November 13, 2017 Reference No. 088210-53

Mr. Zane Kurtz
Sr. Safety and Environmental Representative
5509 Champions Dr.
Midland, TX 79706
VIA E-Mail: zane_kurtz@eogresources.com

Dear Mr. Kurtz:

Re: Assessment Summary Report
Hunt APO State #1
(API 30-025-27135)
EOG Resources, Inc.
Site Location: Unit L, Sec. 4, T 21-S, R 34-E
(Lat 32.50675°, Long -103.48073°)
Lea County, New Mexico

GHD Services, Inc. (GHD) is pleased to present this report for the above referenced site. Assessment activities were performed at the Hunt APO State #1 (hereafter referred to as the "Site"), on October 2, 2017 by GHD. The Site is located within Unit L, Section 4, Township 21 South, Range 34 East, in Lea County, New Mexico (Figure 1). The site is owned by the New Mexico State Land Office (NMSLO).

The Site is an active well site located approximately 25 miles southwest of Hobbs, New Mexico. According to EOG supplied Site information, a release of approximately 15 barrels (bbls) of oil and 10 bbls produced water were released due to the malfunction of a valve on the heater treater (first release). The release impacted the New Mexico State Highway 176 right-of-way. A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) February 4, 2005. There is no indication of an assigned remediation permit (RP) number on the NMOCD website. A final C-141 dated March 16, 2006 was submitted; however, there is no indication that it was approved.

A second release of 20 barrels (bbls) of produced water were released within the west end of the bermed battery area due to a water leg break on the gun barrel. None of the released fluids were recovered. The release was discovered on June 17, 2013 and a C-141 Form was submitted to the NMOCD on June 27, 2013. There is no indication of an assigned RP number on the NMOCD website. A final C-141, dated September 5, 2013, was submitted; however there is no indication that it was approved.

Assessment and excavation activities were performed at the first release by Allstate Environmental Services, LLC. (Allstate) from January 16 to February 17, 2006. Allstate excavated 216 cubic yards of contaminated soil and collected one five-point composite sample from the base of the excavation. The sample was submitted to Environmental Lab of Texas in Odessa, Texas for total petroleum hydrocarbons (TPH) gasoline and diesel range organics by EPA Method 8015M, and chlorides by EPA Method 300.0 analysis. This sample contained a total TPH concentration of 131 milligrams per kilogram (mg/kg) and a

chloride concentration of 2,102 mg/kg. The chloride concentrations exceeds the NMOCD Recommended Remediation Action Limit (RRAL).

Initial delineation composite samples were collected on August 7, 2013 from three sections within the second release area by Yates Petroleum Corporation (Yates). Three samples were collected from 6, 12, and 18 inches from each location and composited into one sample based on the depth it was collected. The samples were submitted to Cardinal Laboratories of Hobbs, New Mexico for laboratory analysis. The samples were submitted for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8260B, total TPH gasoline and diesel range organics by EPA Method 8015M, and chlorides by SM4500Cl-B analysis.

All of the BTEX and TPH concentrations were below the laboratory reporting limits (LRLs) and chloride concentrations were 560 (6-inch), 736 (12-inch) and 1,060 (18-inch) mg/kg. The 12-inch and 18-inch samples both exceed the RRAL.

1. Recommended Remediation Action Level

There are relatively few groundwater wells in the area of the Site with which to obtain a depth to groundwater. Based on information available from the New Mexico Office of the State Engineer (NMOSE) New Mexico Water Rights Reporting System website, the closest well is approximately 0.38 mile from the site. The depth to groundwater measured in this well was 95 feet below ground surface (ft. bgs). The NMOSE well report is included in Appendix A.

Based on information available from the United States Geological Survey (USGS) website, the closest USGS gauging site, approximately 0.5 mile north of the site, indicates groundwater at a depth of approximately 91 feet below ground surface (ft. bgs) in 1997.

There do not appear to be any wellhead protection areas and no surface water bodies within 200 to 1000 ft. of the Site. Therefore, the preliminary total ranking score for the Site is 10 (see table below).

