



August 16, 2017

Reference No. 11135250-6

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

Dear Mr. Ericson:

**Re: Remediation Summary Report
TD-5 10" (1 RP-4499)
ETC Field Services LLC
2RP-4273
Site Location: Unit B, Sec. 23, T 26-S, R 30-E
(Lat 32.032164N°, Long -103.849038W°)
Eddy County, New Mexico**

GHD Services, Inc. (GHD) is pleased to present this report for the above referenced site. The TD-5 10" (hereafter referred to as the "Site") is located within Unit B, Section 23, Township 26 South, Range 30 East, in Eddy County, New Mexico (see Figure 1).

A release of approximately 11.68 barrels (bbls) of oil and water was reported to the State of New Mexico Oil Conservation Division (NMOCD) On June 23, 2017 via Form C-141. Corrosion caused an approximate 0.25-inch hole to develop on a section of the pipeline. None of the fluids were recovered. Contaminated soils were excavated and stockpiled on site (see Figure 2). NMOCD release number 2RP-4273 was assigned.

1. Introduction

The release at this site occurred on land owned by the Bureau of Land Management. Following the release, GHD's Site assessment activities began with initial background soil sampling and analysis and limited excavation on July 24, 2017. Initial assessment activities were performed by excavating test pits and field screening the soil utilizing a photoionization detector and a Hach chloride field kit. Six test pits were excavated and soil samples were collected for laboratory analysis. Excavation activities were performed by Diamond Back of Hobbs, New Mexico. Observation of the excavation and soil sampling was performed by GHD. Soil samples were analyzed by Hall Environmental Analysis Laboratory (HEAL) of Albuquerque, New Mexico.

Based on information available from the United States Geologic Survey National Water Information System, the depth to groundwater at the Site is approximately 117 ft below ground surface (bgs). This is based on a water well that is located approximately 1 mile southwest of the Site (see Appendix A, Water



Well Reports for depth to water). 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 (see table below).

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 250 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 20, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 5,000 mg/kg for total TPH and 250 ppm for chlorides ¹ .	

1. NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993

2. Assessment Activities

The impacted areas had initially been excavated to a depth of approximately 6.5 ft bgs and soil samples were collected by ETC Field Services LLC personnel for laboratory analysis. Two samples (West Hole Vertical) and (East Hole Vertical) were collected from the bottom of the western and eastern excavations at a depth of approximately 7 ft bgs and on June 22, 2017 (see Figure 2). The samples were submitted to Cardinal Laboratories in Hobbs, New Mexico and analyzed for BTEX by EPA Method 8021B, TPH by EPA Method 8015M, and chloride by SM4500Cl-B. The analytical results for these samples were:

West Hole Vertical

- Benzene: 0.211 mg/kg
- Total BTEX: 11.47 mg/kg
- TPH: 316.1 mg/kg
- Chloride: 5,440 mg/kg

East Hole Vertical

- Benzene: <0.050 mg/kg
- Total BTEX: 5.56 mg/kg
- TPH: 267.5 mg/kg



- Chloride: 2,760 mg/kg

Excavation activities to assess the horizontal and vertical extent of impacted soil from the release occurred on July 24, 2017 by GHD. Field screening of soil for petroleum hydrocarbons and chloride was performed to assess the horizontal and vertical extent of contaminated soil. Test pits were excavated in the bottom of both excavations.

Soil samples were collected and submitted to HEAL for laboratory analysis. Samples were collected from the base of the excavations and four test pits (see Figure 2) at depths ranging from four to twelve ft bgs. The soil samples were analyzed for BTEX by EPA Method 8260B, TPH by EPA Method 8015 full range and chloride by EPA Method 300.0 (Table 1). Laboratory analytical data can be found in Appendix B.

One sample (S-1113520-072417-MG-TP-5-4) contained a chloride concentration of 300 that exceeds the RRAL.

