ID | Date | Sample Depth | Chlorides | Benzene | Toluene | Ethylbenzene | Xylenes | Total BTEX | TPH | TPH | TPH | Total TPH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft.) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | GRO (C6-C-10) (mg/kg) | DRO (C10-C28) (mg/kg) | MRO (C28-C36) (mg/kg) | GRO/DRO/MRO (mg/kg) |
| ***NMOCD Remediation Action Levels*** | | | ***600*** | ***10*** | ***NE*** | ***NE*** | ***NE*** | ***50*** | ***NE*** | ***NE*** | ***NE*** | ***5,000*** |
| **SOIL SAMPLES** | | | | | | | | | | | | |
| S11135250-07-072717-MG-TP-1-2 | 7/27/2017 | 2 | 32 | <0.024 | <0.047 | <0.047 | <0.095 | <0.213 | <4.7 | 20 | <49 | 20 |
| S11135250-07-072717-MG-TP-2-2 | 7/27/2017 | 2 | <30 | <0.023 | <0.047 | <0.047 | <0.093 | <0.210 | <4.7 | <9.8 | <49 | <63.5 |
| S11135250-07-072717-MG-TP-3-2 | 7/27/2017 | 2 | <30 | <0.024 | <0.048 | <0.048 | <0.097 | <0.217 | <4.8 | <9.5 | <48 | <62.3 |
| S11135250-07-072717-MG-TP-4-2 | 7/27/2017 | 2 | <30 | <0.024 | <0.048 | <0.048 | <0.095 | <0.215 | <4.8 | 11 | <51 | 11 |
| S11135250-07-072717-MG-TP-5-6 | 7/27/2017 | 6 | 72 | <0.024 | <0.048 | <0.048 | <0.097 | <0.217 | <4.8 | 160 | 290 | 450 |
| S-11135250-07-101017-MG-HA-1 | 10/10/2017 | 0.5 | 92 | <0.024 | <0.049 | <0.049 | <0.097 | <0.219 | <4.9 | 15 | <50 | 15 |
| S-11135250-07-101017-MG-HA-2 | 10/10/2017 | 0.5 | 160 | <0.023 | <0.046 | <0.046 | <0.093 | <0.208 | 80.0 | 8,400 | 3,200 | 11,680 |
| S-11135250-07-101017-MG-HA-3 | 10/10/2017 | 0.5 | 320 | <0.050 | 0.11 | 0.9 | 4.8 | 5.81 | 140.0 | 13,000 | 7,400 | 20,540 |
| S-11135250-07-101017-MG-HA-4 | 10/10/2017 | 0.5 | 120 | <0.024 | <0.048 | <0.048 | <0.097 | <0.217 | <4.8 | 790 | 590 | 1,380 |
| S-11135250-07-101017-MG-HA-5 | 10/10/2017 | 0.5 | <30 | <0.024 | <0.048 | <0.048 | <0.097 | <0.217 | <4.8 | 1,400 | 990 | 2,390 |
| 11135250-07-122117-BB-1 | 12/21/2017 | 2.5 | <30 | NA | NA | NA | NA | NA | <4.9 | <10 | <50 | <64.9 |
| 11135250-07-122117-BB-2 | 12/21/2017 | 3.5 | 57.0 | NA | NA | NA | NA | NA | <4.8 | 470 | 400 | 870 |

Note: Concentrations in yellow exceed the NMOCD Remediation Action Level

NE = Not Established
mg/Kg = milligrams per Kilogram
NA = Not Analyzed

# Appendix A
# Water Well Reports

USGS Home
Contact USGS
Search USGS

## National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

2A-20" ~2 miles S, SE

Click to hideNews Bulletins

Please see news on new formats
- Full News

Jal 4 ~ 0.8 mile east, NE

DTW ~ 112

Groundwater levels for the Nation

## Search Results -- 1 sites found

**site_no list =**
- 321345103111001

**Minimum number of levels =** 1

Save file of selected sites to local disk for future upload

---

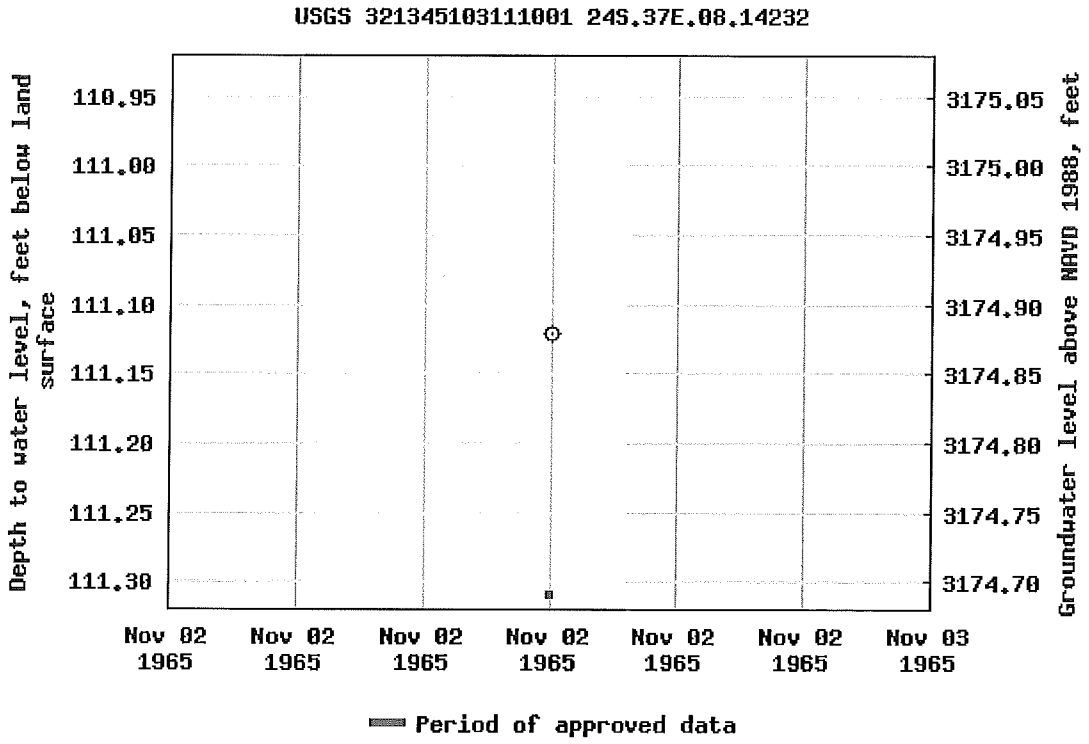
## USGS 321345103111001 24S.37E.08.14232

