



**APPROVED**

*By Kristen Lynch at 11:20 am, Dec 01, 2016*

November 14, 2016

Reference No. 088210-21

Mr. Zane Kurtz  
Sr. Safety and Environmental Representative  
5509 Champions Dr.  
Midland, TX 79706  
VIA E-Mail: [zane\\_kurtz@eogresources.com](mailto:zane_kurtz@eogresources.com)

Dear Mr. Kurtz:

**Re: Assessment Summary Report  
Jolly Roger 16 State No. 1 (API #30-025-41665)  
1RP-3541  
EOG Resources, Inc.  
Site Location: Unit C, Sec. 16, T 24-S, R 34-E  
(Lat 32.2244°, Long -103.4762°)  
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 Jolly Roger 15 State No. 1 (hereafter referred to as the "Site"), from February 16, 2015 through May 20, 2015 by CH2M Hill and March 31, 2016 through August 11, 2016 by GHD. The Site is located within Unit C, Section 16, Township 24 South, Range 34 East, in Lea County, New Mexico (Figure 1).

The Site is an active well site approximately 20 miles west-northwest of Jal, New Mexico. According to EOG personnel, a release of approximately 50 barrels (bbls) of produced water occurred when a 3 inch valve was left in the open position. The release was discovered on February 10, 2015. A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) on February 18, 2015 and remediation permit (RP) number 1RP-3541 was assigned.

Initial soil sampling of the release area was performed by CH2M Hill on February 16 and 17 and May 20, 2015. Four of 16 soil samples collected by CH2M Hill returned chloride concentrations in soil exceeding the 250 mg/kg the Recommended Remediation Action Limit (RRAL) for chloride. Subsequent soil sampling was performed by GHD beginning in March through October of 2016 and is discussed further in this report.

## 1. Introduction

A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) and remediation permit (RP) number 1RP-3541 was assigned.

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 United States Geological Survey, two wells are located within Section 10, approximately 1 mile northeast of the Site. The depth to groundwater in these



wells ranged from 69.73 ft bgs to 71.91 ft bgs (see Appendix A). Based on this, the depth to groundwater in the vicinity of the site appears to be between 50 and 100 ft bgs.

There do not appear to be any well head 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 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), 1000 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 (>50 ft bgs, < 100 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
<b>Ranking Criteria Total Score</b>	<b>10*</b>
*Because the ranking criteria total score is 10, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 1,000 mg/kg for TPH <sup>1</sup> , and 250 mg/kg for chlorides.	

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

## 2. Assessment Activities

Site assessment activities were initially performed by CH2M Hill of Dallas, Texas February 16 and 17 and May 20, 2015. Excavation activities were performed by SDR Enterprises, LLC of Hobbs, New Mexico. Soil samples were analyzed by TraceAnalysis, Inc. (TraceAnalysis) of Lubbock, Texas.

The analytical data obtained from the soil samples collected by CH2M Hill indicated that the horizontal extent of petroleum hydrocarbon and chloride concentrations had been delineated to below RRALs. However, the vertical extent of chloride concentrations in an area denoted as the impacted area exceeded RRALs. The CH2M Hill sample results are summarized in Table 1.

Further soil sampling was performed by GHD on February 29, 2016 to assess the vertical extent of chloride concentrations in the soil in the impacted area. Nine additional soil samples were collected using a hand auger at depths of 2.5 ft bgs, 3.5 ft bgs, and 4.0 ft bgs. The samples were submitted to Xenco Laboratories of Odessa, Texas for analysis of chloride by EPA Method 300, BTEX by EPA Method 8021, and gasoline and diesel range organics TPH by EPA Method 8015 (see Appendix B).

Laboratory analytical results from this event indicate that chloride concentrations in three samples along the north berm were above the RRAL for chloride; the remaining samples that were submitted were below the RRAL for chloride (Table 1). A total of approximately 456 cubic yards of impacted soil were excavated



and transported to Lea Land for landfill disposal. Waste manifests will be provided with the final closure request.

After excavation was completed, 15 confirmation soil samples were collected on June 10, 2016 in the area of excavation. The samples were submitted to Xenco Laboratories of Odessa, Texas for analysis of chloride by EPA Method 300. Laboratory analytical results from this event indicate that chloride concentrations in the west half of the excavation area were above the RRAL. Based on this, additional soil sampling was performed.

On August 10 and 11, 2016, an additional 12 soil samples were collected to the west and south of the excavation. Based on field screening, additional impacted soil was removed from the end of the excavation. Three confirmation soil samples were collected after this soil removal. The samples were submitted to Xenco Laboratories of Odessa, Texas for analysis of chloride by EPA Method 300. Laboratory analytical results from this event indicated that chloride concentrations were below the RRAL for chloride for all sample locations, except one in the center of the excavation toward the east end (Table 1).

On October 7, 2016, additional impacted soil was removed from the southwest end of the excavation and the east end of the excavation, where previously high chloride levels were detected. Three confirmation soil samples were collected after this soil removal. The samples were submitted to Xenco Laboratories of Odessa, Texas for analysis of chloride by EPA Method 300. Laboratory analytical results from this event indicate that chloride concentrations were below the RRAL for chloride (Table 1). Based on this, it appears that the vertical and horizontal extent of chloride has been fully assessed as shown on Figure 2.

Two soil samples were collected from the stockpile soil removed during the excavation process to assess if the stockpiled soil could be used to backfill the excavation. The analytical results indicated chloride concentrations of 390 mg/kg and 610 mg/kg (Table 1). These soil samples will be blended with clean soil and resampled.

### 3. Summary and Recommendations

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

- Blend the on-site stockpile with clean soil so that chloride concentrations are below 600 mg/kg. The blended stockpile will be resampled prior to make sure it is below 600 mg/kg prior to placing it in the excavation.
- Placement of a 20 mil polyethylene liner in the bottom of the excavation at a depth of 4 ft bgs.
- Use the existing stockpiled soil and blend with clean soil to backfill the excavation. The backfill material will be wheel-rolled with on-site equipment and brought up to grade.



Following completion of liner placement and excavation backfill, revegetation of the site will be performed. Disturbed areas associated with the remediation efforts will be reseeded. 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 spread using a hand held broadcaster and the area raked or dragged to cover the seed. Because the seed will be broadcast, the pounds per acre will be doubled. The seed mix will be provided by the NMSLO.

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 NMSLO will be contacted to determine the most effective manner to eradicate it.

Following completion of the above activities EOG will request that no further action be required 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 or [Bernard.Bockisch@ghd.com](mailto:Bernard.Bockisch@ghd.com).

Sincerely,

GHD

A handwritten signature in blue ink that reads "Betsy K. Gerwig". The signature is written in a cursive style with a large, looped "G" at the end.