3. Summary and Recommendations

Soil samples collected from test pits dug in the base of the excavations at a depth of 12 ft bgs (see Figure 2) were submitted for laboratory analysis. The laboratory analytical results are below the RRALs for the constituents that were analyzed. Based on the laboratory results, GHD recommends the following:

- Remove contaminated soil from the base and sidewalls of the excavations and collect confirmation samples for laboratory analysis. If laboratory results indicate concentrations below the RRALs, backfill the excavations with clean fill material and wheel compact to grade.
- Remove contaminated soil from the spill area and collect confirmation samples. If laboratory results are below the RRALs, backfill the area with clean fill material and wheel compact 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

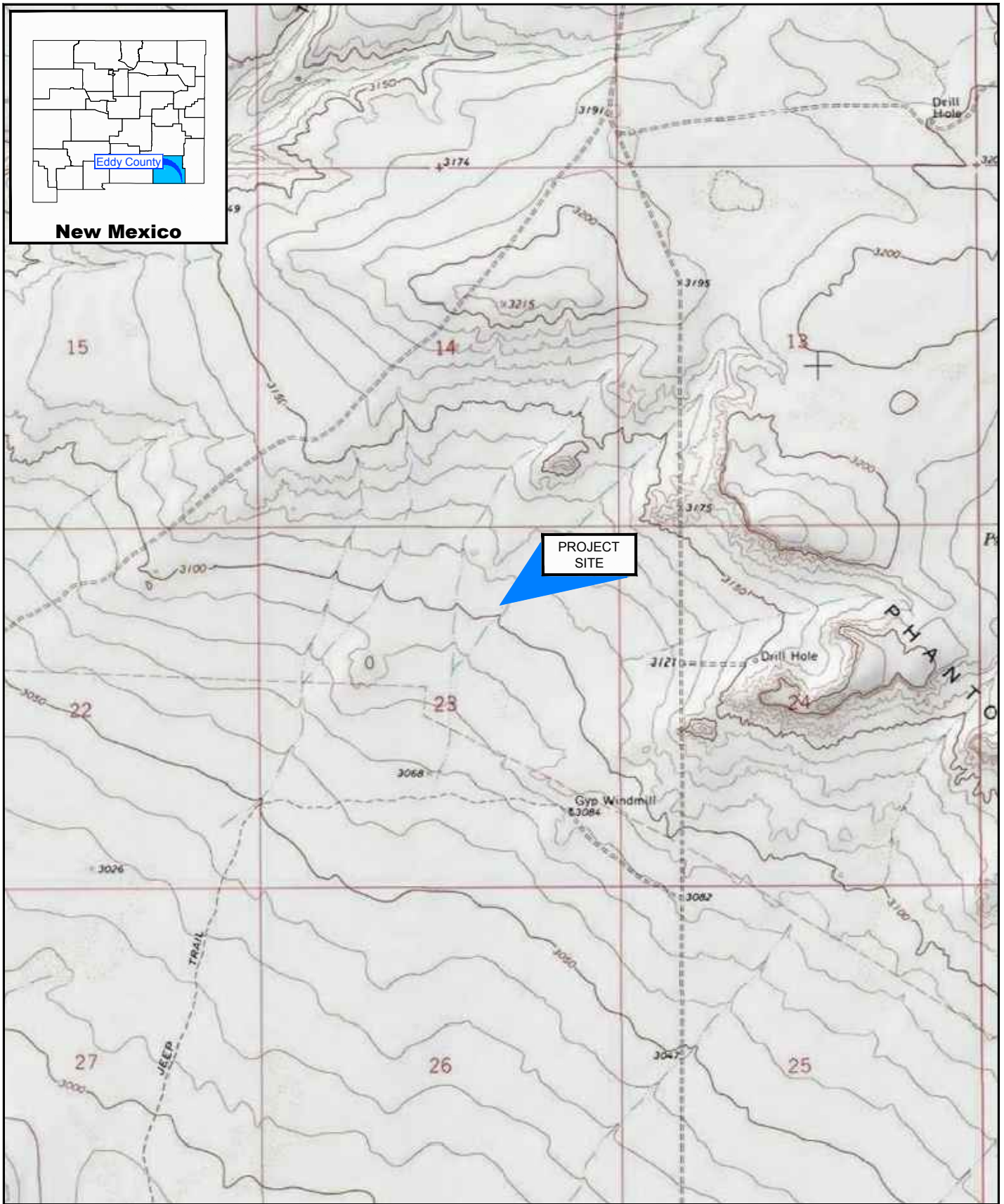
A handwritten signature in blue ink that reads "Alan Brandon". The signature is written in a cursive, flowing style.

Alan Brandon
Senior Project Manager

AB/lb/01

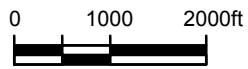
A handwritten signature in blue ink that reads "Bernie Bockisch". The signature is written in a cursive, flowing style.