**Available data for this site** Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°13'45", Longitude 103°11'10" NAD27
Land-surface elevation 3,286 feet above NAVD88
The depth of the well is 185 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

**Output formats**

| |
|---|
| Table of data |
| Tab-separated data |
| Graph of data |
| Reselect period |




Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

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Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

**Title: Groundwater for USA: Water Levels**
**URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?**

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2017-06-30 09:02:33 EDT
0.57 0.49 nadww01

# New Mexico Office of the State Engineer
# Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

| POD Number | Code | POD Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Distance | Depth Well | Depth Water | Water Column |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00347 POD1 | | CP | LE | 3 | 2 | 3 | 33 | 23S | 37E | 672276 | 3570517* | 604 | 103 | | |
| CP 00350 POD1 | | CP | LE | 3 | 2 | 2 | 32 | 23S | 37E | 671458 | 3571309* | 780 | 7 | | |
| CP 01431 POD10 | | CP | LE | 3 | 3 | 4 | 32 | 23S | 37E | 671011 | 3570036 | 842 | 189 | 103 | 86 |
| CP 01431 POD9 | | CP | LE | 2 | 4 | 3 | 32 | 23S | 37E | 670866 | 3570255 | 861 | 189 | 111 | 78 |
| CP 00354 POD1 | | CP | LE | 3 | 1 | 2 | 32 | 23S | 37E | 671056 | 3571302* | 965 | 125 | | |
| CP 00037 POD3 | | CP | LE | | 4 | 3 | 32 | 23S | 37E | 670775 | 3570189* | 970 | 179 | 106 | 73 |
| CP 00037 POD5 | | CP | LE | | 4 | 3 | 32 | 23S | 37E | 670775 | 3570189* | 970 | 153 | | |
| CP 00037 POD5 | R | CP | LE | | 4 | 3 | 32 | 23S | 37E | 670775 | 3570189* | 970 | 153 | | |

Average Depth to Water: **106 feet**
Minimum Depth: **103 feet**
Maximum Depth: **111 feet**

**Record Count:** 8

**Basin/County Search:**

Basin: Capitan County: Lea

**UTMNAD83 Radius Search (in meters):**

Easting (X): 671672.49 Northing (Y): 3570558.96 Radius: 1000

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



8/16/17 9:45 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

# Appendix B
# Certified Laboratory 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*

August 05, 2017

Bernie Bockish

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: 2A-20 OrderNo.: 1707E88

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/28/2017 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order: **1707E88**
Date Reported: **8/5/2017**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A-20

**Lab Order:** 1707E88

**Lab ID:** 1707E88-001
**Collection Date:** 7/27/2017 10:40:00 AM
**Client Sample ID:** S1113525007-072717MGTP1-2'
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 32 | 30 | | mg/Kg | 20 | 8/3/2017 2:38:18 PM | 33153 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 20 | 9.8 | | mg/Kg | 1 | 8/2/2017 2:07:40 PM | 33114 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/2/2017 2:07:40 PM | 33114 |
| Surr: DNOP | 79.0 | 70-130 | | %Rec | 1 | 8/2/2017 2:07:40 PM | 33114 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Surr: BFB | 90.7 | 54-150 | | %Rec | 1 | 8/2/2017 4:58:02 PM | 33109 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Methyl tert-butyl ether (MTBE) | ND | 0.095 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/2/2017 4:58:02 PM | 33109 |
| Surr: 4-Bromofluorobenzene | 111 | 66.6-132 | | %Rec | 1 | 8/2/2017 4:58:02 PM | 33109 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A-20

**Lab Order:** 1707E88

**Lab ID:** 1707E88-002
**Collection Date:** 7/27/2017 10:50:00 AM
**Client Sample ID:** S1113525007-072717MGTP2-2'
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 8/3/2017 3:15:32 PM | 33153 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | ND | 9.8 | | mg/Kg | 1 | 8/2/2017 1:24:00 PM | 33114 |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/2/2017 1:24:00 PM | 33114 |
| Surr: DNOP | 70.1 | 70-130 | | %Rec | 1 | 8/2/2017 1:24:00 PM | 33114 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Surr: BFB | 89.0 | 54-150 | | %Rec | 1 | 8/2/2017 5:22:07 PM | 33109 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Methyl tert-butyl ether (MTBE) | ND | 0.093 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Xylenes, Total | ND | 0.093 | | mg/Kg | 1 | 8/2/2017 5:22:07 PM | 33109 |
| Surr: 4-Bromofluorobenzene | 104 | 66.6-132 | | %Rec | 1 | 8/2/2017 5:22:07 PM | 33109 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A-20