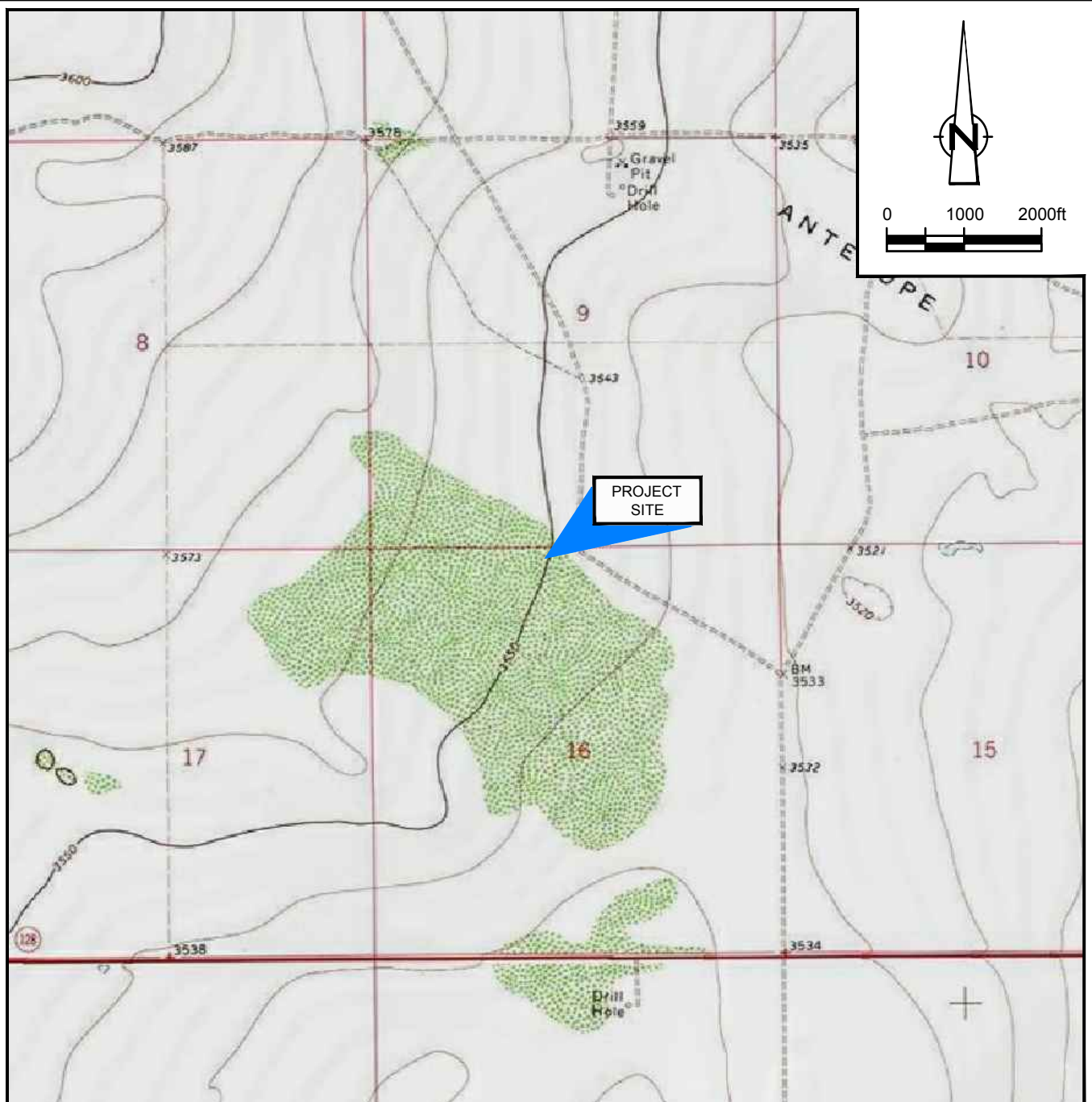
Betsy Gerwig  
Senior Project Manager

A handwritten signature in blue ink that reads "Bernard Bockisch". The signature is written in a cursive style with a large, looped "B" at the end.

Bernard Bockisch  
Senior Project Manager

BB/mc/21

## Figures



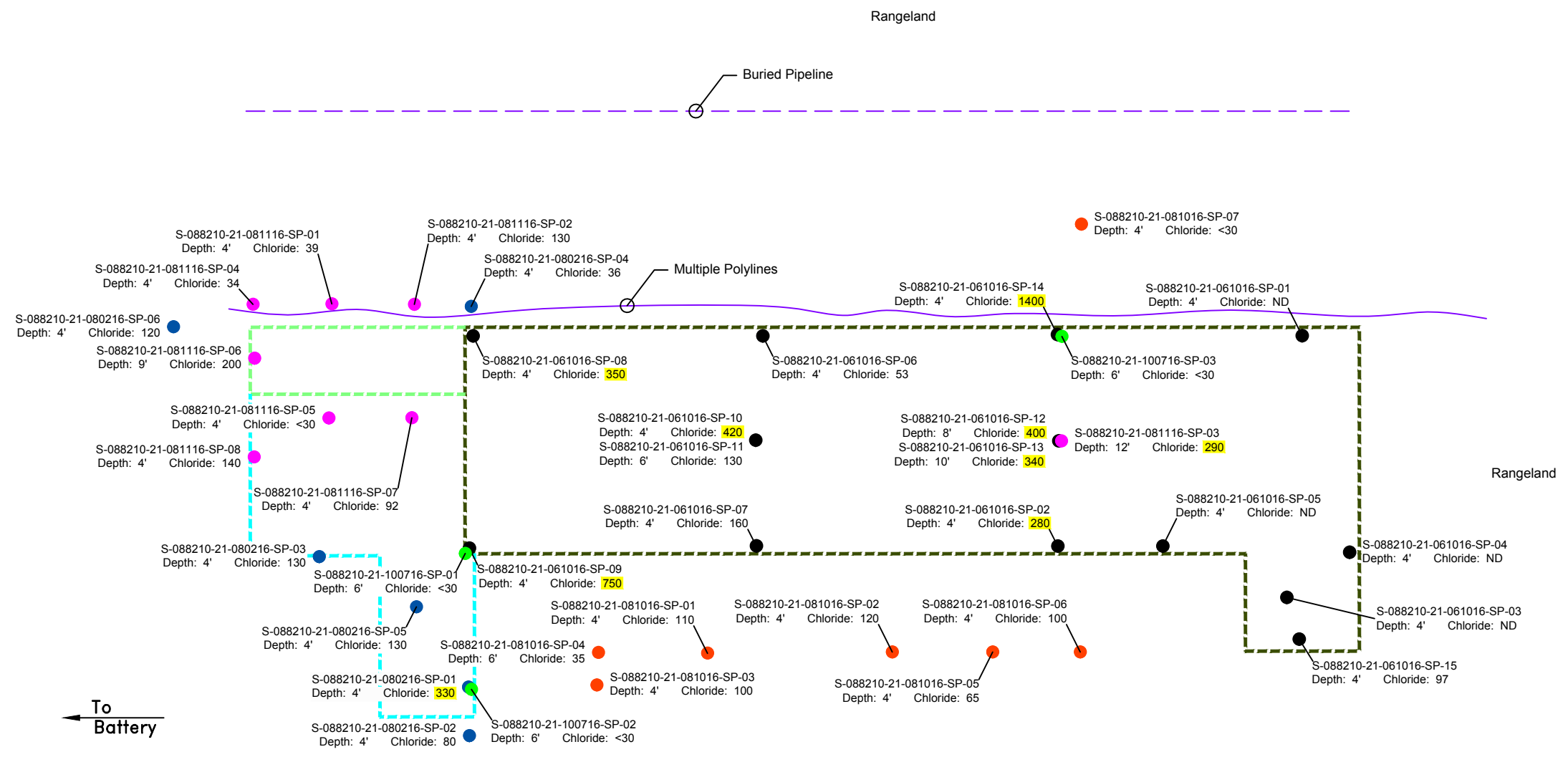
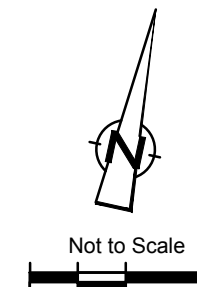
SOURCE: USGS 7.5 MINUTE QUAD  
"WOODLEY FLAT AND BELL LAKE, NEW MEXICO"

LAT/LONG: 32.2244° NORTH, 103.4762° WEST  
COORDINATE: NAD83 DATUM, U.S. FOOT  
STATE PLANE ZONE - NEW MEXICO EAST

Figure 1

SITE LOCATION MAP  
JOLLY ROGER 16 STATE 1  
LEA COUNTY, NEW MEXICO  
*EOG Resources*





LEGEND

●

Soil Sample Location (June 2016)

●

Soil Sample Location (August 2, 2016)

●

Soil Sample Location (August 10, 2016)

●

Soil Sample Location (August 11, 2016)

●

Soil Sample Location (October 7, 2016)

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Impacted Area

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Buried Pipeline

ND

Not Detected

Figure 2  
SITE DETAIL MAP  
JOLLY ROGER 16 STATE 1  
LEA COUNTY, NEW MEXICO  
EOG Resources