Based on this score, the applicable NMOCD Site-specific RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 1,000 mg/kg for total TPH, and 600 mg/kg for chlorides.

In an August 28, 2017 telephone conversation between Bernard Bockisch of GHD and Jim Griswold, NMOCD Environmental Bureau Chief, GHD was informed that the NMOCD is accepting chloride concentrations of 600 mg/kg for assessment clean up levels.

New Mexico Oil Conservation Division Site Assessment	
Ranking Criteria	Score
Depth to Ground Water (50-99 ft. bgs)	10
Wellhead Protection Area (> 1000 ft. from water source, > 200 ft. from domestic source)	0
Distance to Surface Body Water (200-1000 ft.)	0
Ranking Criteria Total Score	**10***
*Because the ranking criteria total score is 10, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 1000 mg/kg for TPH[1], and 600 mg/kg for chlorides.	

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

2. Assessment Activities

GHD and SDR Enterprises, LLC (SDR) performed additional assessment activities on October 2, 2017 that included the collection of three soil samples from three test pits. Soil samples were collected from a depth of 2 ft. bgs and submitted to Hall Environmental Analysis Laboratory (HEAL) located in Albuquerque, New Mexico. The samples were analyzed for BTEX by EPA Method 8021B, total TPH gasoline and diesel range organics by EPA Method 8015M/D, and chlorides by EPA Method 300.0 analysis. Excavation was performed with a backhoe. During excavation, a very hard caliche was observed at a depth of 2 ft. bgs. The caliche was too hard for the backhoe to excavate deeper than 2 ft. bgs.

None of the BTEX constituents were detected above the laboratory reporting limits, total TPH ranged from 340 to 730 mg/kg, and chloride concentrations ranged from 2,000 to 3,700 mg/kg. The total TPH concentrations are below the RRALs and the chloride concentrations are all above the RRAL. The laboratory analytical report is included in Appendix B and the results are summarized on Figure 2 and in Table 1.

3. Summary and Recommendations

Based on the assessment of the petroleum hydrocarbon and chloride concentrations, GHD recommends the following:

- Obtaining a Traffic Control/Roadway Work Permit from the New Mexico Department of Transportation
- Excavating the chloride impacted soil to a depth of 4 ft. bgs using a track hoe
- Collect soil samples for chloride analysis from the base and confirmation samples from the sidewalls of the excavation.
- Place a 20-mil liner in the base of the excavation.

- Backfill 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 NMSLO. The seed will be planted utilizing a drill. The proposed seed mix will consist of Bureau of Land Management mix #2 without love grass.

The site will be visited on a quarterly basis to assess the establishment of vegetative growth. 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. Once vegetative growth has been established, to the satisfaction of all Site stakeholders, GHD will petition for No Further Action status/Site closure from the NMOCD.

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 or Bernard.Bockisch@ghd.com.