**Lab Order:** 1707E88

**Lab ID:** 1707E88-003
**Collection Date:** 7/27/2017 11:30:00 AM
**Client Sample ID:** S1113525007-072717MGTP3-2'
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 8/3/2017 3:52:45 PM | 33153 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | ND | 9.5 | | mg/Kg | 1 | 8/2/2017 1:45:20 PM | 33114 |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/2/2017 1:45:20 PM | 33114 |
| Surr: DNOP | 97.4 | 70-130 | | %Rec | 1 | 8/2/2017 1:45:20 PM | 33114 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Surr: BFB | 90.6 | 54-150 | | %Rec | 1 | 8/2/2017 5:46:14 PM | 33109 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Methyl tert-butyl ether (MTBE) | ND | 0.097 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2017 5:46:14 PM | 33109 |
| Surr: 4-Bromofluorobenzene | 109 | 66.6-132 | | %Rec | 1 | 8/2/2017 5:46:14 PM | 33109 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A-20

**Lab Order:** 1707E88

**Lab ID:** 1707E88-004
**Collection Date:** 7/27/2017 12:10:00 PM
**Client Sample ID:** S1113525007-072717MGTP5-6'
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 72 | 30 | | mg/Kg | 20 | 8/3/2017 4:05:10 PM | 33153 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 160 | 10 | | mg/Kg | 1 | 8/2/2017 12:37:34 PM | 33114 |
| Motor Oil Range Organics (MRO) | 290 | 50 | | mg/Kg | 1 | 8/2/2017 12:37:34 PM | 33114 |
| Surr: DNOP | 96.6 | 70-130 | | %Rec | 1 | 8/2/2017 12:37:34 PM | 33114 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Surr: BFB | 89.6 | 54-150 | | %Rec | 1 | 8/2/2017 6:10:18 PM | 33109 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Methyl tert-butyl ether (MTBE) | ND | 0.097 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2017 6:10:18 PM | 33109 |
| Surr: 4-Bromofluorobenzene | 108 | 66.6-132 | | %Rec | 1 | 8/2/2017 6:10:18 PM | 33109 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A-20

**Lab Order:** 1707E88

**Lab ID:** 1707E88-005
**Collection Date:** 7/27/2017 12:35:00 PM
**Client Sample ID:** S1113525007-072717MGTP4-2'
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 8/3/2017 4:17:34 PM | 33153 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 11 | 10 | | mg/Kg | 1 | 8/2/2017 1:23:16 PM | 33114 |
| Motor Oil Range Organics (MRO) | ND | 51 | | mg/Kg | 1 | 8/2/2017 1:23:16 PM | 33114 |
| Surr: DNOP | 97.2 | 70-130 | | %Rec | 1 | 8/2/2017 1:23:16 PM | 33114 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Surr: BFB | 87.7 | 54-150 | | %Rec | 1 | 8/2/2017 6:34:24 PM | 33109 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Methyl tert-butyl ether (MTBE) | ND | 0.095 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/2/2017 6:34:24 PM | 33109 |
| Surr: 4-Bromofluorobenzene | 109 | 66.6-132 | | %Rec | 1 | 8/2/2017 6:34:24 PM | 33109 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1707E88**

***07-Aug-17***

**Client:** GHD

**Project:** 2A-20

| Sample ID | **MB-33153** | SampType: | **MBLK** | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **33153** | RunNo: | **44718** | | | | | |
| Prep Date: | **8/3/2017** | Analysis Date: | **8/3/2017** | SeqNo: | **1414230** | Units: | **mg/Kg** | | | |

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

| Sample ID | **LCS-33153** | SampType: | **LCS** | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **33153** | RunNo: | **44718** | | | | | |
| Prep Date: | **8/3/2017** | Analysis Date: | **8/3/2017** | SeqNo: | **1414231** | Units: | **mg/Kg** | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 95.7 | 90 | 110 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1707E88**

***07-Aug-17***

**Client:** GHD

**Project:** 2A-20

| Sample ID | **LCS-33114** | SampType: | **LCS** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **33114** | | RunNo: | **44660** | | | | | |
| Prep Date: | **8/1/2017** | Analysis Date: | **8/2/2017** | | SeqNo: | **1411984** | Units: | **mg/Kg** | | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | | 43 | 10 | 50.00 | 0 | 86.8 | 73.2 | 114 | | | |
| Surr: DNOP | | 3.7 | | 5.000 | | 73.3 | 70 | 130 | | | |

| Sample ID | **MB-33114** | SampType: | **MBLK** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **33114** | | RunNo: | **44660** | | | | | |
| Prep Date: | **8/1/2017** | Analysis Date: | **8/2/2017** | | SeqNo: | **1411985** | 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 | | 8.3 | | 10.00 | | 82.7 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1707E88**