## Tables



Table 1

Jolly Roger 16 State No. 1 Soil Analytical Data

Sample ID	Depth (ft. bgs)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH (GRO)	TPH (DRO)	Total TPH	Chloride
<b>CH2M Hill Sample Collection</b>											
JR2-0-1-02172015	1.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<b>6,640</b>
JR2-3-4-02172015	4.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	117
JR3-01-02172015	1.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	50.7
JR4-0-1-02172015	1.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<25.0
JR5-0-1-02172015	1.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<b>2,940</b>
JR5-1-2-02172015	2.0	2/17/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<50.0	<b>595</b>
JR1-02162015	1.0	2/16/2015	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	87.3	87.3	<b>1,100</b>
Northeast Stockpile (JR16-NESP-05202015)	4-part comp	5/20/2015	<0.00491	<0.00505	<0.00842	<0.00406	<0.02244	<0.708	40.1	40.1	634
Off-pad East (OPE) (JR16-0-0-0.25-OPE-05202015)	0.25	5/20/2015	-	-	-	-	-	-	-	-	<21.0
Off-pad North (OPN) (JR16-0-0-0.25-OPN-05202015)	0.25	5/20/2015	-	-	-	-	-	-	-	-	<b>5,680</b>
North Stockpile (JR16-NSP-05202015)	4-part comp	5/20/2015	<0.00502	<0.00516	<0.00861	<0.00415	<0.02294	<0.724	8.88	8.88	<21.8
JR2 Resample (JR16-0-0-0.5-C-05202015)	0.5	5/20/2015	-	-	-	-	-	-	-	-	212
10' North of JR2 (JR16-0-0-0.5-N-05202015)	0.5	5/20/2015	-	-	-	-	-	-	-	-	215
5' South of JR2 (JR16-0-0-0.5-S-05202015)	0.5	5/20/2015	-	-	-	-	-	-	-	-	<b>368</b>
10' East of JR2 (JR16-0-0-0.5-E-05202015)	0.5	5/20/2015	-	-	-	-	-	-	-	-	110
10' West of JR2 (JR16-0-0-0.5-W-05202015)	0.5	5/20/2015	-	-	-	-	-	-	-	-	118
<b>GHD Sample Collection</b>											
S-088210-21-033116-SP-1	4.0	31/03/2016	<0.024	<0.048	<0.048	<0.097	<0.217	<4.8	<9.9	<14.7	<b>1,400</b>
S-088210-21-033116-SP-2	4.0	31/03/2016	<0.025	<0.049	<0.049	<0.099	<0.222	<4.9	<9.3	<14.2	<30
S-088210-21-033116-SP-3	2.5	31/03/2016	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<9.7	<14.5	<b>1,700</b>
S-088210-21-033116-SP-4	2.5	31/03/2016	<0.024	<0.049	<0.049	<0.097	<0.219	<4.9	<9.4	<14.3	<30
S-088210-21-033116-SP-5	4.0	31/03/2016	<0.023	<0.047	<0.047	<0.094	<0.211	<4.7	<9.9	<14.6	<b>1,200</b>
S-088210-21-033116-SP-6	3.5	31/03/2016	<0.023	<0.046	<0.046	<0.093	<0.208	<4.6	<9.4	<14	36
S-088210-21-033116-SP-7	4.0	31/03/2016	<0.024	<0.048	<0.048	<0.096	<0.216	<4.8	<10	<14.8	190
S-088210-21-033116-SP-8	3.0	31/03/2016	<0.024	<0.047	<0.047	<0.094	<0.212	<4.7	<9.3	<14	43
S-088210-21-033116-SP-9	2.5	31/03/2016	<0.025	<0.050	<0.050	<0.10	<0.225	<5.0	<9.2	<14.2	<30
S-088210-21-061016-SP-01	4.0	10/06/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-061016-SP-02	4.0	10/06/2016	-	-	-	-	-	-	-	-	<b>280</b>
S-088210-21-061016-SP-03	4.0	10/06/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-061016-SP-04	4.0	10/06/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-061016-SP-05	4.0	10/06/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-061016-SP-06	4.0	10/06/2016	-	-	-	-	-	-	-	-	53
S-088210-21-061016-SP-07	4.0	10/06/2016	-	-	-	-	-	-	-	-	160
S-088210-21-061016-SP-08	4.0	10/06/2016	-	-	-	-	-	-	-	-	<b>350</b>
S-088210-21-061016-SP-09	4.0	10/06/2016	-	-	-	-	-	-	-	-	<b>750</b>
S-088210-21-061016-SP-10	4.0	10/06/2016	-	-	-	-	-	-	-	-	<b>420</b>
S-088210-21-061016-SP-11	6.0	10/06/2016	-	-	-	-	-	-	-	-	130
S-088210-21-061016-SP-12	8.0	10/06/2016	-	-	-	-	-	-	-	-	<b>400</b>
S-088210-21-061016-SP-13	10.0	10/06/2016	-	-	-	-	-	-	-	-	<b>340</b>
S-088210-21-061016-SP-14	4.0	10/06/2016	-	-	-	-	-	-	-	-	<b>1,400</b>
S-088210-21-061016-SP-15	4.0	10/06/2016	-	-	-	-	-	-	-	-	97
S-088210-21-080216-SP-01	4.0	2/08/2016	-	-	-	-	-	-	-	-	<b>330</b>
S-088210-21-080216-SP-02	4.0	2/08/2016	-	-	-	-	-	-	-	-	80
S-088210-21-080216-SP-03	4.0	2/08/2016	-	-	-	-	-	-	-	-	130
S-088210-21-080216-SP-04	4.0	2/08/2016	-	-	-	-	-	-	-	-	36
S-088210-21-080216-SP-05	4.0	2/08/2016	-	-	-	-	-	-	-	-	130
S-088210-21-080216-SP-06	4.0	2/08/2016	-	-	-	-	-	-	-	-	120
S-088210-21-081016-SP-01	4.0	10/08/2016	-	-	-	-	-	-	-	-	110
S-088210-21-081016-SP-02	4.0	10/08/2016	-	-	-	-	-	-	-	-	120
S-088210-21-081016-SP-03	4.0	10/08/2016	-	-	-	-	-	-	-	-	100
S-088210-21-081016-SP-04	6.0	10/08/2016	-	-	-	-	-	-	-	-	35
S-088210-21-081016-SP-05	4.0	10/08/2016	-	-	-	-	-	-	-	-	65
S-088210-21-081016-SP-06	4.0	10/08/2016	-	-	-	-	-	-	-	-	100
S-088210-21-081016-SP-07	4.0	10/08/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-081116-SP-01	4.0	11/08/2016	-	-	-	-	-	-	-	-	39
S-088210-21-081116-SP-02	4.0	11/08/2016	-	-	-	-	-	-	-	-	130
S-088210-21-081116-SP-03	12.0	11/08/2016	-	-	-	-	-	-	-	-	<b>290</b>
S-088210-21-081116-SP-04	4.0	11/08/2016	-	-	-	-	-	-	-	-	34
S-088210-21-081116-SP-05	4.0	11/08/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-081116-SP-06	9.0	11/08/2016	-	-	-	-	-	-	-	-	200
S-088210-21-081116-SP-07	4.0	11/08/2016	-	-	-	-	-	-	-	-	92
S-088210-21-081116-SP-08	4.0	11/08/2016	-	-	-	-	-	-	-	-	140
S-088210-21-081116-SP-09	stockpile	11/08/2016	-	-	-	-	-	-	-	-	390
S-088210-21-081116-SP-010	stockpile	11/08/2016	-	-	-	-	-	-	-	-	610
S-088210-21-100716-SP-01	6.0	7/10/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-100716-SP-02	6.0	7/10/2016	-	-	-	-	-	-	-	-	<30
S-088210-21-100716-SP-03	6.0	7/10/2016	-	-	-	-	-	-	-	-	<30
<b>Recommended Remediation Action Limits</b>			<b>10</b>	<b>Total BTEX: 50</b>				<b>Total TPH: 1000</b>		<b>250</b>	

## Notes:

All samples are in milligrams per kilogram

Bolded numbers are above the RRAL

TraceAnalysis, Inc. completed analysis of CH2M Hill samples.

Hall Environmental Analysis Laboratory completed the analysis for GHD samples.

# Appendices

# Appendix A

## Water Well Records



[USGS Home](#)  
[Contact USGS](#)  
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## National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:  Geographic Area:

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Groundwater levels for the Nation

### Search Results -- 1 sites found

Agency code = usgs

site\_no list =

- 321402103274801

Minimum number of levels = 1

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

### USGS 321402103274801 24S.34E.10.11221

Lea County, New Mexico

Latitude 32°14'02", Longitude 103°27'48" NAD27

Land-surface elevation 3,535 feet above NAVD88

This well is completed in the Ogallala Formation (121OGLL) local aquifer.

#### Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement
1968-06-12		D	71.42			2			U	
1970-12-08		D	69.73			2			U	

#### Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	U	Unknown
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

[Questions about sites/data?](#)

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## National Water Information System: Web Interface

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Data Category:  Geographic Area:

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Groundwater levels for the Nation

### Search Results -- 1 sites found

Agency code = usgs

site\_no list =

- 321402103275001

Minimum number of levels = 1

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

### USGS 321402103275001 24S.34E.10.11212

Lea County, New Mexico

Latitude 32°14'02", Longitude 103°27'50" NAD27

Land-surface elevation 3,536 feet above NAVD88

The depth of the well is 83 feet below land surface.

This well is completed in the Ogallala Formation (121OGLL) local aquifer.

#### Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measurement
1953-04-27		D	71.75				2		U	
1955-06-03		D	71.91				2		U	

#### Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	U	Unknown
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

[Questions about sites/data?](#)

[Feedback on this web site](#)

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[Data Tips](#)

[Explanation of terms](#)

## 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](http://www.hallenvironmental.com)

April 15, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State #1

OrderNo.: 1604273

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/6/2016 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1604273**

Date Reported: **4/15/2016**

**CLIENT:** GHD

**Client Sample ID:** S-088210-21-033116-SP-01

**Project:** Jolly Roger 16 State #1

**Collection Date:** 3/31/2016 3:25:00 PM

**Lab ID:** 1604273-001

**Matrix:** SOIL

**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	1400	75		mg/Kg	50	4/13/2016 2:47:54 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/11/2016 2:27:07 PM	24685
Surr: DNOP	78.3	70-130		%Rec	1	4/11/2016 2:27:07 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/8/2016 10:34:57 AM	24681
Surr: BFB	103	66.2-112		%Rec	1	4/8/2016 10:34:57 AM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2016 10:34:57 AM	24681
Toluene	ND	0.048		mg/Kg	1	4/8/2016 10:34:57 AM	24681
Ethylbenzene	ND	0.048		mg/Kg	1	4/8/2016 10:34:57 AM	24681
Xylenes, Total	ND	0.097		mg/Kg	1	4/8/2016 10:34:57 AM	24681
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	4/8/2016 10:34:57 AM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 1604273

Date Reported: 4/15/2016

**CLIENT:** GHD

**Client Sample ID:** S-088210-21-033116-SP-02

**Project:** Jolly Roger 16 State #1

**Collection Date:** 3/31/2016 3:45:00 PM

**Lab ID:** 1604273-002

**Matrix:** SOIL

**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	ND	30		mg/Kg	20	4/11/2016 6:57:35 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/11/2016 3:31:33 PM	24685
Surr: DNOP	77.1	70-130		%Rec	1	4/11/2016 3:31:33 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/8/2016 11:45:26 AM	24681
Surr: BFB	98.9	66.2-112		%Rec	1	4/8/2016 11:45:26 AM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	4/8/2016 11:45:26 AM	24681
Toluene	ND	0.049		mg/Kg	1	4/8/2016 11:45:26 AM	24681
Ethylbenzene	ND	0.049		mg/Kg	1	4/8/2016 11:45:26 AM	24681
Xylenes, Total	ND	0.099		mg/Kg	1	4/8/2016 11:45:26 AM	24681
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/8/2016 11:45:26 AM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 **1604273**Date Reported: **4/15/2016****CLIENT:** GHD**Client Sample ID:** S-088210-21-033116-SP-03**Project:** Jolly Roger 16 State #1**Collection Date:** 3/31/2016 4:05:00 PM**Lab ID:** 1604273-003**Matrix:** SOIL**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	1700	75		mg/Kg	50	4/13/2016 3:00:18 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/11/2016 3:53:05 PM	24685
Surr: DNOP	72.6	70-130		%Rec	1	4/11/2016 3:53:05 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/8/2016 12:55:56 PM	24681
Surr: BFB	101	66.2-112		%Rec	1	4/8/2016 12:55:56 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2016 12:55:56 PM	24681
Toluene	ND	0.048		mg/Kg	1	4/8/2016 12:55:56 PM	24681
Ethylbenzene	ND	0.048		mg/Kg	1	4/8/2016 12:55:56 PM	24681
Xylenes, Total	ND	0.096		mg/Kg	1	4/8/2016 12:55:56 PM	24681
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	4/8/2016 12:55:56 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 1604273

Date Reported: 4/15/2016

CLIENT: GHD

Client Sample ID: S-088210-21-033116-SP-04

Project: Jolly Roger 16 State #1

Collection Date: 3/31/2016 4:30:00 PM

Lab ID: 1604273-004

Matrix: SOIL

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	ND	30		mg/Kg	20	4/11/2016 7:22:23 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/11/2016 4:14:28 PM	24685
Surr: DNOP	79.8	70-130		%Rec	1	4/11/2016 4:14:28 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/8/2016 1:19:25 PM	24681
Surr: BFB	101	66.2-112		%Rec	1	4/8/2016 1:19:25 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2016 1:19:25 PM	24681
Toluene	ND	0.049		mg/Kg	1	4/8/2016 1:19:25 PM	24681
Ethylbenzene	ND	0.049		mg/Kg	1	4/8/2016 1:19:25 PM	24681
Xylenes, Total	ND	0.097		mg/Kg	1	4/8/2016 1:19:25 PM	24681
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	4/8/2016 1:19:25 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 1604273

Date Reported: 4/15/2016

**CLIENT:** GHD

**Client Sample ID:** S-088210-21-033116-SP-05

**Project:** Jolly Roger 16 State #1

**Collection Date:** 3/31/2016 4:50:00 PM

**Lab ID:** 1604273-005

**Matrix:** SOIL

**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	1200	75		mg/Kg	50	4/13/2016 3:12:43 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/11/2016 4:36:01 PM	24685
Surr: DNOP	76.7	70-130		%Rec	1	4/11/2016 4:36:01 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/8/2016 1:42:52 PM	24681
Surr: BFB	101	66.2-112		%Rec	1	4/8/2016 1:42:52 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	4/8/2016 1:42:52 PM	24681
Toluene	ND	0.047		mg/Kg	1	4/8/2016 1:42:52 PM	24681
Ethylbenzene	ND	0.047		mg/Kg	1	4/8/2016 1:42:52 PM	24681
Xylenes, Total	ND	0.094		mg/Kg	1	4/8/2016 1:42:52 PM	24681
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	4/8/2016 1:42:52 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 **1604273**Date Reported: **4/15/2016****CLIENT:** GHD**Client Sample ID:** S-088210-21-033116-SP-06**Project:** Jolly Roger 16 State #1**Collection Date:** 3/31/2016 5:10:00 PM**Lab ID:** 1604273-006**Matrix:** SOIL**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	36	30		mg/Kg	20	4/11/2016 7:47:12 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/11/2016 4:57:29 PM	24685
Surr: DNOP	76.0	70-130		%Rec	1	4/11/2016 4:57:29 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/8/2016 2:06:16 PM	24681
Surr: BFB	102	66.2-112		%Rec	1	4/8/2016 2:06:16 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.023		mg/Kg	1	4/8/2016 2:06:16 PM	24681
Toluene	ND	0.046		mg/Kg	1	4/8/2016 2:06:16 PM	24681
Ethylbenzene	ND	0.046		mg/Kg	1	4/8/2016 2:06:16 PM	24681
Xylenes, Total	ND	0.093		mg/Kg	1	4/8/2016 2:06:16 PM	24681
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	4/8/2016 2:06:16 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 **1604273**Date Reported: **4/15/2016****CLIENT:** GHD**Client Sample ID:** S-088210-21-033116-SP-07**Project:** Jolly Roger 16 State #1**Collection Date:** 3/31/2016 5:30:00 PM**Lab ID:** 1604273-007**Matrix:** SOIL**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	190	30		mg/Kg	20	4/11/2016 8:24:26 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/12/2016 8:39:13 AM	24685
Surr: DNOP	72.2	70-130		%Rec	1	4/12/2016 8:39:13 AM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/8/2016 2:29:45 PM	24681
Surr: BFB	102	66.2-112		%Rec	1	4/8/2016 2:29:45 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2016 2:29:45 PM	24681
Toluene	ND	0.048		mg/Kg	1	4/8/2016 2:29:45 PM	24681
Ethylbenzene	ND	0.048		mg/Kg	1	4/8/2016 2:29:45 PM	24681
Xylenes, Total	ND	0.096		mg/Kg	1	4/8/2016 2:29:45 PM	24681
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	4/8/2016 2:29:45 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 1604273

Date Reported: 4/15/2016

**CLIENT:** GHD

**Client Sample ID:** S-088210-21-033116-SP-08

**Project:** Jolly Roger 16 State #1

**Collection Date:** 3/31/2016 5:50:00 PM

**Lab ID:** 1604273-008

**Matrix:** SOIL

**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	43	30		mg/Kg	20	4/11/2016 8:36:50 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	4/12/2016 9:00:42 AM	24685
Surr: DNOP	71.8	70-130		%Rec	1	4/12/2016 9:00:42 AM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/8/2016 2:53:12 PM	24681
Surr: BFB	102	66.2-112		%Rec	1	4/8/2016 2:53:12 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.024		mg/Kg	1	4/8/2016 2:53:12 PM	24681
Toluene	ND	0.047		mg/Kg	1	4/8/2016 2:53:12 PM	24681
Ethylbenzene	ND	0.047		mg/Kg	1	4/8/2016 2:53:12 PM	24681
Xylenes, Total	ND	0.094		mg/Kg	1	4/8/2016 2:53:12 PM	24681
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	4/8/2016 2:53:12 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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 1604273

Date Reported: 4/15/2016

CLIENT: GHD

Client Sample ID: S-088210-21-033116-SP-09

Project: Jolly Roger 16 State #1

Collection Date: 3/31/2016 6:00:00 PM

Lab ID: 1604273-009

Matrix: SOIL

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	ND	30		mg/Kg	20	4/11/2016 8:49:15 PM	24742
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/11/2016 6:02:08 PM	24685
Surr: DNOP	72.9	70-130		%Rec	1	4/11/2016 6:02:08 PM	24685
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/8/2016 3:16:38 PM	24681
Surr: BFB	102	66.2-112		%Rec	1	4/8/2016 3:16:38 PM	24681
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.025		mg/Kg	1	4/8/2016 3:16:38 PM	24681
Toluene	ND	0.050		mg/Kg	1	4/8/2016 3:16:38 PM	24681
Ethylbenzene	ND	0.050		mg/Kg	1	4/8/2016 3:16:38 PM	24681
Xylenes, Total	ND	0.10		mg/Kg	1	4/8/2016 3:16:38 PM	24681
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	4/8/2016 3:16:38 PM	24681

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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#: 1604273

15-Apr-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	MB-24742		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 24742		RunNo: 33467					
Prep Date:	4/11/2016		Analysis Date: 4/11/2016		SeqNo: 1029376		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-24742		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 24742		RunNo: 33467					
Prep Date:	4/11/2016		Analysis Date: 4/11/2016		SeqNo: 1029377		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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#: 1604273

15-Apr-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	1604273-001AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	S-088210-21-033116	Batch ID:	24685	RunNo:	33431					
Prep Date:	4/7/2016	Analysis Date:	4/11/2016	SeqNo:	1028302	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.51	0	90.5	31.2	162			
Surr: DNOP	3.9		5.051		77.1	70	130			

Sample ID	1604273-001AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	S-088210-21-033116	Batch ID:	24685	RunNo:	33431					
Prep Date:	4/7/2016	Analysis Date:	4/11/2016	SeqNo:	1028303	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.8	48.92	0	97.3	31.2	162	4.06	31.7	
Surr: DNOP	3.9		4.892		79.8	70	130	0	0	

Sample ID	LCS-24685	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	24685	RunNo:	33431					
Prep Date:	4/7/2016	Analysis Date:	4/11/2016	SeqNo:	1028306	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.9	65.8	136			
Surr: DNOP	4.1		5.000		82.1	70	130			

Sample ID	MB-24685	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	24685	RunNo:	33431					
Prep Date:	4/7/2016	Analysis Date:	4/11/2016	SeqNo:	1028307	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	7.9		10.00		79.4	70	130			

Sample ID	LCS-24721	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	24721	RunNo:	33451					
Prep Date:	4/11/2016	Analysis Date:	4/12/2016	SeqNo:	1028810	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		78.3	70	130			

Sample ID	MB-24721	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	24721	RunNo:	33451					
Prep Date:	4/11/2016	Analysis Date:	4/12/2016	SeqNo:	1028811	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.1		10.00		80.7	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  
R RPD outside accepted recovery limits  
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#: 1604273

15-Apr-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	LCS-24759		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 24759		RunNo: 33451					
Prep Date:	4/12/2016		Analysis Date: 4/13/2016		SeqNo: 1030989		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		73.6	70	130			

Sample ID	MB-24759		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 24759		RunNo: 33451					
Prep Date:	4/12/2016		Analysis Date: 4/13/2016		SeqNo: 1030990		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.5		10.00		74.8	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  
R RPD outside accepted recovery limits  
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#: 1604273

15-Apr-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	MB-24681		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 24681		RunNo: 33413					
Prep Date:	4/7/2016		Analysis Date: 4/8/2016		SeqNo: 1027435		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	990		1000		98.8	66.2	112			

Sample ID	LCS-24681		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 24681		RunNo: 33413					
Prep Date:	4/7/2016		Analysis Date: 4/8/2016		SeqNo: 1027436		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	82.0	80	120			
Surr: BFB	1100		1000		109	66.2	112			

Sample ID	1604273-002AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	S-088210-21-033116		Batch ID: 24681		RunNo: 33413					
Prep Date:	4/7/2016		Analysis Date: 4/8/2016		SeqNo: 1027439		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.6	23.02	0	82.5	59.3	143			
Surr: BFB	1000		920.8		111	66.2	112			

Sample ID	1604273-002AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	S-088210-21-033116		Batch ID:	24681		RunNo:	33413				
Prep Date:	4/7/2016		Analysis Date:	4/8/2016		SeqNo:	1027440		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	19	4.7	23.63	0	78.7	59.3	143	2.15	20		
Surr: BFB	1000		945.2		111	66.2	112	0	0		

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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#: 1604273

15-Apr-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	<b>MB-24681</b>		SampType:	<b>MBLK</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>PBS</b>		Batch ID:	<b>24681</b>		RunNo:	<b>33413</b>			
Prep Date:	<b>4/7/2016</b>		Analysis Date:	<b>4/8/2016</b>		SeqNo:	<b>1027450</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID	<b>LCS-24681</b>		SampType:	<b>LCS</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>LCSS</b>		Batch ID:	<b>24681</b>		RunNo:	<b>33413</b>			
Prep Date:	<b>4/7/2016</b>		Analysis Date:	<b>4/8/2016</b>		SeqNo:	<b>1027451</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.0	75.3	123			
Toluene	0.83	0.050	1.000	0	83.3	80	124			
Ethylbenzene	0.81	0.050	1.000	0	81.4	82.8	121			S
Xylenes, Total	2.4	0.10	3.000	0	81.4	83.9	122			S
Surr: 4-Bromofluorobenzene	1.1		1.000		109	80	120			

Sample ID	<b>1604273-001AMS</b>		SampType:	<b>MS</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>S-088210-21-033116</b>		Batch ID:	<b>24681</b>		RunNo:	<b>33413</b>			
Prep Date:	<b>4/7/2016</b>		Analysis Date:	<b>4/8/2016</b>		SeqNo:	<b>1027453</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9671	0	103	71.5	122			
Toluene	1.0	0.048	0.9671	0.01361	103	71.2	123			
Ethylbenzene	1.0	0.048	0.9671	0	105	75.2	130			
Xylenes, Total	3.0	0.097	2.901	0	105	72.4	131			
Surr: 4-Bromofluorobenzene	1.1		0.9671		112	80	120			

Sample ID	<b>1604273-001AMSD</b>		SampType:	<b>MSD</b>		TestCode:	<b>EPA Method 8021B: Volatiles</b>			
Client ID:	<b>S-088210-21-033116</b>		Batch ID:	<b>24681</b>		RunNo:	<b>33413</b>			
Prep Date:	<b>4/7/2016</b>		Analysis Date:	<b>4/8/2016</b>		SeqNo:	<b>1027454</b>	Units:	<b>mg/Kg</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.024	0.9785	0	94.7	71.5	122	7.37	20	
Toluene	0.96	0.049	0.9785	0.01361	96.5	71.2	123	5.28	20	
Ethylbenzene	0.99	0.049	0.9785	0	102	75.2	130	2.01	20	
Xylenes, Total	3.0	0.098	2.935	0	101	72.4	131	2.70	20	
Surr: 4-Bromofluorobenzene	1.1		0.9785		111	80	120	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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: 1604273

RcptNo: 1

Received by/date:

*Am* 04/06/16

Logged By: Ashley Gallegos

4/6/2016 9:40:00 AM

*Ag*

Completed By: Ashley Gallegos

4/7/2016 11:02:23 AM

*Ag*

Reviewed By:

*[Signature]*

*4/10/16*

## Chain of Custody

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

## Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
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	1.7	Good	Yes			

Client: GHD - Albuquerque

Mailing Address: 6121 Indian School Rd NW  
2200, Albuquerque, NM, 87110

Phone #: 505-884-0672

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

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

☒ NELAP ☐ Other \_\_\_\_\_

☒ EDD (Type) \_\_\_\_\_

☒ Standard ☐ Rush

Jolly Roger 16 State #1

Project #:

Project Manager:

Bernard Bockisch  
505-884-0672

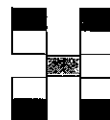
Sampler: Steve Perez

On Ice: ☒ Yes ☐ No

Sample Temperature: 17

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
3-16	1525	Sil	S-088210-21-033116-SF-01	4 oz Glass-1	Ice	1604273 -001
	1545		S-088210-21-033116-SF-02			-002
	1605		S-088210-21-033116-SF-03			-003
	16130		S-088210-21-033116-SF-04			-004
	1650		S-088210-21-033116-SF-05			-005
	1710		S-088210-21-033116-SF-06			-006
	1730		S-088210-21-033116-SF-07			-007
	1750		S-088210-21-033116-SF-08			-008
✓	1800	V	S-088210-21-033116-SF-09	✓	✓	-009
✓ 4/9/16 PER SAR						

ate:	Time:	Relinquished by:	Received by:	Date	Time
1-16		<i>Steven King</i>	<i>[Signature]</i>	01/06/16	0940
ate:	Time:	Relinquished by:	Received by:	Date	Time
			<i>[Signature]</i>		



[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks:



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

June 24, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State 1

OrderNo.: 1606765

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 15 sample(s) on 6/14/2016 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1606765

Date Reported: 6/24/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State 1

**Lab Order:** 1606765

**Lab ID:** 1606765-001 **Collection Date:** 6/10/2016 9:23:00 AM  
**Client Sample ID:** S-088210-21-061016-SP-01 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	ND	30		mg/Kg	20	6/16/2016 10:20:14 PM	25913

**Lab ID:** 1606765-002 **Collection Date:** 6/10/2016 10:13:00 AM  
**Client Sample ID:** S-088210-21-061016-SP-02 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	280	30		mg/Kg	20	6/16/2016 10:57:29 PM	25913

**Lab ID:** 1606765-003 **Collection Date:** 6/10/2016 10:44:00 AM  
**Client Sample ID:** S-088210-21-061016-SP-03 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	ND	30		mg/Kg	20	6/16/2016 11:34:43 PM	25913

**Lab ID:** 1606765-004 **Collection Date:** 6/10/2016 11:18:00 AM  
**Client Sample ID:** S-088210-21-061016-SP-04 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	ND	30		mg/Kg	20	6/16/2016 11:47:08 PM	25913

**Lab ID:** 1606765-005 **Collection Date:** 6/10/2016 12:07:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-05 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	ND	30		mg/Kg	20	6/16/2016 11:59:33 PM	25913

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

<b>Qualifiers:</b>	*	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	
	R	RPD outside accepted recovery limits	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: 1606765

Date Reported: 6/24/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State 1

**Lab Order:** 1606765

**Lab ID:** 1606765-006 **Collection Date:** 6/10/2016 12:10:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-06 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	53	30		mg/Kg	20	6/17/2016 12:11:57 AM	25913

**Lab ID:** 1606765-007 **Collection Date:** 6/10/2016 12:42:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-07 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	160	30		mg/Kg	20	6/17/2016 12:24:22 AM	25913

**Lab ID:** 1606765-008 **Collection Date:** 6/10/2016 2:48:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-08 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	350	30		mg/Kg	20	6/17/2016 12:36:47 AM	25913

**Lab ID:** 1606765-009 **Collection Date:** 6/10/2016 2:53:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-09 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	750	30		mg/Kg	20	6/17/2016 12:49:12 AM	25913

**Lab ID:** 1606765-010 **Collection Date:** 6/10/2016 3:15:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-10 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	420	30		mg/Kg	20	6/17/2016 1:01:36 AM	25913

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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: 1606765

Date Reported: 6/24/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State 1

**Lab Order:** 1606765

**Lab ID:** 1606765-011 **Collection Date:** 6/10/2016 3:17:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-11 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	130	30		mg/Kg	20	6/17/2016 1:14:00 AM	25913

**Lab ID:** 1606765-012 **Collection Date:** 6/10/2016 3:20:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-12 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	400	30		mg/Kg	20	6/17/2016 1:26:25 AM	25913

**Lab ID:** 1606765-013 **Collection Date:** 6/10/2016 3:25:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-13 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	340	30		mg/Kg	20	6/17/2016 2:03:38 AM	25913

**Lab ID:** 1606765-014 **Collection Date:** 6/10/2016 3:52:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-14 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	1400	75		mg/Kg	50	6/18/2016 5:32:27 AM	25913

**Lab ID:** 1606765-015 **Collection Date:** 6/10/2016 4:00:00 PM  
**Client Sample ID:** S-088210-21-061016-SP-15 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	97	30		mg/Kg	20	6/17/2016 2:28:28 AM	25913

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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#: 1606765

24-Jun-16

Client: GHD

Project: Jolly Roger 16 State 1

Sample ID	MB-25913		SampType: mblk		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 25913		RunNo: 34989					
Prep Date:	6/16/2016		Analysis Date: 6/16/2016		SeqNo: 1081418		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-25913		SampType: lcs		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 25913		RunNo: 34989					
Prep Date:	6/16/2016		Analysis Date: 6/16/2016		SeqNo: 1081419		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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



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: 1606765

RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

6/14/2016 10:00:00 AM

Completed By: Lindsay Mangin

6/14/2016 3:17:56 PM

Reviewed By:

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$

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:

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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:

☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

# Chain-of-Custody Record

ent: GHD - Albuquerque

illing Address: 6121 Indian School Rd NE

200, Albuquerque, NM, 87110

one #: 505-884-0672

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

VQC Package:

Standard ☐ Level 4 (Full Validation)

creditation

NELAP ☐ Other

EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Jolly Roger 16 State #1

Project #:

088210/21

Project Manager:

Bernard Bockisch

505-280-0572

Sampler: Steve Perez

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.7



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

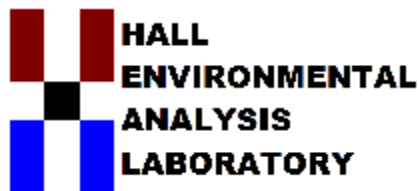
Phone #: 505-804-0672			Project Manager:			BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride 300.0					Air Bubbles (Y or N)
Mail or Fax#: Bernard.Bockisch@ghd.com			Bernard Bockisch																			
VQC Package:			505-280-0572																			
Standard <input type="checkbox"/> Level 4 (Full Validation)			Sampler: Steve Perez																			
Accreditation			On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																			
NELAP <input type="checkbox"/> Other			Sample Temperature: 1.7																			
EDD (Type)																						
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.																
10-16	923	Soil	S-088210-21-061016-SP-01	4oz-glass-1	ICE	-001																
	1013		S-088210-21-061016-SP-02			-002																
	1044		S-088210-21-061016-SP-03			-003																
	1118		S-088210-21-061016-SP-04			-004																
	1207		S-088210-21-061016-SP-05			-005																
	1210		S-088210-21-061016-SP-06			-006																
	1242		S-088210-21-061016-SP-07			-007																
	1448		S-088210-21-061016-SP-08			-008																
	1453		S-088210-21-061016-SP-09			-009																
	1515		S-088210-21-061016-SP-10			-010																
	1517		S-088210-21-061016-SP-11			-011																
	1520		S-088210-21-061016-SP-12			-012																

ite: Time: Relinquished by: Steven Perez Received by: Sp h Date Time: 6/13/16 0830

ite: Time: Relinquished by: Sp h Received by: Joe Cut Date Time: 06/14/16 1000

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](http://www.hallenvironmental.com)

August 10, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State #1

OrderNo.: 1608310

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/4/2016 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1608310

Date Reported: 8/10/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1

**Lab Order:** 1608310

**Lab ID:** 1608310-001 **Collection Date:** 8/2/2016 3:24:00 PM  
**Client Sample ID:** S-088210-21-080216-SP-01 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	330	30		mg/Kg	20	8/8/2016 1:50:22 PM	26851

**Lab ID:** 1608310-002 **Collection Date:** 8/2/2016 3:27:00 PM  
**Client Sample ID:** S-088210-21-080216-SP-02 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	80	30		mg/Kg	20	8/8/2016 2:27:34 PM	26851

**Lab ID:** 1608310-003 **Collection Date:** 8/2/2016 3:31:00 PM  
**Client Sample ID:** S-088210-21-080216-SP-03 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	130	30		mg/Kg	20	8/8/2016 2:39:58 PM	26851

**Lab ID:** 1608310-004 **Collection Date:** 8/2/2016 3:35:00 PM  
**Client Sample ID:** S-088210-21-080216-SP-04 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	36	30		mg/Kg	20	8/8/2016 2:52:22 PM	26851

**Lab ID:** 1608310-005 **Collection Date:** 8/2/2016 3:38:00 PM  
**Client Sample ID:** S-088210-21-080216-SP-05 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	130	30		mg/Kg	20	8/8/2016 3:04:47 PM	26851

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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: 1608310

Date Reported: 8/10/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1

**Lab Order:** 1608310

**Lab ID:** 1608310-006

**Collection Date:** 8/2/2016 3:42:00 PM

**Client Sample ID:** S-088210-21-080216-SP-06

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	120	30		mg/Kg	20	8/8/2016 3:17:12 PM	26851

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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#: 1608310

10-Aug-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	MB-26851		SampType: mblk		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 26851		RunNo: 36324					
Prep Date:	8/8/2016		Analysis Date: 8/8/2016		SeqNo: 1125060		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-26851		SampType: lcs		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 26851		RunNo: 36324					
Prep Date:	8/8/2016		Analysis Date: 8/8/2016		SeqNo: 1125061		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.9	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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



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: 1608310

RcptNo: 1

Received by/date:

*LM*

*08/04/16*

Logged By: Ashley Gallegos

8/4/2016 9:30:00 AM

*AG*

Completed By: Ashley Gallegos

8/4/2016 7:20:58 PM

*AG*

Reviewed By:

*IO*

*08/05/16*

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ?

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:

12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody)

Yes ☒

No ☐

(<2 or >12 unless noted)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted?

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?  
(If no, notify customer for authorization.)

Yes ☒

No ☐

Checked by:

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via:

eMail

Phone

Fax

In Person

Regarding:

Client Instructions:

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Yes			

# Chain-of-Custody Record

Client: GHD-Albuquerque

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

Phone #: 505-884-0672

Email or Fax#:

QC Package:  
☒ Standard ☐ Level 4 (Full Validation)

Creditation:  
☒ NELAP ☐ Other

EDD (Type):

Turn-Around Time:  
☒ Standard ☐ Rush

Project Name:  
Jolly Roger 16 State # 1

Project #:  
088210/21

Project Manager:  
Bernard Boekisch

Sampler: Steve Perez

On Ice: ☐ Yes ☒ No

Sample Temperature: 4.1



## 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.	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 <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride 300.0	Air Bubbles (Y or N)
8/16		Soil	1524 S-088210-21-080216-SP-01	4oz glass	ICE	-001												X	
			1527 S-088210-21-080216-SP-02			-002													
			1531 S-088210-21-080216-SP-03			-003													
			1535 S-088210-21-080216-SP-04			-004													
			1538 S-088210-21-080216-SP-05			-005													
			1542 S-088210-21-080216-SP-06			-006													

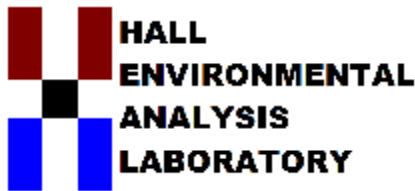
Relinquished by: Steve Perez Date: 8/3/16 Time: 0810

Received by: [Signature]

Relinquished by: [Signature] Date: 08/04/16 Time: 0930

Received by: [Signature]

Remarks:



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

August 19, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State #1

OrderNo.: 1608776

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/12/2016 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1608776

Date Reported: 8/19/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1

**Lab Order:** 1608776

**Lab ID:** 1608776-001 **Collection Date:** 8/10/2016 3:40:00 PM  
**Client Sample ID:** S-088210-21-081016-SP-01 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	110	30		mg/Kg	20	8/17/2016 11:42:53 AM	27036

**Lab ID:** 1608776-002 **Collection Date:** 8/10/2016 3:43:00 PM  
**Client Sample ID:** S-088210-21-081016-SP-02 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	120	30		mg/Kg	20	8/17/2016 12:20:07 PM	27036

**Lab ID:** 1608776-003 **Collection Date:** 8/10/2016 3:46:00 PM  
**Client Sample ID:** S-088210-21-081016-SP-03 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	100	30		mg/Kg	20	8/17/2016 12:57:21 PM	27036

**Lab ID:** 1608776-004 **Collection Date:** 8/10/2016 3:51:00 PM  
**Client Sample ID:** S-088210-21-081016-SP-04 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	35	30		mg/Kg	20	8/17/2016 1:09:46 PM	27036

**Lab ID:** 1608776-005 **Collection Date:** 8/10/2016 3:56:00 PM  
**Client Sample ID:** S-088210-21-081016-SP-05 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Chloride	65	30		mg/Kg	20	8/17/2016 1:22:10 PM	27036

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Analytical Report**Lab Order: **1608776**Date Reported: **8/19/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1**Lab Order:** 1608776**Lab ID:** 1608776-006**Collection Date:** 8/10/2016 4:00:00 PM**Client Sample ID:** S-088210-21-081016-SP-06**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	100	30		mg/Kg	20	8/17/2016 1:34:35 PM	27036

**Lab ID:** 1608776-007**Collection Date:** 8/10/2016 4:05:00 PM**Client Sample ID:** S-088210-21-081016-SP-07**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	ND	30		mg/Kg	20	8/17/2016 1:46:59 PM	27036

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: GHD

Work Order Number: 1608776

RcptNo: 1

Received by/date:

*AW*

*08/12/16*

Logged By: Ashley Gallegos

8/12/2016 9:40:00 AM

Completed By: Ashley Gallegos

8/12/2016 2:27:32 PM

Reviewed By:

*[Signature]*

*08/12/16*

*[Signature]*

*[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 ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

# 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	22.8	Good	Not Present			

Client: GHD - Albuquerque

Mailing Address: 6121 Indian School Rd NE  
Fe 200, Albuquerque, N.M. 87110

Phone #: \_\_\_\_\_

Email or Fax#: \_\_\_\_\_

NA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other \_\_\_\_\_

☐ EDD (Type) \_\_\_\_\_

☒ Standard ☐ Rush

Jolly Roger 16 State #1

088210/21

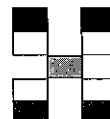
nager:  
Bernard Bochnisch  
505-280-0572

Steve Perez

☐ Yes ☒ No

22.800

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
8/11/16	0810	Steve Perez	[Signature]	8/11/16	0810	
Date:	Time:	Relinquished by:	Received by:	Date	Time	
8/11/16	1900	[Signature]	ann [Signature]	08/12/16	0940	



[www.hallenvironmental.com](http://www.hallenvironmental.com)

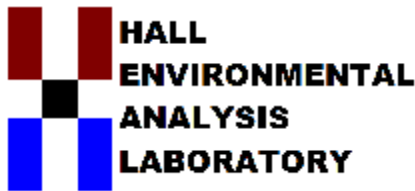
4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

	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 <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	
	8081 Pesticides / 8082 PCB's	
	8260B (VOA)	
	8270 (Semi-VOA)	
X	Chloride 300.0	
	Air Bubbles (Y or N)	

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](http://www.hallenvironmental.com)

August 22, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State #1

OrderNo.: 1608927

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 10 sample(s) on 8/16/2016 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1608927

Date Reported: 8/22/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1

**Lab Order:** 1608927

**Lab ID:** 1608927-001 **Collection Date:** 8/11/2016 10:28:00 AM  
**Client Sample ID:** S-088210-21-081116-SP-01 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	39	30		mg/Kg	20	8/19/2016 3:06:19 PM	27084

**Lab ID:** 1608927-002 **Collection Date:** 8/11/2016 10:33:00 AM  
**Client Sample ID:** S-088210-21-081116-SP-02 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	130	30		mg/Kg	20	8/19/2016 3:43:33 PM	27084

**Lab ID:** 1608927-003 **Collection Date:** 8/11/2016 10:38:00 AM  
**Client Sample ID:** S-088210-21-081116-SP-03 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	290	30		mg/Kg	20	8/19/2016 3:55:57 PM	27084

**Lab ID:** 1608927-004 **Collection Date:** 8/11/2016 10:42:00 AM  
**Client Sample ID:** S-088210-21-081116-SP-04 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	34	30		mg/Kg	20	8/19/2016 4:08:22 PM	27084

**Lab ID:** 1608927-005 **Collection Date:** 8/11/2016 2:28:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-05 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	ND	30		mg/Kg	20	8/19/2016 4:20:47 PM	27084

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

<b>Qualifiers:</b>	*	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	
	R	RPD outside accepted recovery limits	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: 1608927

Date Reported: 8/22/2016

**CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1

**Lab Order:** 1608927

**Lab ID:** 1608927-006 **Collection Date:** 8/11/2016 2:32:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-06 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	200	30		mg/Kg	20	8/19/2016 4:33:11 PM	27084

**Lab ID:** 1608927-007 **Collection Date:** 8/11/2016 2:36:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-07 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	92	30		mg/Kg	20	8/19/2016 5:10:25 PM	27084

**Lab ID:** 1608927-008 **Collection Date:** 8/11/2016 2:40:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-08 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	140	30		mg/Kg	20	8/19/2016 5:22:49 PM	27084

**Lab ID:** 1608927-009 **Collection Date:** 8/11/2016 2:45:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-09 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	390	30		mg/Kg	20	8/19/2016 5:35:14 PM	27084

**Lab ID:** 1608927-010 **Collection Date:** 8/11/2016 3:10:00 PM  
**Client Sample ID:** S-088210-21-081116-SP-010 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: LGT							
Chloride	610	30		mg/Kg	20	8/19/2016 5:47:38 PM	27084

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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#: 1608927

22-Aug-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	MB-27084		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS		Batch ID:	27084		RunNo:	36654				
Prep Date:	8/19/2016		Analysis Date:	8/19/2016		SeqNo:	1135391		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	LCS-27084		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 27084		RunNo: 36654					
Prep Date:	8/19/2016		Analysis Date: 8/19/2016		SeqNo: 1135392		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
R RPD outside accepted recovery limits	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  
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: 1608927

RcptNo: 1

Received by/date: AS 08/16/16

Logged By: Anne Thorne 8/16/2016 9:15:00 AM

Completed By: Anne Thorne 8/16/2016

Reviewed By: [Signature] 08/16/16

[Signature]

[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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:	<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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

# Chain-of-Custody Record

Client: GHD - Albuquerque

Mailing Address:

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:  
☒ 5 day Turn  
☐ Standard ☐ Rush

Project Name:

Jolly Roger 16 State #1

Project #: 088210/21

Project Manager:

Bernard Bockisch  
505-280-0572

Sampler: Steve Perry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3°C



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MT	BTEX + MT	TPH Method	TPH (Method	EDB (Method	8310 (PNA	RCRA 8 Met	Anions (F, Cl	8081 Pestic	8260B (VO	8270 (Semi	Chloride	Air Bubbles
5/11/16	1028	Soil	S-088210-21-081116-SP-01	4oz glass-1	JCF	701												X	
	1033	Soil	S-088210-21-081116-SP-02			702													
	1038	Soil	S-088210-21-081116-SP-03			703													
	1042	Soil	S-088210-21-081116-SP-04			704													
	1428	Soil	S-088210-21-081116-SP-05			705													
	1432	Soil	S-088210-21-081116-SP-06			706													
	1436	Soil	S-088210-21-081116-SP-07			707													
	1440	Soil	S-088210-21-081116-SP-08			708													
	1445	Soil	S-088210-21-081116-SP-09			709													
✓	1510	Soil	S-088210-21-081116-SP-10	✓	✓	710												↓	

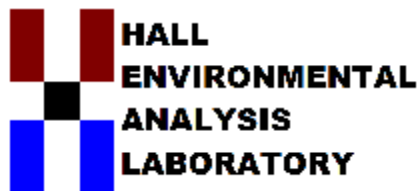
Date: 5/15/16 Time: 15:30 Relinquished by: Steve Perry Received by: rec sp h Date: 8/15/16 Time: 1530

Date: 5/15/16 Time: 1900 Relinquished by: sp h Received by: cur run Date: 08/16/16 Time: 0915

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](http://www.hallenvironmental.com)

October 13, 2016

Bernie Bockish

GHD

6121 Indian School Road, NE #200

Albuquerque, NM 87110

TEL: (505) 884-0672

FAX

RE: Jolly Roger 16 State #1

OrderNo.: 1610435

Dear Bernie Bockish:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/11/2016 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](http://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,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

**Analytical Report**Lab Order: **1610435**Date Reported: **10/13/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** GHD  
**Project:** Jolly Roger 16 State #1**Lab Order:** 1610435**Lab ID:** 1610435-001 **Collection Date:** 10/7/2016 9:22:00 AM  
**Client Sample ID:** S-088210-21-100716-SP-01 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: <b>LGT</b>							
Chloride	ND	30		mg/Kg	20	10/12/2016 12:10:50 PM	28035

**Lab ID:** 1610435-002 **Collection Date:** 10/7/2016 10:40:00 AM  
**Client Sample ID:** S-088210-21-100716-SP-02 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: <b>LGT</b>							
Chloride	ND	30		mg/Kg	20	10/12/2016 12:48:04 PM	28035

**Lab ID:** 1610435-003 **Collection Date:** 10/7/2016 10:45:00 AM  
**Client Sample ID:** S-088210-21-100716-SP-03 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b> Analyst: <b>LGT</b>							
Chloride	ND	30		mg/Kg	20	10/12/2016 1:00:29 PM	28035

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

<b>Qualifiers:</b>	*	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
	R	RPD outside accepted recovery limits	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#: 1610435

13-Oct-16

Client: GHD

Project: Jolly Roger 16 State #1

Sample ID	MB-28035		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBS		Batch ID: 28035		RunNo: 37905					
Prep Date:	10/12/2016		Analysis Date: 10/12/2016		SeqNo: 1180837		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-28035		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 28035		RunNo: 37905					
Prep Date:	10/12/2016		Analysis Date: 10/12/2016		SeqNo: 1180838		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
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: 1610435

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

10/11/2016 9:00:00 AM

Completed By: Ashley Gallegos

10/11/2016 9:46:15 AM

Reviewed By:

## 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? FedEx

## 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:

(&lt;2 or &gt;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	1.9	Good	Yes			

ent: GHD-Albuquerque

mailing Address: 6121 Indian School Rd NE

6200, Albuquerque, NM, 87110

one #: 595-884-0677

Mail or Fax#: Bernard Boettisch @chd.com

✓  
/QC Package:

☐ Level 4 (Full Validation)

creditation

☒ NELAP ☐ Other

---

EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 48hr

Project Name: \_\_\_\_\_

Volley Roger 16 State #1

Project #: 108210/21

Project Manager: Bernard Backisch

1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 26

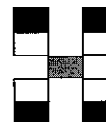
Sampler: Stop Page 7

On Ice: ☒ Yes ☐ No

Sample Temperature: 190

[illegible]

10/16	Time: 14:00	Relinquished by: <i>Steven Perry</i>	Received by: <i>ann/ann</i>	Date: 10/11/16	Time: 0900
	Time:	Relinquished by:	Received by:	Date:	Time:

[illegible]

## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks:	
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