APPROVED
By Olivia Yu at 2:04 pm, Apr 12, 2018

NMOCD approves of the delineation completed and proposed remediation for 1RP-4998.

March 14, 2018

Reference No. 088210-52

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 and Work Plan
Caper BFE Federal #1
(API 30-025-36954)
EOG Resources, Inc.
Site Location: Unit O, Sec. 17, T 21-S, R 32-E
(Lat 32.47309°, Long -103.69421°)
Lea County, New Mexico

GHD Services, Inc. (GHD) is pleased to present this report and work plan for the above referenced site. Assessment activities were performed at the Caper BFE Federal #1 (hereafter referred to as the "Site"), on October 27, 2017 by GHD. The Site is located within Unit O, Section 17, Township 21 South, Range 32 East, in Lea County, New Mexico (Figure 1). The site is owned by the U.S. Bureau of Land Management (BLM).

The Site is an active well site located approximately 28 miles northeast of Malaga, New Mexico. According to EOG supplied Site information, a release of approximately 10 barrels (bbls) of produced water occurred when a transfer pump failed due to loss of electrical power. Approximately 10 bbls of produced water were recovered utilizing vacuum trucks. The release was discovered on July 23, 2015 and a C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD). A copy of the C-141 Form is included in appendix A. There is no indication that a remediation permit (RP) number was assigned based on a search of the NMOCD Online website.

1. Recommended Remediation Action Level

There are relatively few groundwater wells in the area of the Site from which to obtain a depth to groundwater in relation to the Site. Based on information available from the United States Geological Survey (USGS) website, the closest USGS gauging site, approximately 4.6 miles east, northeast of the Site, indicates groundwater at a depth of approximately 115 feet below ground surface (bgs) in 1995. The USGS well report is included in Appendix B.

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 0 (see table below).

Based on this score, the applicable NMOCD Site-specific Recommended Remediation Action Levels (RRALs) are 10 mg/kg for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, xylenes (BTEX), 5,000 mg/kg for total petroleum hydrocarbons (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 (>100 ft. bgs)	0
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	**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 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 performed assessment activities on October 27, 2017 that included the collection of ten soil samples from five hand augured borings. Soil samples were collected from depths of 2 and 5 feet below ground surface (ft. bgs) in each of the borings and field screened utilizing HACH Titration Strips. All of the samples collected from five ft. bgs were submitted to Hall Environmental Analysis Laboratory (HEAL) located in Albuquerque, New Mexico. The samples were submitted for chloride analysis by EPA 300.

Chloride concentrations ranged from 610 to 8,400 milligrams per kilogram (mg/kg) all of which exceeded the RRAL for chloride. The laboratory report is included in Appendix C and the analytical data is summarized on Figure 2 and in Table 1.

Additional assessment was performed on December 14, 2017 by GHD and SDR Enterprises, LLC. Three test pits, TP-5 through TP-7, were excavated and soil samples collected for field screening and laboratory analysis. The depths of the test pits ranged from 4 to 16 ft. bgs depending on field screening results. Two soil samples collected from TP-5 and TP-7 and one soil sample collected from TP-6 were submitted to

HEAL for chloride analysis by EPA Method 300. Chloride concentrations ranged from less than the laboratory reporting limit (LRL) to 98 mg/kg.

3. Summary and Recommendations

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

- Excavate the area containing chloride impacted soil concentrations above the RRAL to a depth not to exceed 4 ft bgs (see Figure 2 for estimated excavation locations).
- Further horizontal delineation will be performed during the excavation activities.
- Field screening for chloride will be performed to assist in assessing the horizontal extent of impacted soil during the excavation activities. Once field screening indicates chloride concentrations are below the RRAL, confirmation samples will be collected.
- Confirmation soil samples will be collected from the base and the sidewalls of the excavation for laboratory analysis for chloride by EPA Method 300.
- Upon receipt of confirmation that chloride concentrations are below the RRAL, a 20-mil liner will be placed in the base of the excavation and it will be backfilled. The disturbed area will then be fertilized and reseeded with a BLM-approved seed mix.