***07-Aug-17***

**Client:** GHD

**Project:** 2A-20

| Sample ID **MB-33109** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413152** 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 | 920 | | 1000 | | 91.8 | 54 | 150 | | | |

| Sample ID **LCS-33109** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413153** 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 | 91.7 | 76.4 | 125 | | | |
| Surr: BFB | 1000 | | 1000 | | 105 | 54 | 150 | | | |

| Sample ID **1707E88-002AMS** | SampType: **MS** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **S1113525007-07271** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413156** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 27 | 4.9 | 24.41 | 0 | 110 | 77.8 | 128 | | | |
| Surr: BFB | 1000 | | 976.6 | | 106 | 54 | 150 | | | |

| Sample ID **1707E88-002AMSD** | SampType: **MSD** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **S1113525007-07271** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413157** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 26 | 4.7 | 23.43 | 0 | 109 | 77.8 | 128 | 5.21 | 20 | |
| Surr: BFB | 1000 | | 937.2 | | 109 | 54 | 150 | 0 | 0 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1707E88**

***07-Aug-17***

**Client:** GHD

**Project:** 2A-20

| Sample ID **MB-33109** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413168** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | ND | 0.10 | | | | | | | | |
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 113 | 66.6 | 132 | | | |

| Sample ID **LCS-33109** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413169** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | 0.97 | 0.10 | 1.000 | 0 | 97.4 | 66.5 | 120 | | | |
| Benzene | 1.0 | 0.025 | 1.000 | 0 | 103 | 80 | 120 | | | |
| Toluene | 1.0 | 0.050 | 1.000 | 0 | 101 | 80 | 120 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 102 | 80 | 120 | | | |
| Xylenes, Total | 3.1 | 0.10 | 3.000 | 0 | 103 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 112 | 66.6 | 132 | | | |

| Sample ID **1707E88-001AMS** | SampType: **MS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **S1113525007-07271** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413171** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | 1.0 | 0.097 | 0.9737 | 0 | 104 | 72.5 | 138 | | | |
| Benzene | 1.1 | 0.024 | 0.9737 | 0 | 110 | 80.9 | 132 | | | |
| Toluene | 1.1 | 0.049 | 0.9737 | 0.01069 | 108 | 79.8 | 136 | | | |
| Ethylbenzene | 1.1 | 0.049 | 0.9737 | 0 | 111 | 79.4 | 140 | | | |
| Xylenes, Total | 3.3 | 0.097 | 2.921 | 0.01514 | 111 | 78.5 | 142 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 0.9737 | | 110 | 66.6 | 132 | | | |

| Sample ID **1707E88-001AMSD** | SampType: **MSD** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **S1113525007-07271** | Batch ID: **33109** | RunNo: **44673** |
| Prep Date: **8/1/2017** | Analysis Date: **8/2/2017** | SeqNo: **1413172** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether (MTBE) | 0.99 | 0.093 | 0.9346 | 0 | 106 | 72.5 | 138 | 2.43 | 20 | |
| Benzene | 1.0 | 0.023 | 0.9346 | 0 | 110 | 80.9 | 132 | 3.52 | 20 | |
| Toluene | 1.0 | 0.047 | 0.9346 | 0.01069 | 109 | 79.8 | 136 | 3.59 | 20 | |
| Ethylbenzene | 1.0 | 0.047 | 0.9346 | 0 | 112 | 79.4 | 140 | 2.94 | 20 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1707E88**

***07-Aug-17***

**Client:** GHD

**Project:** 2A-20

Sample ID **1707E88-001AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **S1113525007-07271** Batch ID: **33109** RunNo: **44673**

Prep Date: **8/1/2017** Analysis Date: **8/2/2017** SeqNo: **1413172** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Xylenes, Total | 3.2 | 0.093 | 2.804 | 0.01514 | 114 | 78.5 | 142 | 1.63 | 20 | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 0.9346 | | 112 | 66.6 | 132 | 0 | 0 | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

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: GHD | Work Order Number: 1707E88 | RcptNo: 1

Received By: **Isaiah Ortiz** 7/28/2017 10:00:00 AM

Completed By: **Erin Melendrez** 7/30/2017 2:48:48 PM

Reviewed By: 7/31/17

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 2. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 3. How was the sample delivered? | Client | | |

## Log In

| | | | |
|---|---|---|---|
| 4. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | # of preserved bottles checked for pH: (<2 or >12 unless noted) |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | Adjusted? |
| 14. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 15. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | Checked by: |

## Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 5.0 | Good | Not Present | | | |

# Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd. Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: 2A-28

Project #: 1113525O-07

Project Manager: Bernard Bockisch

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 5.0


**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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


| Date | Time | Matrix | Sample Request ID | Container Type and # | Preservative Type | HEAL No. 1707E88 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gas only) | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions (F,Cl,$NO_3$,$NO_2$,$PO_4$,$SO_4$) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | Chloride (300) | | | | Air Bubbles (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/27 | 1040 | S | S-11135250-07-072717-MG-TP-1-2' | 4oz Soil | ICE | -001 | X | | X | | | | | | | | | X | | | | |
| 7/27 | 1050 | S | S-11135250-07-072717-MG-TP2-2' | | | -002 | X | | X | | | | | | | | | X | | | | |
| 7/27 | 1130 | S | S-11135250-07-072717-MG-TP-3-2' | | | -003 | X | | X | | | | | | | | | X | | | | |
| 7/27 | 1210 | S | S-11135250-07-072717-MG-TP-5-6' | | | -004 | X | | X | | | | | | | | | X | | | | |
| 7/27 | 1235 | S | S-11135250-07-072717-MG-TP-4-2' | | | -005 | X | | X | | | | | | | | | X | | | | |

| Date | Time | Relinquished by: | Received by: | Date | Time |
|---|---|---|---|---|---|
| 7/27 | 1430 | | | 7/27/17 | 1430 |
| 7/28/17 | 1900 | | | 7/28/17 | 10:00 |