Sincerely,

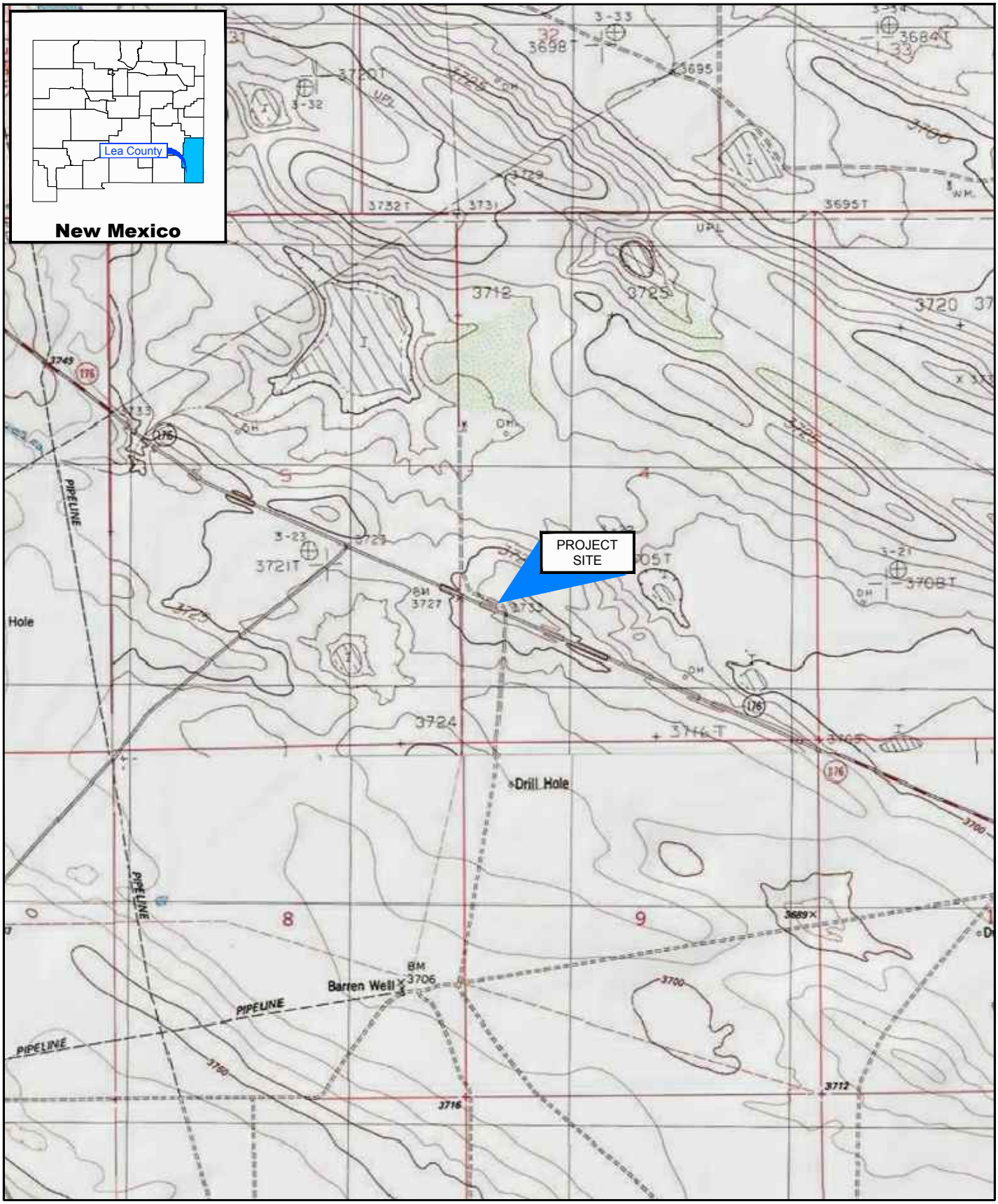
GHD

Alan Brandon
Senior Project Manager

Bernard Bockisch
Albuquerque Operations Manager

BB/mc/36

Figures



Source: USGS 7.5 Minute Quad "Monument SW, San Simon Ranch, Grama Ridge, and Lea, New Mexico"

Lat/Long: 32.506315° North, 103.481783° West

0 1000 2000ft

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

GHD

EOG RESOURCES
LEA COUNTY, NEW MEXICO
HUNT APO STATE No. 1

088210-53

Nov 10, 2017

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\08----\088---\088210-EOG-Madera Ridge 25-1\088210-53(000)GN-DL001.dwg

NOTES:

1. Sample results are in milligram per kilogram (mg/kg).
2. Locations are approximate.
3. Yellow shaded cells indicate NMOCD RRAL Exceedances.