Bernard Bockisch
New Mexico Operations Manager



Source: USGS 7.5 Minute Quad "Phantom Banks and Ross Ranch, New Mexico"

Lat/Long: 32.032164° North, 103.849038° West



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



ETC FIELD SERVICES
EDDY COUNTY, NEW MEXICO
TD-5 10"

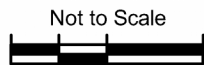
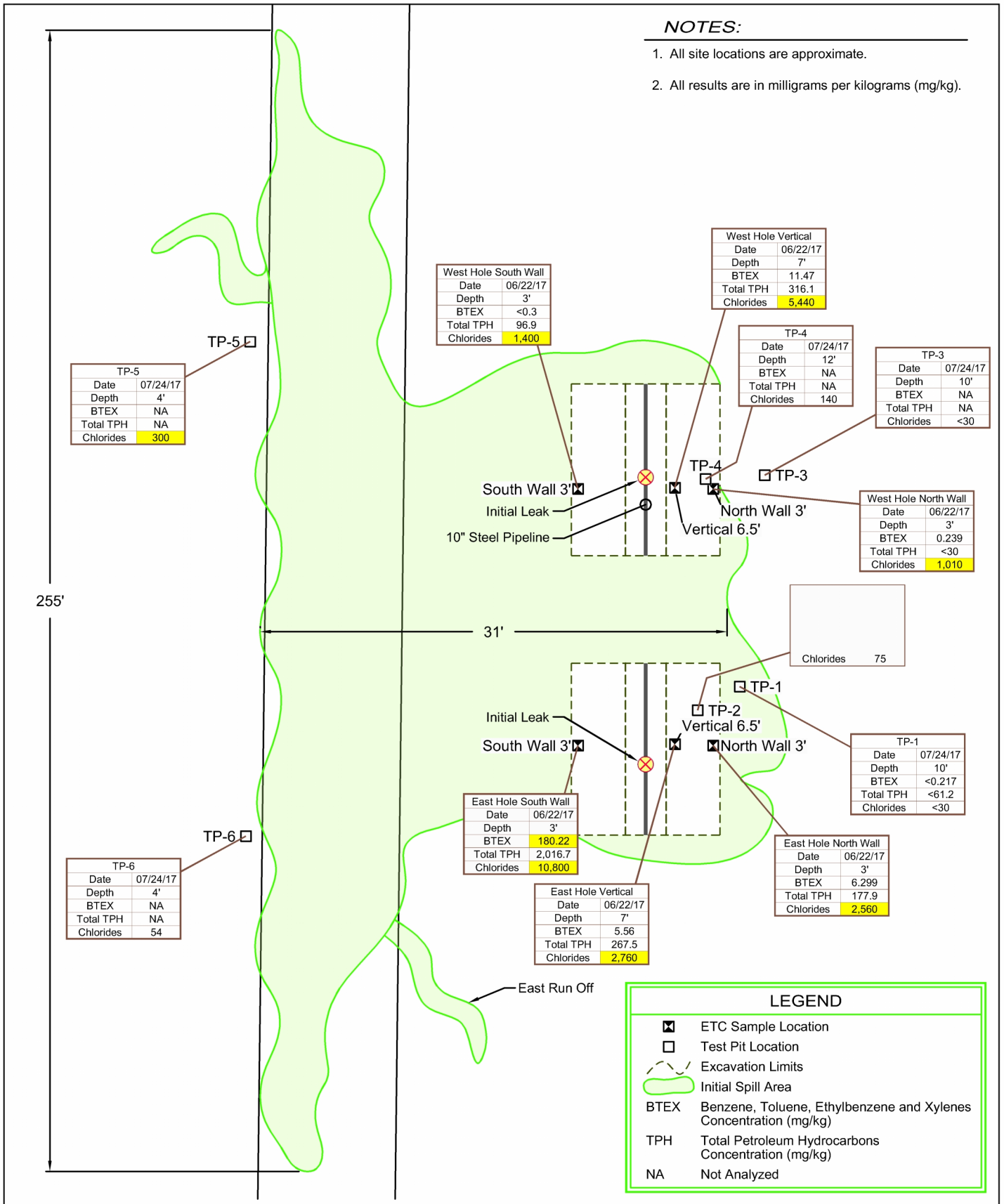
11135250-06
Aug 14, 2017