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

October 18, 2017

Bernie Bockisch

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: 2A 20 OrderNo.: 1710678

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 5 sample(s) on 10/12/2017 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A 20

**Lab Order:** 1710678

**Lab ID:** 1710678-001 **Collection Date:** 10/10/2017 11:30:00 AM
**Client Sample ID:** S-11135250-07-101017-MG-HA-1 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 92 | 30 | | mg/Kg | 20 | 10/13/2017 2:44:01 PM | 34404 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 15 | 10 | | mg/Kg | 1 | 10/16/2017 6:43:03 PM | 34401 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 10/16/2017 6:43:03 PM | 34401 |
| Surr: DNOP | 80.8 | 70-130 | | %Rec | 1 | 10/16/2017 6:43:03 PM | 34401 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 10/13/2017 5:53:24 PM | 34383 |
| Surr: BFB | 94.3 | 54-150 | | %Rec | 1 | 10/13/2017 5:53:24 PM | 34383 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 10/13/2017 5:53:24 PM | 34383 |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 10/13/2017 5:53:24 PM | 34383 |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 10/13/2017 5:53:24 PM | 34383 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 10/13/2017 5:53:24 PM | 34383 |
| Surr: 4-Bromofluorobenzene | 98.9 | 66.6-132 | | %Rec | 1 | 10/13/2017 5:53:24 PM | 34383 |

**Lab ID:** 1710678-002 **Collection Date:** 10/10/2017 11:32:00 AM
**Client Sample ID:** S-11135250-07-101017-MG-HA-2 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 160 | 30 | | mg/Kg | 20 | 10/13/2017 3:21:15 PM | 34404 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 8400 | 97 | | mg/Kg | 10 | 10/16/2017 2:59:55 PM | 34401 |
| Motor Oil Range Organics (MRO) | 3200 | 490 | | mg/Kg | 10 | 10/16/2017 2:59:55 PM | 34401 |
| Surr: DNOP | 0 | 70-130 | S | %Rec | 10 | 10/16/2017 2:59:55 PM | 34401 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 80 | 4.6 | | mg/Kg | 1 | 10/13/2017 6:16:46 PM | 34383 |
| Surr: BFB | 664 | 54-150 | S | %Rec | 1 | 10/13/2017 6:16:46 PM | 34383 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 10/13/2017 6:16:46 PM | 34383 |
| Toluene | ND | 0.046 | | mg/Kg | 1 | 10/13/2017 6:16:46 PM | 34383 |
| Ethylbenzene | ND | 0.046 | | mg/Kg | 1 | 10/13/2017 6:16:46 PM | 34383 |
| Xylenes, Total | ND | 0.093 | | mg/Kg | 1 | 10/13/2017 6:16:46 PM | 34383 |
| Surr: 4-Bromofluorobenzene | 131 | 66.6-132 | | %Rec | 1 | 10/13/2017 6:16:46 PM | 34383 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A 20

**Lab Order:** 1710678

**Lab ID:** 1710678-003 **Collection Date:** 10/10/2017 11:35:00 AM
**Client Sample ID:** S-11135250-07-101017-MG-HA-3 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 320 | 30 | | mg/Kg | 20 | 10/13/2017 3:33:40 PM | 34404 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 13000 | 960 | | mg/Kg | 100 | 10/16/2017 11:18:55 AM | 34401 |
| Motor Oil Range Organics (MRO) | 7400 | 4800 | | mg/Kg | 100 | 10/16/2017 11:18:55 AM | 34401 |
| Surr: DNOP | 0 | 70-130 | S | %Rec | 100 | 10/16/2017 11:18:55 AM | 34401 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | 140 | 9.9 | | mg/Kg | 2 | 10/13/2017 7:03:37 PM | 34383 |
| Surr: BFB | 389 | 54-150 | S | %Rec | 2 | 10/13/2017 7:03:37 PM | 34383 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.050 | | mg/Kg | 2 | 10/13/2017 7:03:37 PM | 34383 |
| Toluene | 0.11 | 0.099 | | mg/Kg | 2 | 10/13/2017 7:03:37 PM | 34383 |
| Ethylbenzene | 0.90 | 0.099 | | mg/Kg | 2 | 10/13/2017 7:03:37 PM | 34383 |
| Xylenes, Total | 4.8 | 0.20 | | mg/Kg | 2 | 10/13/2017 7:03:37 PM | 34383 |
| Surr: 4-Bromofluorobenzene | 123 | 66.6-132 | | %Rec | 2 | 10/13/2017 7:03:37 PM | 34383 |

**Lab ID:** 1710678-004 **Collection Date:** 10/10/2017 11:40:00 AM
**Client Sample ID:** S-11135250-07-101017-MG-HA-4 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 120 | 30 | | mg/Kg | 20 | 10/13/2017 3:46:04 PM | 34404 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 790 | 9.7 | | mg/Kg | 1 | 10/16/2017 7:11:08 PM | 34401 |
| Motor Oil Range Organics (MRO) | 590 | 48 | | mg/Kg | 1 | 10/16/2017 7:11:08 PM | 34401 |
| Surr: DNOP | 108 | 70-130 | | %Rec | 1 | 10/16/2017 7:11:08 PM | 34401 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 10/13/2017 7:50:29 PM | 34383 |
| Surr: BFB | 88.7 | 54-150 | | %Rec | 1 | 10/13/2017 7:50:29 PM | 34383 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 10/13/2017 7:50:29 PM | 34383 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 10/13/2017 7:50:29 PM | 34383 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 10/13/2017 7:50:29 PM | 34383 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 10/13/2017 7:50:29 PM | 34383 |
| Surr: 4-Bromofluorobenzene | 95.5 | 66.6-132 | | %Rec | 1 | 10/13/2017 7:50:29 PM | 34383 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A 20