LEGEND

□	Test Pit Location
Depth	Depth of Sample (ft)
TPH	Total Petroleum Hydrocarbons
	Benzene, Toluene, Ethylbenzene and Xylenes
ND	Not Detected

Source: Image © 2016 Google - Imagery Date: February 1, 2017

Lat/Long: 32.506315° North, 103.481783° West

0 15 30ft

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

GHD

EOG RESOURCES
LEA COUNTY, NEW MEXICO
HUNT APO STATE No. 1

088210-53

Nov 10, 2017

SAMPLE LOCATION MAP

FIGURE 2

CAD File: I:\CAD\Files\08----\088---\088210-EOG-Madera Ridge 25-1\088210-53(000)GN-DL001.dwg

Tables

Table 1

Hunt APO State #1 - Summary of Soil Analytical Data

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	TPH (MRO)	Total TPH	Chloride
S-088210-53-100217-MG-TP-1-2	2	10/02/2017	<0.025	<0.050	<0.050	<0.099	<0.224	<5.0	230	500	730	3,500
S-088210-53-100217-MG-TP-2-2	2	10/02/2017	<0.023	<0.047	<0.047	<0.094	<0.211	<4.7	180	450	630	3,700
S-088210-53-100217-MG-TP-2-3	2	10/02/2017	<0.024	<0.047	<0.047	<0.095	<0.213	<4.7	110	230	340	2,000
NMOCD RRALs (Total Ranking Score = 10)			**10**	**50**				**Total TPH: 1,000**				**600**

Notes:

All sample results are in milligrams per kilogram
NMOCD = New Mexico Oil Conservation Division
RRALs = Recommended Remediation Action Limits
Highlighted = Exceeds NMOCD RRAL

Appendices

Appendix A
Well Information

Hunt

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 Q Q 64 16 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00489		CP	LE		04	21S	34E	643274	3597749*	618	125	95	30

Average Depth to Water: **95 feet**

Minimum Depth: **95 feet**

Maximum Depth: **95 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 642678.11 **Northing (Y):** 3597582.11 **Radius:** 1000

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

8/16/17 12:49 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

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

Hunt APO State 1

Click to hideNews Bulletins

~ 0.5 mile north

- Please see news on new formats
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 323022103285301

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

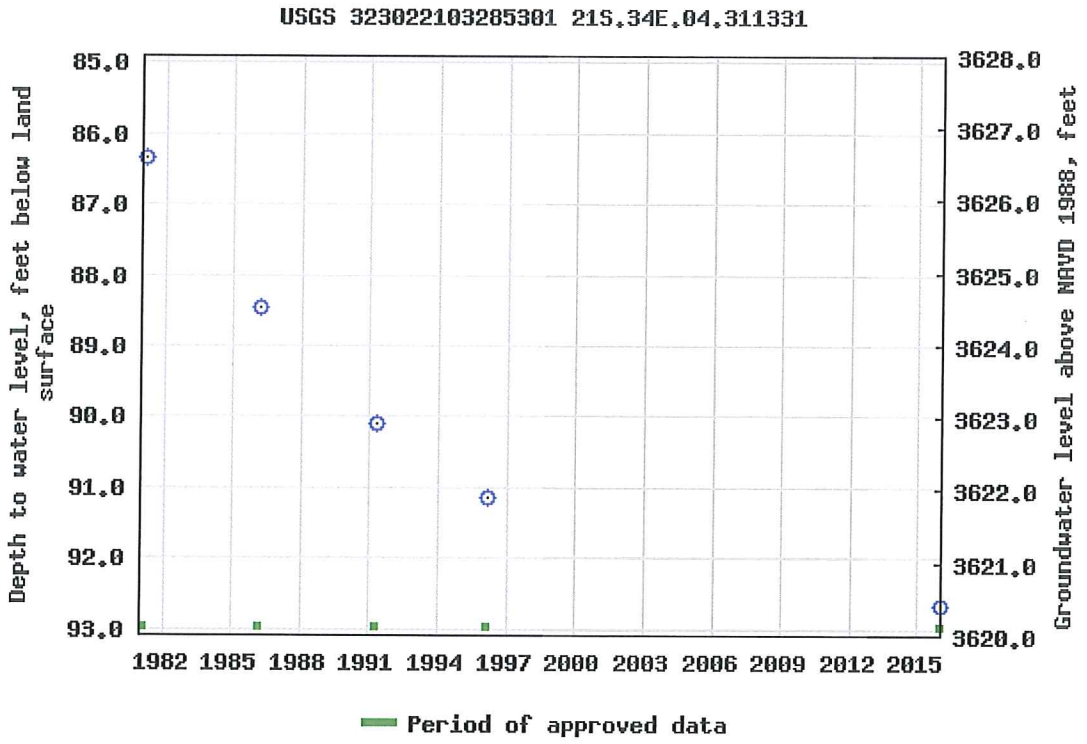
USGS 323022103285301 21S.34E.04.311331

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

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°30'50.1", Longitude 103°28'59.8" NAD83
Land-surface elevation 3,713 feet above NAVD88
The depth of the well is 125 feet below land surface.
This well is completed in the Chinle Formation (231CHNL) 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

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: 2017-08-16 15:03:33 EDT
0.57 0.5 nadww02

Appendix B
Laboratory Analytical Reports

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

October 16, 2017

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

RE: HUNT APO 1 OrderNo.: 1710187

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/3/2017 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: HUNT APO 1

Lab Order: 1710187

Lab ID: 1710187-001 **Collection Date:** 10/2/2017 10:25:00 AM
Client Sample ID: S-088210-53-100217-MG-TP-1-2' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3500	150		mg/Kg	100	10/10/2017 7:50:59 PM	34311
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	230	9.4		mg/Kg	1	10/5/2017 11:39:06 AM	34244
Motor Oil Range Organics (MRO)	500	47		mg/Kg	1	10/5/2017 11:39:06 AM	34244
Surr: DNOP	102	70-130		%Rec	1	10/5/2017 11:39:06 AM	34244
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/6/2017 1:20:19 AM	34233
Surr: BFB	88.4	54-150		%Rec	1	10/6/2017 1:20:19 AM	34233
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	10/6/2017 1:20:19 AM	34233
Toluene	ND	0.050		mg/Kg	1	10/6/2017 1:20:19 AM	34233
Ethylbenzene	ND	0.050		mg/Kg	1	10/6/2017 1:20:19 AM	34233
Xylenes, Total	ND	0.099		mg/Kg	1	10/6/2017 1:20:19 AM	34233
Surr: 4-Bromofluorobenzene	92.8	66.6-132		%Rec	1	10/6/2017 1:20:19 AM	34233

Lab ID: 1710187-002 **Collection Date:** 10/2/2017 10:35:00 AM
Client Sample ID: S-088210-53-100217-MG-TP-2-2' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	3700	150		mg/Kg	100	10/10/2017 8:03:23 PM	34311
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	180	9.6		mg/Kg	1	10/5/2017 12:07:15 PM	34244
Motor Oil Range Organics (MRO)	450	48		mg/Kg	1	10/5/2017 12:07:15 PM	34244
Surr: DNOP	101	70-130		%Rec	1	10/5/2017 12:07:15 PM	34244
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/6/2017 1:43:42 AM	34233
Surr: BFB	85.4	54-150		%Rec	1	10/6/2017 1:43:42 AM	34233
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/6/2017 1:43:42 AM	34233
Toluene	ND	0.047		mg/Kg	1	10/6/2017 1:43:42 AM	34233
Ethylbenzene	ND	0.047		mg/Kg	1	10/6/2017 1:43:42 AM	34233
Xylenes, Total	ND	0.094		mg/Kg	1	10/6/2017 1:43:42 AM	34233
Surr: 4-Bromofluorobenzene	89.7	66.6-132		%Rec	1	10/6/2017 1:43:42 AM	34233