SITE LOCATION MAP

FIGURE 1

NOTES:

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



ETC FIELD SERVICES
 EDDY COUNTY, NEW MEXICO
 TD-5 10"

11135250-06
 Aug 16, 2017

SOIL SAMPLE LOCATION

FIGURE 2

Table 1

Soil Analytical Results Summary
ETC Field Services LLC - TD-5 10"
Section 23, Township 26 South, Range 30 East
Eddy County, New Mexico
Soil Analytical Results Summary

Sample ID	Date	Sample Depth (ft.)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH	TPH	TPH	Total TPH GRO/DRO (mg/kg)
									GRO (C6-C-10) (mg/kg)	DRO (C10-C28) (mg/kg)	EXT DRO (C28- C36) (mg/kg)	
NMOCD Remediation Action Levels			250	10	NE	NE	NE	50	NE	NE	NE	5,000
EXCAVATION SAMPLES												
Spill Area #1 *	6/22/2017	0.5	6,000	<0.050	<0.050	<0.050	<0.15	<0.3	<10	11	22.6	33.2
Spill Area #2*	6/22/2017	0.5	9,860	3.16	53.9	8.31	152	217.37	1,990.0	2,590.0	35.3	4,615.3
Spill Area #3*	6/22/2017	0.5	4,400	<0.050	<0.050	<0.050	<0.15	<0.3	<10	13.9	<10	13.9
North Horizontal *	6/22/2017	0.5	32.0	<0.050	0.075	<0.050	0.365	0.44	<10	<10	14.6	14.6
South Horizontal *	6/22/2017	0.5	<16	<0.050	0.48	0.064	1.06	1.6	<10	<10	<10	<30
East Horizontal*	6/22/2017	0.5	3,120	<0.050	<0.050	<0.050	<0.15	<0.3	<10	38.2	<10	38.2
West Horizontal*	6/22/2017	0.5	96.0	<0.050	0.101	<0.050	<0.15	0.101	<10	<10	<10	<30
West Hole Vertical*	6/22/2017	7	5,440	0.211	2.56	0.46	8.24	11.47	90.1	226.0	<10	316.1
West Hole North Wall*	6/22/2017	3	1,010	<0.050	0.073	<0.050	0.166	0.239	<10	<10	<10	<30
West Hole South Wall*	6/22/2017	3	1,400	<0.050	<0.050	<0.050	<0.15	<0.3	15.3	81.6	<10	96.9
East Hole Vertical*	6/22/2017	7	2,760	<0.050	0.553	0.248	4.76	5.56	11.5	125.0	131.0	267.5
East Hole North Wall*	6/22/2017	3	2,560	<0.050	0.872	0.267	5.16	6.299	24.3	134.0	19.6	177.9
East Hole South Wall*	6/22/2017	3	10,800	1.83	37.5	6.89	134	180.22	608.0	1,340.0	68.7	2,016.7
S11135250-072417MG-TP-1-10	7/24/2017	10	<30	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.4	<47	<61.2
S11135250-072417MG-TP-2-12	7/24/2017	12	75	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.8	<49	<63.6
S11135250-072417MG-TP-3-10	7/24/2017	10	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA
S11135250-072417MG-TP-4-12	7/24/2017	12	140	NA	NA	NA	NA	NA	NA	NA	NA	NA
S11135250-072417MG-TP-5-4	7/24/2017	4	300	NA	NA	NA	NA	NA	NA	NA	NA	NA
S11135250-072417MG-TP-6-4	7/24/2017	4	54	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note: Concentrations in yellow exceed the NMOCD Remediation Action Level

* Samples taken by ETC Field Services and Analyzed by Cardinal Laboratories of Hobbs, NM

NE = Not Established

mg/Kg = milligrams per Kilogram

-- = Not Applicable

NA = Not Analyzed

Appendices

Appendix A

Well Water Reports



TD-5 10" ~ 1 mile SW

[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category: **Geographic Area:**

Click to hide News Bulletins

[Please see news on new formats](#)

- [Full News](#)

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 320125103514701

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 320125103514701 26S.30E.22.44124