**Lab Order:** 1710678

**Lab ID:** 1710678-005
**Collection Date:** 10/10/2017 11:45:00 AM
**Client Sample ID:** S-11135250-07-101017-MG-HA-5
**Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 10/13/2017 3:58:28 PM | 34404 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 1400 | 92 | | mg/Kg | 10 | 10/17/2017 1:09:35 PM | 34401 |
| Motor Oil Range Organics (MRO) | 990 | 460 | | mg/Kg | 10 | 10/17/2017 1:09:35 PM | 34401 |
| Surr: DNOP | 0 | 70-130 | S | %Rec | 10 | 10/17/2017 1:09:35 PM | 34401 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 10/13/2017 8:13:56 PM | 34383 |
| Surr: BFB | 93.0 | 54-150 | | %Rec | 1 | 10/13/2017 8:13:56 PM | 34383 |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **NSB** | |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 10/13/2017 8:13:56 PM | 34383 |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 10/13/2017 8:13:56 PM | 34383 |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 10/13/2017 8:13:56 PM | 34383 |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 10/13/2017 8:13:56 PM | 34383 |
| Surr: 4-Bromofluorobenzene | 96.4 | 66.6-132 | | %Rec | 1 | 10/13/2017 8:13:56 PM | 34383 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1710678**

***18-Oct-17***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **MB-34404** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **34404** | | RunNo: | **46328** | | | | |
| Prep Date: | **10/13/2017** | Analysis Date: | **10/13/2017** | | SeqNo: | **1476892** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-34404** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **34404** | | RunNo: | **46328** | | | | |
| Prep Date: | **10/13/2017** | Analysis Date: | **10/13/2017** | | SeqNo: | **1476893** | 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. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1710678**

***18-Oct-17***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **LCS-34401** | SampType: | **LCS** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **34401** | | RunNo: | **46361** | | | | | |
| Prep Date: | **10/13/2017** | Analysis Date: | **10/16/2017** | | SeqNo: | **1476752** | Units: | **mg/Kg** | | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | | 46 | 10 | 50.00 | 0 | 92.3 | 73.2 | 114 | | | |
| Surr: DNOP | | 4.6 | | 5.000 | | 92.8 | 70 | 130 | | | |

| Sample ID | **MB-34401** | SampType: | **MBLK** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **34401** | | RunNo: | **46361** | | | | | |
| Prep Date: | **10/13/2017** | Analysis Date: | **10/16/2017** | | SeqNo: | **1476753** | 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 | | 8.9 | | 10.00 | | 89.0 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1710678**

***18-Oct-17***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **MB-34383** | SampType: | **MBLK** | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **34383** | RunNo: | **46333** | | | | | |
| Prep Date: | **10/12/2017** | Analysis Date: | **10/13/2017** | SeqNo: | **1476152** | 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 | 54 | 150 | | | |

| Sample ID | **LCS-34383** | SampType: | **LCS** | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **34383** | RunNo: | **46333** | | | | | |
| Prep Date: | **10/12/2017** | Analysis Date: | **10/13/2017** | SeqNo: | **1476153** | Units: | **mg/Kg** | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 30 | 5.0 | 25.00 | 0 | 119 | 75.9 | 131 | | | |
| Surr: BFB | 1100 | | 1000 | | 109 | 54 | 150 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1710678**

***18-Oct-17***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **MB-34383** | SampType: **MBLK** | | TestCode: **EPA Method 8021B: Volatiles** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: **34383** | | RunNo: **46333** | | | | | |
| Prep Date: | **10/12/2017** | Analysis Date: **10/13/2017** | | SeqNo: **1476175** | | Units: **mg/Kg** | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 66.6 | 132 | | | |

| Sample ID | **LCS-34383** | SampType: **LCS** | | TestCode: **EPA Method 8021B: Volatiles** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: **34383** | | RunNo: **46333** | | | | | |
| Prep Date: | **10/12/2017** | Analysis Date: **10/13/2017** | | SeqNo: **1476176** | | Units: **mg/Kg** | | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.97 | 0.025 | 1.000 | 0 | 97.1 | 80 | 120 | | | |
| Toluene | 0.97 | 0.050 | 1.000 | 0 | 97.0 | 80 | 120 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 99.6 | 80 | 120 | | | |
| Xylenes, Total | 3.0 | 0.10 | 3.000 | 0 | 99.4 | 80 | 120 | | | |
| Surr: 4-Bromofluorobenzene | 1.0 | | 1.000 | | 102 | 66.6 | 132 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

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: GHD | Work Order Number: 1710678 | RcptNo: 1

Received By: Isaiah Ortiz 10/12/2017 9:15:00 AM

Completed By: Sophia Campuzano 10/12/2017 10:05:00 AM

Reviewed By: DDS 10/12/17

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 2. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 3. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 4. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | # of preserved bottles checked for pH: _____ (<2 or >12 unless noted) |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | Adjusted? _____ |
| 14. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 15. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | Checked by: _____ |

## Special Handling (if applicable)

16. 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: | | | |

17. Additional remarks:

18. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 0.3 | Good | Yes | | | |

# Chain-of-Custody Record

Client: GHD Services, Inc.