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

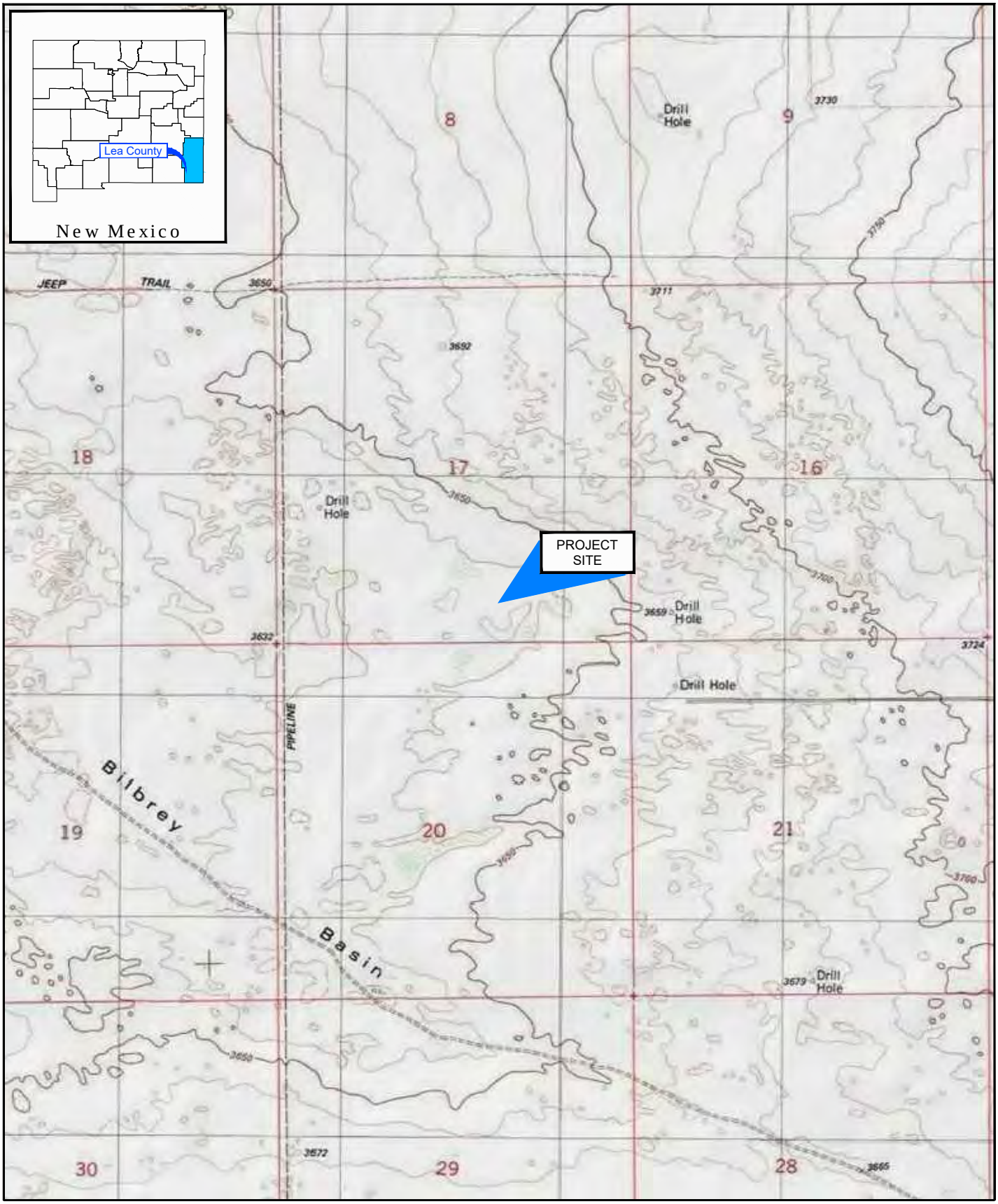
Alan Brandon
Senior Project Manager

Jeffrey Walker
Senior Project Manager

BB/pd/36

Attachments: Figure 1
Figure 2
Table 1
Attachment A – NMOCD Form C-141
Attachment B – USGS Well Report
Attachment C – Certified Analytical Reports

Figures



Source: USGS 7.5 Minute Quad "The Divide, New Mexico"