Available data for this site

Eddy County, New Mexico

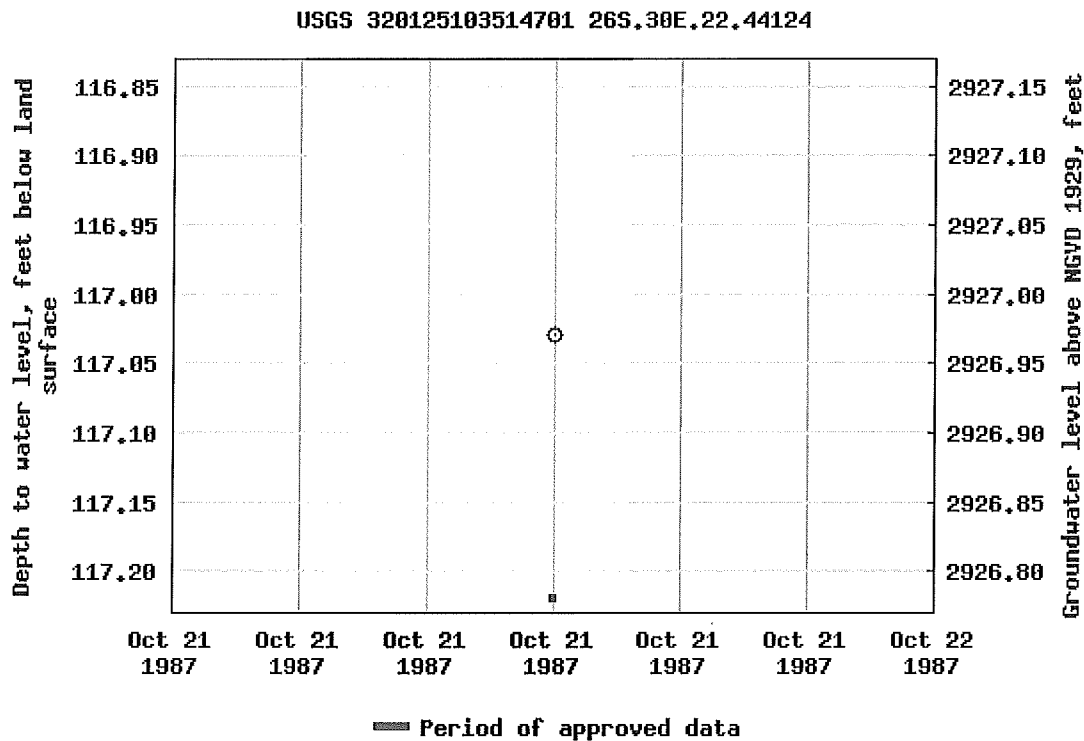
Hydrologic Unit Code 13070001

Latitude 32°01'25", Longitude 103°51'47" NAD27

Land-surface elevation 3,044 feet above NGVD29

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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[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 08:49:40 EDT

0.57 0.48 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	POD Code	Sub-basin	County	Q	Q	Q	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
C 02165	C	ED		64	16	4	24	26S	30E	610036	3544121*	1410	440	180	260

Average Depth to Water: **180 feet**
Minimum Depth: **180 feet**
Maximum Depth: **180 feet**

Record Count: 1

Basin/County Search:

County: Eddy

UTM NAD83 Radius Search (in meters):

Easting (X): 608694.11

Northing (Y): 3544555.67

Radius: 2000

*UTM location was derived from PLSS - see Help

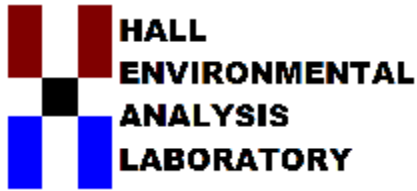
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

8/16/17 8:48 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix B

Laboratory Analytical Data



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

August 15, 2017

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: 11135250 TD-5

OrderNo.: 1707D31

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 6 sample(s) on 7/26/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued August 02, 2017.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written in a cursive style.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-2-12