Mailing Address: 6121 Indian School Rd Ste 200 NE Albuquerque, NM 87110

Phone #: 505 884 0672

email or Fax#: Bernard.Bockisch@ghd.com

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: 2A-20

Project #: 111135250-07

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.3


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


| Date | Time | Matrix | Sample Request ID | Container Type and # | Preservative Type | HEAL No. | BTEX + ~~MTBE + TMB's~~ (8021) | BTEX + MTBE + TPH (Gas only) | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | Chloride 300 | | | | Air Bubbles (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/10/17 | | | | | | 1710678 | | | | | | | | | | | | | | | | |
| 10/10/17 | 1130 | S | S-111135250-07-101017-MG-HA-1 | 4oz Soil Jar | ICE | -001 | X | | X | | | | | | | | | X | | | | |
| 10/10/17 | 1132 | S | S-111135250-07-101017-MG-HA-2 | | | -002 | X | | X | | | | | | | | | X | | | | |
| 10/10/17 | 1135 | S | S-111135250-07-101017-MG-HA-3 | | | -003 | X | | X | | | | | | | | | X | | | | |
| 10/10/17 | 1140 | S | S-111135250-07-101017-MG-HA-4 | | | -004 | X | | X | | | | | | | | | X | | | | |
| 10/10/17 | 1145 | S | S-111135250-07-101017-MG-HA-5 | | | -005 | X | | X | | | | | | | | | X | | | | |

Analysis Request

| Date: | Time: | Relinquished by: | Received by: | Date | Time |
|---|---|---|---|---|---|
| 10/11/17 | 1530 | | | 10/11/17 | 1530 |
| Date: | Time: | Relinquished by: | Received by: | Date | Time |
| 10/11/17 | 1900 | | | 10/12/17 | 09:15 |

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

January 11, 2018

Bernie Bockisch

GHD
6121 Indian School Road, NE #200
Albuquerque, NM 87110
TEL: (505) 884-0672
FAX

RE: 2A 20 OrderNo.: 1712D88

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/22/2017 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 #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** GHD
**Project:** 2A 20

**Lab Order:** 1712D88

**Lab ID:** 1712D88-001 **Collection Date:** 12/21/2017 9:26:00 AM
**Client Sample ID:** 11135250-7-122117-BB1 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | ND | 30 | | mg/Kg | 20 | 1/9/2018 2:21:23 PM | 35887 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | ND | 10 | | mg/Kg | 1 | 12/29/2017 1:57:55 PM | 35722 |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 12/29/2017 1:57:55 PM | 35722 |
| Surr: DNOP | 115 | 70-130 | | %Rec | 1 | 12/29/2017 1:57:55 PM | 35722 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 12/27/2017 10:59:16 AM | 35701 |
| Surr: BFB | 104 | 15-316 | | %Rec | 1 | 12/27/2017 10:59:16 AM | 35701 |

**Lab ID:** 1712D88-002 **Collection Date:** 12/21/2017 9:30:00 AM
**Client Sample ID:** 11135250-7-122117-BB2 **Matrix:** SOIL

| Analyses | Result | PQL | Qual | Units | DF | Date Analyzed | Batch ID |
|---|---|---|---|---|---|---|---|
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **MRA** | |
| Chloride | 57 | 30 | | mg/Kg | 20 | 1/9/2018 2:33:48 PM | 35887 |
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **TOM** | |
| Diesel Range Organics (DRO) | 470 | 9.8 | | mg/Kg | 1 | 12/29/2017 2:22:21 PM | 35722 |
| Motor Oil Range Organics (MRO) | 400 | 49 | | mg/Kg | 1 | 12/29/2017 2:22:21 PM | 35722 |
| Surr: DNOP | 118 | 70-130 | | %Rec | 1 | 12/29/2017 2:22:21 PM | 35722 |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **NSB** | |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 12/27/2017 2:58:40 PM | 35701 |
| Surr: BFB | 141 | 15-316 | | %Rec | 1 | 12/27/2017 2:58:40 PM | 35701 |

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 | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1712D88**

***11-Jan-18***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **MB-35887** | SampType: | **mblk** | | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **35887** | | RunNo: | **48295** | | | | | |
| Prep Date: | **1/6/2018** | Analysis Date: | **1/7/2018** | | SeqNo: | **1551034** | Units: | **mg/Kg** | | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | | ND | 1.5 | | | | | | | | |

| Sample ID | **LCS-35887** | SampType: | **lcs** | | TestCode: | **EPA Method 300.0: Anions** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **35887** | | RunNo: | **48295** | | | | | |
| Prep Date: | **1/6/2018** | Analysis Date: | **1/7/2018** | | SeqNo: | **1551035** | Units: | **mg/Kg** | | | |
| Analyte | | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Chloride | | 15 | 1.5 | 15.00 | 0 | 96.7 | 90 | 110 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1712D88**

***11-Jan-18***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **LCS-35722** | SampType: | **LCS** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **35722** | | RunNo: | **48059** | | | | |
| Prep Date: | **12/27/2017** | Analysis Date: | **12/28/2017** | | SeqNo: | **1540466** | Units: | **mg/Kg** | | |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 45 | 10 | 50.00 | 0 | 90.4 | 73.2 | 114 | | | |
| Surr: DNOP | 4.5 | | 5.000 | | 90.1 | 70 | 130 | | | |

| Sample ID | **MB-35722** | SampType: | **MBLK** | | TestCode: | **EPA Method 8015M/D: Diesel Range Organics** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **35722** | | RunNo: | **48059** | | | | |
| Prep Date: | **12/27/2017** | Analysis Date: | **12/28/2017** | | SeqNo: | **1540467** | 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 | 9.9 | | 10.00 | | 99.4 | 70 | 130 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1712D88**

***11-Jan-18***

**Client:** GHD

**Project:** 2A 20

| Sample ID | **MB-35701** | SampType: | **MBLK** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **35701** | | RunNo: | **48032** | | | | |
| Prep Date: | **12/26/2017** | Analysis Date: | **12/27/2017** | | SeqNo: | **1539809** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 1100 | | 1000 | | 114 | 15 | 316 | | | |

| Sample ID | **LCS-35701** | SampType: | **LCS** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **35701** | | RunNo: | **48032** | | | | |
| Prep Date: | **12/26/2017** | Analysis Date: | **12/27/2017** | | SeqNo: | **1539810** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 27 | 5.0 | 25.00 | 0 | 109 | 75.9 | 131 | | | |
| Surr: BFB | 1200 | | 1000 | | 124 | 15 | 316 | | | |

| Sample ID | **1712D88-001AMS** | SampType: | **MS** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **11135250-7-122117-** | Batch ID: | **35701** | | RunNo: | **48032** | | | | |
| Prep Date: | **12/26/2017** | Analysis Date: | **12/27/2017** | | SeqNo: | **1539812** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 30 | 4.9 | 24.30 | 0 | 125 | 77.8 | 128 | | | |
| Surr: BFB | 1200 | | 971.8 | | 121 | 15 | 316 | | | |

| Sample ID | **1712D88-001AMSD** | SampType: | **MSD** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **11135250-7-122117-** | Batch ID: | **35701** | | RunNo: | **48032** | | | | |
| Prep Date: | **12/26/2017** | Analysis Date: | **12/27/2017** | | SeqNo: | **1539813** | Units: | **mg/Kg** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 32 | 4.9 | 24.63 | 0 | 128 | 77.8 | 128 | 3.74 | 20 | S |
| Surr: BFB | 1200 | | 985.2 | | 123 | 15 | 316 | 0 | 0 | |

| Sample ID | **MB-35757** | SampType: | **MBLK** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **PBS** | Batch ID: | **35757** | | RunNo: | **48111** | | | | |
| Prep Date: | **12/28/2017** | Analysis Date: | **12/29/2017** | | SeqNo: | **1542681** | Units: | **%Rec** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Surr: BFB | 830 | | 1000 | | 83.3 | 15 | 316 | | | |

| Sample ID | **LCS-35757** | SampType: | **LCS** | | TestCode: | **EPA Method 8015D: Gasoline Range** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | **LCSS** | Batch ID: | **35757** | | RunNo: | **48111** | | | | |
| Prep Date: | **12/28/2017** | Analysis Date: | **12/29/2017** | | SeqNo: | **1542682** | Units: | **%Rec** | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Surr: BFB | 950 | | 1000 | | 94.6 | 15 | 316 | | | |

**Qualifiers:**

| | | | |
|---|---|---|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Value above quantitation range |
| 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 Detection Limit |
| S | % Recovery outside of range due to dilution or matrix | W | Sample container temperature is out of limit as specified |

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: GHD | Work Order Number: 1712D88 | ReptNo: 1

Received By: Erin Melendrez 12/22/2017 9:40:00 AM

Completed By: Sophia Campuzano 12/22/2017 1:50:53 PM

Reviewed By: DDS 12/26/17

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 2. Is Chain of Custody complete? | Yes ☑ | No ☐ | Not Present ☐ |
| 3. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 4. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA Vials ☑ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | # of preserved bottles checked for pH: _____ (<2 or >12 unless noted) |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | Adjusted? |
| 14. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 15. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | Checked by: _____ |

## Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 4.6 | Good | Yes | | | |

# Chain-of-Custody Record

Client: GHD SERVICES, INC.

Mailing Address: 6121 INDIAN SCHOOL RD, STE 200
ALBUQUERQUE, NM 87110

Phone #: 505-884-0672

email or Fax#: BERNARD.BOCHICCHI@GHD.COM

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: 2A-20

Project #: 11135260/7

Project Manager: BERNARD BOCHICCHI

Sampler: Bernard Bochicchi

On Ice: ☑ Yes ☐ No

Sample Temperature: 5.1 - 0.5 (CF) = 4.6

**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 Request ID | Container Type and # | Preservative Type | HEAL No. 1712D88 | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gas only) | TPH 8015B (GRO / DRO / MRO) | TPH (Method 418.1) | EDB (Method 504.1) | PAH's (8310 or 8270 SIMS) | RCRA 8 Metals | Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | CHLORIDE (300) | Air Bubbles (Y or N) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/21/17 | 9:26 | SOIL | 11135260-7-122117-BB1 | 4oz | ICE | -001 | | | ✓ | | | | | | | | | ✓ | |
| 12/21/17 | 9:36 | SOIL | 11135260-7-122117-BB2 | 4oz | ICE | -002 | | | ✓ | | | | | | | | | ✓ | |

Date: 12/21/17 Time: 1330 Relinquished by: Bernard Bochicchi Received by: [signature] Date: 12/21/17 Time: 1940

Date: 12/21/17 Time: 1900 Relinquished by: [signature] Received by: [signature] Date: 12/22/17 Time: 0940

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.