Lat/Long: 32.473106° North, 103.694707° West

0 1000 2000ft

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

EOG RESOURCES
LEA COUNTY, NEW MEXICO
CAPER BFE FEDERAL No.1

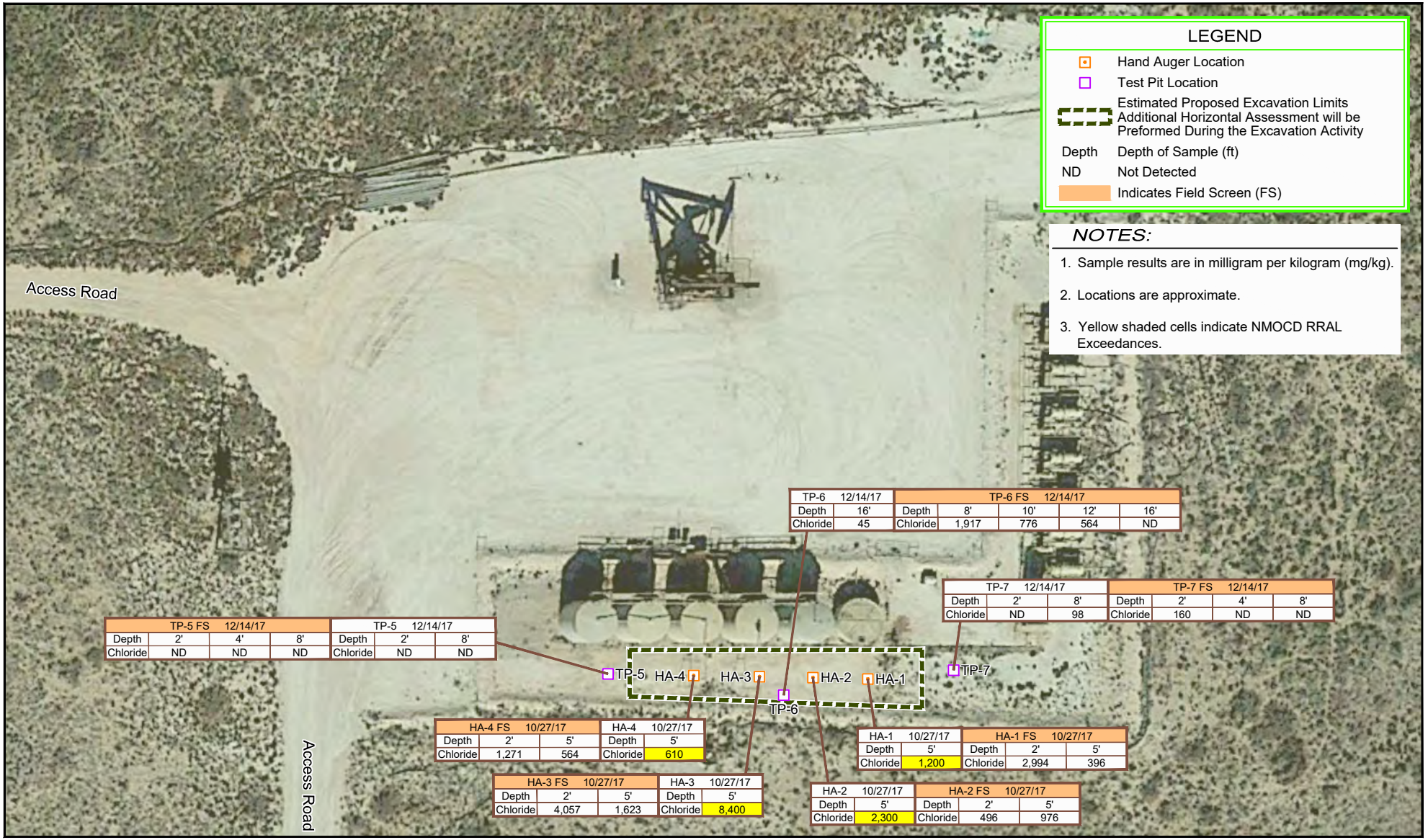
088210-52

Sep 12, 2017

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\08----\088---\088210-EOG-Madera Ridge 25-1\088210-52(000)GN-DL001.dwg



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

Lat/Long: 32.473106° North, 103.694707° West

0 25 50ft

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

GHD

EOG RESOURCES
LEA COUNTY, NEW MEXICO
CAPER BFE FEDERAL No.1

088210-52

Mar 7, 2018

SAMPLE LOCATION MAP

FIGURE 2

CAD File: I:\CAD\Files\08----\088---\088210-EOG-Madera Ridge 25-1\088210-52(000)GN-DL001.dwg

Tables

Table 1

Caper BFE Federal #1 - Summary of Soil Analytical Data
EOG Resources, Inc.
Unit O, Section 17, Township 21 South, Range 32 East
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride	Chloride Field Screen (mg/L)
HA-1	2	10/27/2017		2,994
S-00810-52-102717-MG-HA-1-5	5	10/27/2017	1,200	396
HA-2	2	10/27/2017		496
S-00810-52-102717-MG-HA-2-5	5	10/27/2017	2,300	976
HA-3	2	10/27/2017		4,057
S-00810-52-102717-MG-HA-3-5	5	10/27/2017	8,400	1623
HA-4	2	10/27/2017		1271
S-00810-52-102717-MG-HA-4-5	5	10/27/2017	610	564
S-088210-52-121417-MG-TP-5-2	2	12/14/2017	<30	<1.0
TP-5	4	12/14/2017		<1.0
S-088210-52-121417-MG-TP-5-8	8	12/14/2017	<30	<1.0
TP-6	8	12/14/2017		1917
TP-6	10	12/14/2017		776
TP-6	12	12/14/2017		564
S-088210-52-121417-MG-TP-6-16	16	12/14/2017	45	<1.0
S-088210-52-121417-MG-TP-7-2	2	12/14/2017	<30	160
TP-7	4	12/14/2017		<1.0
S-088210-52-121417-MG-TP-7-8	8	12/14/2017	98	<1.0
NMOCD RRALs (Total Ranking Score = 0)			**600**	

Notes:

All analytical sample results are in milligrams per kilogram
mg/L = milligrams per liter
NMOCD = New Mexico Oil Conservation Division
RRALs = Recommended Remediation Action Limits
Highlighted = Exceeds NMOCD RRAL
Field screen only

Attachment A
NMOCD 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 August 8, 2011

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 Yates Petroleum Corporation	Contact Robert Asher
Address 104 S. 4th Street	Telephone No. 575-748-1471
Facility Name Caper BFE Federal #1	Facility Type Battery

Surface Owner Federal	Mineral Owner Federal	API No. 30-025-36954

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	17	21S	32E	660	South	1980	East	Lea

Latitude 32.39337 **Longitude** 103.68028

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 10 B/PW	Volume Recovered 10 B/PW
Source of Release Transfer Pump/Power Failure	Date and Hour of Occurrence 7/23/2015; PM	Date and Hour of Discovery 7/23/2015; PM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom? Robert Asher/Yates Petroleum Corporation	Date and Hour N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
The transfer pump went down due to loss of electrical power at the battery, causing the release. Vacuum truck(s).

Describe Area Affected and Cleanup Action Taken.*
An approximate area of 10' x 60' within the bermed battery. Power restored and re-started pump. A vacuum truck recovered all of the released produced water (100 %). **Depth to Ground Water: >100' (approximately 125', per the ChevronTexaco Trend Map), Wellhead Protection Area: No, Distance to Surface Water Body: >1000', SITE RANKING IS 0.**

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: Printed Name: Robert Asher	OIL CONSERVATION DIVISION Approved by Environmental Specialist:	
Title: NM Environmental Regulatory Supervisor	Approval Date:	Expiration Date:
E-mail Address: boba@yatespetroleum.com	Conditions of Approval:	Attached ☐
Date: August 31, 2015 Phone: 575-748-4217	2RP-	

* Attach Additional Sheets If Necessary

Attachment B
USGS Well Report

USGS science for a changing world

USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

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

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 322851103365201

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

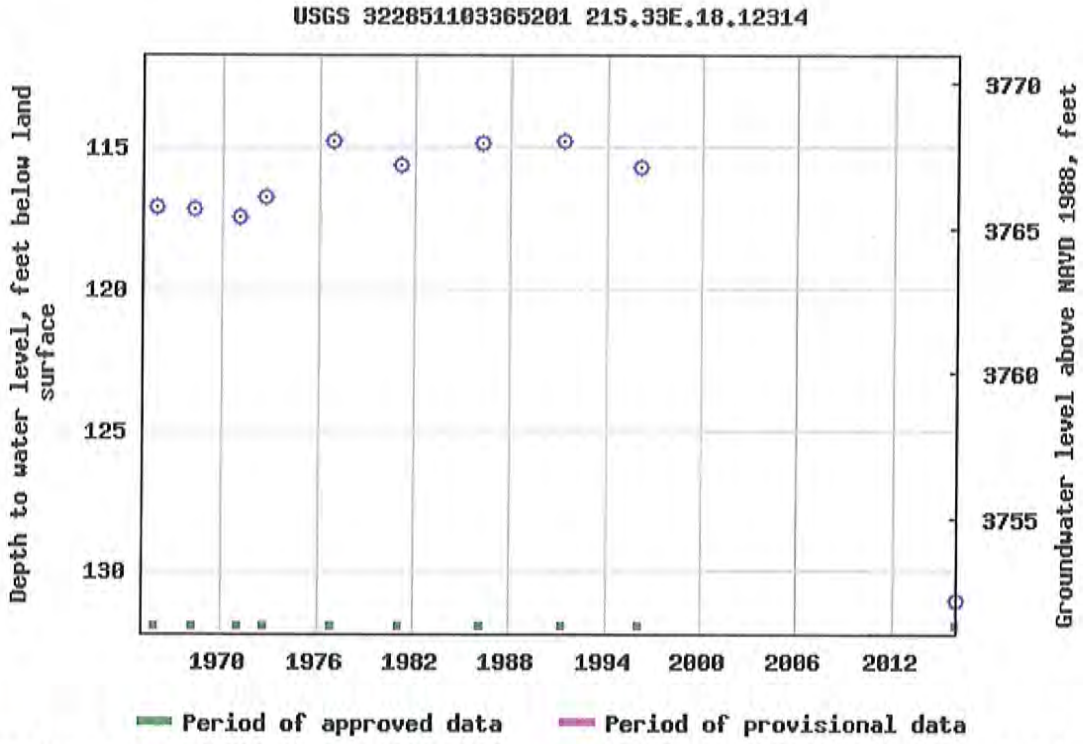
USGS 322851103365201 21S.33E.18.12314

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°29'06.6", Longitude 103°37'00.6" NAD83
Land-surface elevation 3,883 feet above NAVD88
The depth of the well is 123 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

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: 2018-01-25 09:57:53 EST
1.04 0.89 nadww01

Attachment C
Certified Analytical Reports

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

November 09, 2017

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

RE: Caper OrderNo.: 1710F30

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 4 sample(s) on 10/28/2017 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: **1710F30**
Date Reported: **11/9/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: GHD
Project: Caper
Lab Order: 1710F30

Lab ID: 1710F30-001 **Collection Date:** 10/27/2017 10:35:00 AM
Client Sample ID: S-088210-52-102717-MG-HA-1-5' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1200	75		mg/Kg	50	11/8/2017 12:55:17 AM	34835

Lab ID: 1710F30-002 **Collection Date:** 10/27/2017 10:40:00 AM
Client Sample ID: S-088210-52-102717-MG-HA-2-5' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	2300	75		mg/Kg	50	11/8/2017 1:32:31 AM	34835

Lab ID: 1710F30-003 **Collection Date:** 10/27/2017 10:45:00 AM
Client Sample ID: S-088210-52-102717-MG-HA-3-5' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	8400	300		mg/Kg	200	11/8/2017 1:44:56 AM	34835

Lab ID: 1710F30-004 **Collection Date:** 10/27/2017 10:50:00 AM
Client Sample ID: S-088210-52-102717-MG-HA-4-5' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	610	30		mg/Kg	20	11/6/2017 5:00:19 PM	34835

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#: **1710F30**

09-Nov-17

Client: GHD

Project: Caper

Sample ID	**MB-34835**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**34835**	RunNo:	**46894**					
Prep Date:	**11/6/2017**	Analysis Date:	**11/6/2017**	SeqNo:	**1497224**	Units:	**mg/Kg**			

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

Sample ID	**LCS-34835**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**34835**	RunNo:	**46894**					
Prep Date:	**11/6/2017**	Analysis Date:	**11/6/2017**	SeqNo:	**1497225**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	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

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: 1710F30 | RcptNo: 1

Received By: **Andy Freeman** 10/28/2017 11:30:00 AM

Completed By: **Erin Melendrez** 10/30/2017 8:15:16 AM

Reviewed By: DDS 10/30/17

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

Project #: 088210

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.1 °C

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. 1710F30	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)
10/27/17	1035	S	S-088210-S2-102717-MC-HA-1-5'	4oz Soil Jar	ICE	-001												X				
	1040		S-088210-S2-102717-MC-HA-2-5'			-002												X				
	1045		S-088210-S2-102717-MC-HA-3-5'			-003												X				
	1050		S-088210-S2-102717-MC-HA-4-5'			-004												X				

Date	Time	Relinquished by:	Received by:	Date	Time
10/27/17	1320			10/27/17	1320
10/28/17	1900			10/28/17	11:34

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 09, 2018

Bernie Bockisch

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

RE: Caper OrderNo.: 1712B15

Dear Bernie Bockisch:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/19/2017 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: Caper
Lab Order: 1712B15

Lab ID: 1712B15-001 **Collection Date:** 12/14/2017 9:20:00 AM
Client Sample ID: S-088210-52-121417-MG-TP-5-2 **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	1/4/2018 7:09:05 PM	35857

Lab ID: 1712B15-002 **Collection Date:** 12/14/2017 11:05:00 AM
Client Sample ID: S-088210-52-121417-MG-TP-5-8 **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	1/4/2018 7:21:29 PM	35857

Lab ID: 1712B15-003 **Collection Date:** 12/14/2017 10:15:00 AM
Client Sample ID: S-088210-52-121417-MG-TP-6-16 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	45	30		mg/Kg	20	1/4/2018 8:23:32 PM	35857

Lab ID: 1712B15-004 **Collection Date:** 12/14/2017 10:35:00 AM
Client Sample ID: S-088210-52-121417-MG-TP-7-2 **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	1/4/2018 8:35:57 PM	35857

Lab ID: 1712B15-005 **Collection Date:** 12/14/2017 11:25:00 AM
Client Sample ID: S-088210-52-121417-MG-TP-7-8 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	98	30		mg/Kg	20	1/4/2018 8:48:22 PM	35857

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#: **1712B15**

09-Jan-18

Client: GHD

Project: Caper

Sample ID	**MB-35857**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**35857**		RunNo:	**48229**				
Prep Date:	**1/4/2018**	Analysis Date:	**1/4/2018**		SeqNo:	**1548581**	Units:	**mg/Kg**		

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

Sample ID	**LCS-35857**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**35857**		RunNo:	**48229**				
Prep Date:	**1/4/2018**	Analysis Date:	**1/4/2018**		SeqNo:	**1548582**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	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

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: 1712B15 | RcptNo: 1

Received By: Erin Melendrez 12/19/2017 9:50:00 AM

Completed By: Michelle Garcia 12/19/2017 12:28:57 PM

Reviewed By: JMO 12/19/17

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	3.5	Good	Yes			

Chain-of-Custody Record

Client: GHD Services Inc-

Mailing Address: 6121 Indian School Rd NE Ste 200
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: Caper

Project #: 088210-52

Project Manager: Bernard Bockisch

Sampler: Michael Gant

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.5

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. 1712B15	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)
12/14/17	0920	S	S-088210-52-121417-116-TP5	4oz Soil Jar	ICE	001												X				
	1105		S-088210-52-121417-116-TP5			002												X				
	1015		S-088210-52-121417-116-TP6			003												X				
	1035		S-088210-52-121417-116-TP7			004												X				
	1125		S-088210-52-121417-116-TP8			005												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
12/18/17	1400			12/18/17	1900	
12/18/17	1900			12/19/17	0950	

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.

Courier