Project: 11135250 TD-5

Collection Date: 7/24/2017 11:00:00 AM

Lab ID: 1707D31-001

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	75	30		mg/Kg	20	7/28/2017 3:11:53 PM	33064
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/31/2017 5:08:51 PM	33074
Surr: BFB	86.9	70-130		%Rec	1	7/31/2017 5:08:51 PM	33074
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/31/2017 6:40:04 PM	33062
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/31/2017 6:40:04 PM	33062
Surr: DNOP	88.3	70-130		%Rec	1	7/31/2017 6:40:04 PM	33062
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.024		mg/Kg	1	7/31/2017 5:08:51 PM	33074
Toluene	ND	0.048		mg/Kg	1	7/31/2017 5:08:51 PM	33074
Ethylbenzene	ND	0.048		mg/Kg	1	7/31/2017 5:08:51 PM	33074
Xylenes, Total	ND	0.096		mg/Kg	1	7/31/2017 5:08:51 PM	33074
Surr: 1,2-Dichloroethane-d4	80.6	70-130		%Rec	1	7/31/2017 5:08:51 PM	33074
Surr: 4-Bromofluorobenzene	86.3	70-130		%Rec	1	7/31/2017 5:08:51 PM	33074
Surr: Dibromofluoromethane	82.7	70-130		%Rec	1	7/31/2017 5:08:51 PM	33074
Surr: Toluene-d8	90.3	70-130		%Rec	1	7/31/2017 5:08:51 PM	33074

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 Quantitative 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.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-1-10

Project: 11135250 TD-5

Collection Date: 7/24/2017 11:15:00 AM

Lab ID: 1707D31-002

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	ND	30		mg/Kg	20	7/28/2017 3:24:18 PM	33064
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/31/2017 5:38:21 PM	33074
Surr: BFB	84.4	70-130		%Rec	1	7/31/2017 5:38:21 PM	33074
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/31/2017 7:08:51 PM	33062
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/31/2017 7:08:51 PM	33062
Surr: DNOP	84.4	70-130		%Rec	1	7/31/2017 7:08:51 PM	33062
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	0.024		mg/Kg	1	7/31/2017 5:38:21 PM	33074
Toluene	ND	0.048		mg/Kg	1	7/31/2017 5:38:21 PM	33074
Ethylbenzene	ND	0.048		mg/Kg	1	7/31/2017 5:38:21 PM	33074
Xylenes, Total	ND	0.097		mg/Kg	1	7/31/2017 5:38:21 PM	33074
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	7/31/2017 5:38:21 PM	33074
Surr: 4-Bromofluorobenzene	84.1	70-130		%Rec	1	7/31/2017 5:38:21 PM	33074
Surr: Dibromofluoromethane	80.6	70-130		%Rec	1	7/31/2017 5:38:21 PM	33074
Surr: Toluene-d8	89.6	70-130		%Rec	1	7/31/2017 5:38:21 PM	33074

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 Quantitative 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.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-6-4

Project: 11135250 TD-5

Collection Date: 7/24/2017 11:30:00 AM

Lab ID: 1707D31-003

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	54	30		mg/Kg	20	7/28/2017 3:36:42 PM	33064

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 Quantitative 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.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-5-4

Project: 11135250 TD-5

Collection Date: 7/24/2017 11:45:00 AM

Lab ID: 1707D31-004

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	300	30		mg/Kg	20	7/28/2017 3:49:07 PM	33064

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 Quantitative 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.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-4-12

Project: 11135250 TD-5

Collection Date: 7/24/2017 12:20:00 PM

Lab ID: 1707D31-005

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	140	30		mg/Kg	20	7/28/2017 4:01:32 PM	33064

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 Quantitative 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.

Analytical Report

Lab Order 1707D31

Date Reported: 8/15/2017

CLIENT: GHD

Client Sample ID: S11135250-072417MG-TP-3-10

Project: 11135250 TD-5

Collection Date: 7/24/2017 12:35:00 PM

Lab ID: 1707D31-006

Matrix: SOIL

Received Date: 7/26/2017 9:50:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	ND	30		mg/Kg	20	7/28/2017 4:13:56 PM	33064

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 Quantitative 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#: 1707D31

15-Aug-17

Client: GHD
Project: 11135250 TD-5

Sample ID	MB-33064	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	33064	RunNo:	44581					
Prep Date:	7/28/2017	Analysis Date:	7/28/2017	SeqNo:	1410134	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-33064	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	33064	RunNo:	44581					
Prep Date:	7/28/2017	Analysis Date:	7/28/2017	SeqNo:	1410135	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	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 Quantitative 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#: 1707D31

15-Aug-17

Client: GHD
Project: 11135250 TD-5

Sample ID LCS-33062	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 33062		RunNo: 44604							
Prep Date: 7/28/2017	Analysis Date: 7/31/2017		SeqNo: 1410369		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	95.0	73.2	114			
Surr: DNOP	4.6		5.000		91.5	70	130			