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: HUNT APO 1

Lab Order: 1710187

Lab ID: 1710187-003
Collection Date: 10/2/2017 10:55:00 AM
Client Sample ID: S-088210-53-100217-MG-TP-3-2'
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2000	75		mg/Kg	50	10/10/2017 8:15:48 PM	34311
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	110	9.3		mg/Kg	1	10/5/2017 1:04:00 PM	34244
Motor Oil Range Organics (MRO)	230	47		mg/Kg	1	10/5/2017 1:04:00 PM	34244
Surr: DNOP	86.1	70-130		%Rec	1	10/5/2017 1:04:00 PM	34244
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/6/2017 2:07:06 AM	34233
Surr: BFB	86.2	54-150		%Rec	1	10/6/2017 2:07:06 AM	34233
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/6/2017 2:07:06 AM	34233
Toluene	ND	0.047		mg/Kg	1	10/6/2017 2:07:06 AM	34233
Ethylbenzene	ND	0.047		mg/Kg	1	10/6/2017 2:07:06 AM	34233
Xylenes, Total	ND	0.095		mg/Kg	1	10/6/2017 2:07:06 AM	34233
Surr: 4-Bromofluorobenzene	90.7	66.6-132		%Rec	1	10/6/2017 2:07:06 AM	34233

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#: **1710187**

16-Oct-17

Client: GHD

Project: HUNT APO 1

Sample ID	**MB-34311**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**34311**	RunNo:	**46232**					
Prep Date:	**10/9/2017**	Analysis Date:	**10/9/2017**	SeqNo:	**1472108**	Units:	**mg/Kg**			

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

Sample ID	**LCS-34311**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**34311**	RunNo:	**46232**					
Prep Date:	**10/9/2017**	Analysis Date:	**10/9/2017**	SeqNo:	**1472109**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.4	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#: **1710187**

16-Oct-17

Client: GHD

Project: HUNT APO 1

Sample ID	**LCS-34244**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**34244**		RunNo:	**46122**					
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**		SeqNo:	**1467640**	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	85.1	73.2	114			
Surr: DNOP		4.3		5.000		86.3	70	130			

Sample ID	**MB-34244**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**34244**		RunNo:	**46122**					
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**		SeqNo:	**1467644**	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		9.3		10.00		92.7	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#: **1710187**

16-Oct-17

Client: GHD

Project: HUNT APO 1

Sample ID	**MB-34233**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**PBS**	Batch ID:	**34233**	RunNo:	**46134**
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**	SeqNo:	**1468607** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.8	54	150			

Sample ID	**LCS-34233**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**
Client ID:	**LCSS**	Batch ID:	**34233**	RunNo:	**46134**
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**	SeqNo:	**1468608** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	116	76.4	125			
Surr: BFB	1000		1000		101	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#: **1710187**

16-Oct-17

Client: GHD

Project: HUNT APO 1

Sample ID	**MB-34233**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**34233**	RunNo:	**46134**					
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**	SeqNo:	**1468636**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		94.0	66.6	132			

Sample ID	**LCS-34233**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**34233**	RunNo:	**46134**					
Prep Date:	**10/4/2017**	Analysis Date:	**10/5/2017**	SeqNo:	**1468637**	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	103	80	120			
Toluene	1.0	0.050	1.000	0	104	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	0.97		1.000		96.9	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: 1710187 | RcptNo: 1

Received By: **Sophia Campuzano** 10/3/2017 9:25:00 AM

Completed By: **Erin Melendrez** 10/4/2017 9:49:54 AM

Reviewed By: 10/4/17

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 ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
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 ☐	

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

Adjusted? _____

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	2.4	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: Hunt APO #1

Project #: 088210-53

Project Manager: Bernard Bockisch

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.4

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. 1710187	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)
10/2/17	1025	S	S-088210-53-100217-MG-TP1-2'	4oz Stir Bar	ICE	-001	X		X									X				
10/2/17	1035	S	S-088210-53-100217-MG-TP2-2'	1	1	-002	X		X									X				
10/2/17	1045	S	S-088210-53-100217-MG-TP3-2'	1	1	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/2/17	1423			10/2/17	1423
10/2/17	1900		Received by:	Date	Time
				10/03/17	0925

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.