Sample ID MB-33062	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 33062		RunNo: 44604							
Prep Date: 7/28/2017	Analysis Date: 7/31/2017		SeqNo: 1410370		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	8.7		10.00		87.4	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 Quantitative 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#: 1707D31

15-Aug-17

Client: GHD
Project: 11135250 TD-5

Sample ID	mb-33074	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	PBS	Batch ID:	33074	RunNo:	44623					
Prep Date:	7/28/2017	Analysis Date:	7/31/2017	SeqNo:	1410839	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: 1,2-Dichloroethane-d4	0.40		0.5000		79.4	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		85.3	70	130			
Surr: Dibromofluoromethane	0.41		0.5000		81.6	70	130			
Surr: Toluene-d8	0.46		0.5000		92.2	70	130			

Sample ID	ics-33074	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles Short List					
Client ID:	LCSS	Batch ID:	33074	RunNo:	44623					
Prep Date:	7/28/2017	Analysis Date:	7/31/2017	SeqNo:	1410840	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	105	70	130			
Toluene	1.1	0.050	1.000	0	111	70	130			
Ethylbenzene	1.0	0.050	1.000	0	101	70	130			
Xylenes, Total	2.9	0.10	3.000	0	96.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.41		0.5000		81.3	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.7	70	130			
Surr: Dibromofluoromethane	0.41		0.5000		82.8	70	130			
Surr: Toluene-d8	0.45		0.5000		90.5	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707D31

15-Aug-17

Client: GHD
Project: 11135250 TD-5

Sample ID mb-33074	SampType: MBLK		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: PBS	Batch ID: 33074		RunNo: 44623							
Prep Date: 7/28/2017	Analysis Date: 7/31/2017		SeqNo: 1410804		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	430		500.0		86.9	70	130			

Sample ID ics-33074	SampType: LCS		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: LCSS	Batch ID: 33074		RunNo: 44623							
Prep Date: 7/28/2017	Analysis Date: 7/31/2017		SeqNo: 1410805		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	120	70	130			
Surr: BFB	460		500.0		92.7	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **GHD** Work Order Number: **1707D31** RcptNo: **1**

Received By: **Richie Eriacho** 7/26/2017 9:50:00 AM
 Completed By: **Anne Thorne** 7/26/2017 12:03:47 PM
 Reviewed By: **ENM** 7/26/17

[Handwritten Signature]
[Handwritten Signature]

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? Yes No # of preserved bottles checked for pH: _____
 (Note discrepancies on chain of custody) (<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? Yes No Checked by: _____
 (If no, notify customer for authorization.)

Special Handling (if applicable)

- 16. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.3	Good	Yes			

Chain-of-Custody Record

Client: GHD Services, Inc

Mailing Address: 6121 Indian School Rd Ste 200

NE Albuquerque, NM 87110

Phone #: SOS 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:
1135250 TD-S

Project #:
1135250

Project Manager:
Bernard Bockisch

Sampler: Michael Gant
 On Ice: Yes No

Sample Temperature: 3-3 - 1-0 = 2-3

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
7/24	1100	S	S-1135250-072417M6-TP-212	4 Seal Jar ICE		170031-201
7/24	1115	S	D-1135250-072417M6-TP-116			202
7/24	1130	S	S-1135250-072417M6-TP-6-4			203
7/24	1145	S	S-1135250-072417M6-TP-5-4			204
7/24	1220	S	S-1135250-072417M6-TP-4-12			205
7/24	1235	S	S-1135250-072417M6-TP-3-16			206

Date:	Time:	Relinquished by:	Date:	Time:	Received by:
7/25	1400	<u>Michael Gant</u>	7/27	1440	<u>[Signature]</u>
Date:	Time:	Relinquished by:	Date:	Time:	Received by:
7/27	1940	<u>[Signature]</u>	7/26/17	0950	<u>[Signature]</u>

Analysis Request

Analysis Request	Result
BTEX + MTBE + TMBs (8021)	X
BTEX + MTBE + TPH (Gas only)	X
TPH 8015B (GRO / DRO / MRO)	X
TPH (Method 418.1)	
EDB (Method 504.1)	
PAHs (8310 or 8270 SIMS)	
RCRA 8 Metals	
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	
8081 Pesticides / 8082 PCBs	
8260B (VOA)	
8270 (Semi-VOA)	X Chloride/BOD
Air Bubbles (Y or N)	

Remarks: