

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

MAR 04 2016

Form C-141  
Revised August 8, 2011

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

**Release Notification and Corrective Action**

**OPERATOR**

Initial Report  Final Report

Name of Company: BP	Contact: Steve Moskal
Address: 200 Energy Court, Farmington, NM 87401	Telephone No.: 505-326-9497
Facility Name: Ludwick LS 017	Facility Type: Natural gas well

Surface Owner: Federal	Mineral Owner: Federal	API No. 3004509246
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**LOCATION OF RELEASE**

Unit Letter B	Section 29	Township 30N	Range 10W	Feet from the 790	North/South Line North	Feet from the 1,650	East/West Line East	County: San Juan
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Latitude 36.787893° Longitude -107.903769°

**NATURE OF RELEASE**

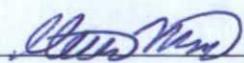
Type of Release: condensate/oil	Volume of Release: 16 bbl condensate; 10 bbl prod. water	Volume Recovered: none
Source of Release: Suspect corrosion 400 bbl production tank	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: January 14, 2016; 1:30 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? A phone call to Vanessa Fields	
By Whom? Steve Moskal of BP	Date and Hour: 1/15/2016 at 9:05 AM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\* During tank gauging, tech found a drop of approximately 11.5" from condensate tank from previous monthly gauging event. Removed contents of tank and filled with fresh, warm water to confirm leak. Hole found near the bottom of the tank. Estimated volumes of loss based on recent gauging data. The tank was removed and inspected. Replacement of the tank will be determined upon analysis of the well production rate.

Describe Area Affected and Cleanup Action Taken.\* The area was excavated with contaminated soils exported off site for landfarm treatment. The final excavation area measured 25' x 22' x 30' deep with a total of 430 cubic yards of soil exported off site. Clean soil was imported and used for backfill. Soil samples collected for laboratory analysis demonstrates contaminant levels below the spill and release guidelines based on a site ranking of 10. Siting criteria, a field report and laboratory results are attached.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Steve Moskal	Approved by Environmental Specialist: 	
Title: Field Environmental Coordinator	Approval Date: <u>3/8/16</u>	Expiration Date:
E-mail Address: steven.moskal@bp.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: February 25, 2016	Phone: 505-326-9497	

\* Attach Additional Sheets If Necessary

#NMF 16 0204 1716

30

**BP America: Ludwick LS 17**  
**(B) Sec 29 – T30N – R10W**  
**San Juan County, New Mexico**  
**API: 30-045-09246**

Summary Record of Impact Remediation

January 14, 2016 A loss of approximately 16 barrels condensate and 10 barrels produced water from the 300 barrel stock tank was discovered during scheduled tank gauging. The source was determined to be a small corrosion hole discovered near the bottom of the tank.

Site NMOCD/BLM closure standard determined at 1,000 ppm TPH based on:

- Horizontal Distance to Dry Wash > 200 feet (10 points)
- Nearest Water Well (SJ 02782) = 4,081 feet (0 points)
- Depth to Groundwater based on SJ 01116 >100 feet (0 points)

February 8, 2016 Begin investigation of impact area using trackhoe. Testholes dug to 20' depth determined impacts travelled vertically to at least 20' sub-grade, but did not traverse laterally more than approximately 13' from the original release point (see TH-2 on site overhead view and lab report).

February 9, 2016 Excavate source area to approximately 25' x 22' x 12' deep. Soil type silty sand.

February 10, 2016 Excavate source area to approximately 25' x 22' x 20' deep. Conduct sidewall and base closure sampling. Witnessed by NMOCD.

February 11, 2016 Receive rush lab results from prior days sampling:

Sample ID	Date/Time	Field OVM	TPH 8015B (DRO+GRO)	BTEX 8021	Chloride	Comments
Base 5-pt @ 20'	2/10/2016 @ 10:10	3,758 ppm	586 mg/Kg	72 mg/Kg	ND	Failed on BTEX
East Wall 3-pt (6'-12'-18')	2/10/2016 @ 10:13	67 ppm	ND	0.07 mg/Kg	ND	Passed
North Wall 3-pt (6'-12'-18')	2/10/2016 @ 10:16	66 ppm	ND	ND	ND	Passed
South Wall 3-pt (6'-12'-18')	2/10/2016 @ 10:20	27 ppm	ND	ND	ND	Passed
West Wall 3-pt (6'-12'-18')	2/10/2016 @ 10:23	16 ppm	ND	ND	32 ppm	Passed
NMOCD/BLM Closure Standard:		NA	1,000 mg/Kg	50 mg/Kg	1,000 mg/Kg	

February 12, 2016 Extend source area excavation to approximately 25' x 22' x 23' deep. Conduct base closure sampling for BTEX. Witnessed by NMOCD.

February 13, 2016 Receive rush lab results from prior days sampling. BTEX tested at 67 mg/Kg (Failed)

February 19, 2016 Extend source area excavation to approximately 25' x 22' x 30' deep. Conduct base closure sampling for BTEX. Witnessed by NMOCD and BLM.

February 22, 2016 Receive rush lab results from prior days sampling. BTEX tested at 39 mg/Kg (Passed).

February 25, 2016 Complete backfilling operations. Total volume transported to JFJ Crouch Mesa Landfarm = 430 cubic yards (Form C-138 Attached).

# Ludwick LS 17 Remedial Excavation Closure

Feb 8, 2016:  
TH-2  
20' OVM = 17.1 20' TPH = 0.0

Feb 10, 2016: North Sidewall  
3-pt Composite (6'-12'-18') OVM = 66 ppm  
Lab TPH: ND Lab BTEX: ND

Feb 10, 2016: East Sidewall  
3-pt Composite (6'-12'-18') OVM = 67 ppm  
Lab TPH: ND Lab BTEX: 0.07 ppm

Feb 19, 2016:  
Excavation at time of closure sampling:  
25' x 22' x 30' Deep

Feb 10, 2016: South Sidewall  
3-pt Composite (6'-12'-18') OVM = 27 ppm  
Lab TPH: ND Lab BTEX: ND

Feb 10, 2016: West Sidewall  
3-pt Composite (6'-12'-18') OVM = 16 ppm  
Lab TPH: ND Lab BTEX: ND

Feb 10, 2016:  
Base 5-pt Composite @ 21' OVM = 3,758 ppm:  
Lab TPH: 586 ppm Lab BTEX: 72 ppm

Feb 12, 2016:  
Base 5-pt Composite @ 24' OVM = 4,688 ppm:  
Lab BTEX: 67 ppm

Feb 19, 2016:  
Base 5-pt Composite @ 31' OVM = 5,235 ppm:  
Lab BTEX: 39 ppm



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)

February 11, 2016

Jeff Blagg

Blagg Engineering

P. O. Box 87

Bloomfield, NM 87413

TEL: (505) 632-1199

FAX (505) 632-3903

RE: Ludwick LS 17

OrderNo.: 1602288

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/9/2016 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 light blue horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Blagg Engineering  
 Project: Ludwick LS 17  
 Lab ID: 1602288-003

Matrix: SOIL

Client Sample ID: TH-2 @ 20'  
 Collection Date: 2/8/2016 1:51:00 PM  
 Received Date: 2/9/2016 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	30	30		mg/Kg	20	2/9/2016 12:17:37 PM	23636
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/9/2016 11:28:58 AM	23629
Surr: DNOP	112	70-130		%Rec	1	2/9/2016 11:28:58 AM	23629
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.2		mg/Kg	1	2/9/2016 11:01:03 AM	23618
Surr: BFB	94.4	66.2-112		%Rec	1	2/9/2016 11:01:03 AM	23618
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.042		mg/Kg	1	2/9/2016 11:01:03 AM	23618
Toluene	ND	0.042		mg/Kg	1	2/9/2016 11:01:03 AM	23618
Ethylbenzene	ND	0.042		mg/Kg	1	2/9/2016 11:01:03 AM	23618
Xylenes, Total	ND	0.084		mg/Kg	1	2/9/2016 11:01:03 AM	23618
Surr: 4-Bromofluorobenzene	113	80-120		%Rec	1	2/9/2016 11:01:03 AM	23618

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

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P Sample pH Not In Range
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#: 1602288

11-Feb-16

Client: Blagg Engineering

Project: Ludwick LS 17

Sample ID	MB-23636	SampType	MBLK	TestCode	EPA Method 300.0: Anions					
Client ID	PBS	Batch ID	23636	RunNo	32042					
Prep Date	2/9/2016	Analysis Date	2/9/2016	SeqNo	979848	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-23636	SampType	LCS	TestCode	EPA Method 300.0: Anions					
Client ID	LCSS	Batch ID	23636	RunNo	32042					
Prep Date	2/9/2016	Analysis Date	2/9/2016	SeqNo	979849	Units	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.2	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 |

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602288

11-Feb-16

Client: Blagg Engineering

Project: Ludwick LS 17

Sample ID	MB-23622	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23622	RunNo:	32003					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	978603	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		109	70	130			

Sample ID	MB-23629	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23629	RunNo:	32003					
Prep Date:	2/9/2016	Analysis Date:	2/9/2016	SeqNo:	978604	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	11		10.00		108	70	130			

Sample ID	LCS-23622	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	23622	RunNo:	32003					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	978605	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.9		5.000		98.5	70	130			

Sample ID	LCS-23629	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	23629	RunNo:	32003					
Prep Date:	2/9/2016	Analysis Date:	2/9/2016	SeqNo:	978606	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.7	65.8	136			
Surr: DNOP	4.8		5.000		96.0	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#: 1602288

11-Feb-16

**Client:** Blagg Engineering

**Project:** Ludwick LS 17

Sample ID	MB-23618	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	23618	RunNo:	32007					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	979137	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		91.7	66.2	112			

Sample ID	LCS-23618	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	23618	RunNo:	32007					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	979138	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.9	79.6	122			
Surr: BFB	990		1000		99.3	66.2	112			

**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 |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1602288

11-Feb-16

**Client:** Blagg Engineering

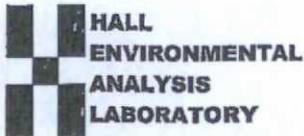
**Project:** Ludwick LS 17

Sample ID	MB-23618	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	23618	RunNo:	32007					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	979144	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID	LCS-23618	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	23618	RunNo:	32007					
Prep Date:	2/8/2016	Analysis Date:	2/9/2016	SeqNo:	979145	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.050	1.000	0	91.9	80	120			
Toluene	0.97	0.050	1.000	0	96.6	80	120			
Ethylbenzene	0.98	0.050	1.000	0	97.7	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.7	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		118	80	120			

**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
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- 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: **BLAGG**

Work Order Number: **1602288**

RcptNo: **1**

Received by/date: A 02/09/16

Logged By: **Anne Thorne** 2/9/2016 7:15:00 AM *Anne Thorne*

Completed By: **Anne Thorne** 2/9/2016 *Anne Thorne*

Reviewed By: *[Signature]* 2/9/16

**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° 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	1.4	Good	Yes			

# Chain-of-Custody Record

Turn-Around Time: ASAP  
 Standard  Rush SAME DAY

Project Name: LUDWICK LS 17

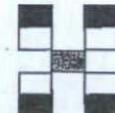
Project #:

Project Manager: J. Blagg

Sampler: J. Blagg

On Ice:   Yes  No

Sample Temperature: 1.4



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Client: BP AMERICA

mailing Address: BLAGG ENGINEERING

Phone #: 505-320-1183

Mail or Fax#:

AVQC Package:  Standard  Level 4 (Full Validation)

Accreditation:  NELAP  Other \_\_\_\_\_

EDD (Type): \_\_\_\_\_

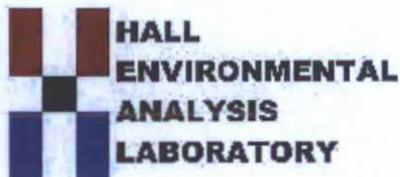
### Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX + MABLES (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / <del>TPH</del> )	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	Air Bubbles (Y or N)
3/16	1301	SOIL	SOURCE @ 15'	4oz x 1	COOL	11002-238	-001	X	X									X	
"	1304	"	SOURCE @ 17'	"	"		-002	X	X									X	
"	1351	"	TH-2 @ 20'	"	"		-003	X	X									X	

Date: 3/16	Time: 1657	Relinquished by: <u>J. Blagg</u>	Received by: <u>Christine Waeles</u>	Date: 3/8/16	Time: 1657
Date: 3/16	Time: 1832	Relinquished by: <u>Christine Waeles</u>	Received by: <u>Chris</u>	Date: 02/08/16	Time: 0715

Remarks: BILL BP  
VID: VHIXONEVRM  
REF: P-491  
CONTACT: STEVE MOSKAL

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 noted 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)

February 12, 2016

Jeff Blagg  
Blagg Engineering  
P. O. Box 87  
Bloomfield, NM 87413  
TEL: (505) 632-1199  
FAX (505) 632-3903

RE: Ludwick LS 17

OrderNo.: 1602475

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/11/2016 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering  
 Project: Ludwick LS 17  
 Lab ID: 1602475-001

Client Sample ID: BASE 5-pt @ 21'  
 Collection Date: 2/10/2016 10:10:00 AM  
 Received Date: 2/11/2016 8:00:00 AM

Matrix: SOIL

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	2/11/2016 11:26:03 AM	23693
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	76	10		mg/Kg	1	2/11/2016 10:42:38 AM	23678
Surr: DNOP	85.9	70-130		%Rec	1	2/11/2016 10:42:38 AM	23678
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	510	77		mg/Kg	20	2/11/2016 12:03:32 PM	A32073
Surr: BFB	147	66.2-112	S	%Rec	20	2/11/2016 12:03:32 PM	A32073
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	0.49	0.39		mg/Kg	20	2/11/2016 12:03:32 PM	B32073
Toluene	16	0.77		mg/Kg	20	2/11/2016 12:03:32 PM	B32073
Ethylbenzene	3.7	0.77		mg/Kg	20	2/11/2016 12:03:32 PM	B32073
Xylenes, Total	52	1.5		mg/Kg	20	2/11/2016 12:03:32 PM	B32073
Surr: 4-Bromofluorobenzene	131	80-120	S	%Rec	20	2/11/2016 12:03:32 PM	B32073

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

Qualifiers:			
*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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.**

CLIENT: Blagg Engineering  
 Project: Ludwick LS 17  
 Lab ID: 1602475-002

Matrix: SOIL

Client Sample ID: EAST 3-pt (6'-12'-18')  
 Collection Date: 2/10/2016 10:13:00 AM  
 Received Date: 2/11/2016 8:00:00 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	2/11/2016 11:38:27 AM	23693
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/11/2016 11:04:23 AM	23678
Surr: DNOP	85.8	70-130		%Rec	1	2/11/2016 11:04:23 AM	23678
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	2/11/2016 10:29:30 AM	A32073
Surr: BFB	99.9	66.2-112		%Rec	1	2/11/2016 10:29:30 AM	A32073
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.036		mg/Kg	1	2/11/2016 10:29:30 AM	B32073
Toluene	0.069	0.036		mg/Kg	1	2/11/2016 10:29:30 AM	B32073
Ethylbenzene	ND	0.036		mg/Kg	1	2/11/2016 10:29:30 AM	B32073
Xylenes, Total	ND	0.073		mg/Kg	1	2/11/2016 10:29:30 AM	B32073
Surr: 4-Bromofluorobenzene	122	80-120	S	%Rec	1	2/11/2016 10:29:30 AM	B32073

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

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P Sample pH Not In Range
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.

CLIENT: Blagg Engineering  
 Project: Ludwick LS 17  
 Lab ID: 1602475-003

Matrix: SOIL

Client Sample ID: NORTH 3-pt (6'-12'-18')  
 Collection Date: 2/10/2016 10:16:00 AM  
 Received Date: 2/11/2016 8:00:00 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	2/11/2016 11:50:52 AM	23693
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/11/2016 11:26:17 AM	23678
Surr: DNOP	86.8	70-130		%Rec	1	2/11/2016 11:26:17 AM	23678
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.0		mg/Kg	1	2/11/2016 10:52:57 AM	A32073
Surr: BFB	95.6	66.2-112		%Rec	1	2/11/2016 10:52:57 AM	A32073
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.040		mg/Kg	1	2/11/2016 10:52:57 AM	B32073
Toluene	ND	0.040		mg/Kg	1	2/11/2016 10:52:57 AM	B32073
Ethylbenzene	ND	0.040		mg/Kg	1	2/11/2016 10:52:57 AM	B32073
Xylenes, Total	ND	0.080		mg/Kg	1	2/11/2016 10:52:57 AM	B32073
Surr: 4-Bromofluorobenzene	114	80-120		%Rec	1	2/11/2016 10:52:57 AM	B32073

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.

CLIENT: Blagg Engineering      Client Sample ID: SOUTH 3-pt (6'-12'-18')  
 Project: Ludwick LS 17      Collection Date: 2/10/2016 10:20:00 AM  
 Lab ID: 1602475-004      Matrix: SOIL      Received Date: 2/11/2016 8:00:00 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	2/11/2016 12:03:17 PM	23693
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/11/2016 11:47:56 AM	23678
Surr: DNOP	86.4	70-130		%Rec	1	2/11/2016 11:47:56 AM	23678
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.8		mg/Kg	1	2/11/2016 11:16:34 AM	A32073
Surr: BFB	98.9	66.2-112		%Rec	1	2/11/2016 11:16:34 AM	A32073
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.038		mg/Kg	1	2/11/2016 11:16:34 AM	B32073
Toluene	ND	0.038		mg/Kg	1	2/11/2016 11:16:34 AM	B32073
Ethylbenzene	ND	0.038		mg/Kg	1	2/11/2016 11:16:34 AM	B32073
Xylenes, Total	ND	0.077		mg/Kg	1	2/11/2016 11:16:34 AM	B32073
Surr: 4-Bromofluorobenzene	118	80-120		%Rec	1	2/11/2016 11:16:34 AM	B32073

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

Qualifiers:		
*	Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P Sample pH Not In Range
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.**

CLIENT: Blagg Engineering

Client Sample ID: WEST 3-pt (6'-12'-18')

Project: Ludwick LS 17

Collection Date: 2/10/2016 10:23:00 AM

Lab ID: 1602475-005

Matrix: SOIL

Received Date: 2/11/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	32	30		mg/Kg	20	2/11/2016 12:15:42 PM	23693
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/11/2016 12:09:41 PM	23678
Surr: DNOP	88.5	70-130		%Rec	1	2/11/2016 12:09:41 PM	23678
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	2/11/2016 11:40:05 AM	A32073
Surr: BFB	98.2	66.2-112		%Rec	1	2/11/2016 11:40:05 AM	A32073
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.037		mg/Kg	1	2/11/2016 11:40:05 AM	B32073
Toluene	ND	0.037		mg/Kg	1	2/11/2016 11:40:05 AM	B32073
Ethylbenzene	ND	0.037		mg/Kg	1	2/11/2016 11:40:05 AM	B32073
Xylenes, Total	ND	0.074		mg/Kg	1	2/11/2016 11:40:05 AM	B32073
Surr: 4-Bromofluorobenzene	115	80-120		%Rec	1	2/11/2016 11:40:05 AM	B32073

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

Qualifiers:			
*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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#: 1602475  
12-Feb-16

**Client:** Blagg Engineering  
**Project:** Ludwick LS 17

Sample ID	MB-23693	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	23693	RunNo:	32092					
Prep Date:	2/11/2016	Analysis Date:	2/11/2016	SeqNo:	981104	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-23693	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	23693	RunNo:	32092					
Prep Date:	2/11/2016	Analysis Date:	2/11/2016	SeqNo:	981105	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.3	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#: 1602475

12-Feb-16

**Client:** Blagg Engineering

**Project:** Ludwick LS 17

Sample ID	MB-23678	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	23678	RunNo:	32069					
Prep Date:	2/11/2016	Analysis Date:	2/11/2016	SeqNo:	980364	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	9.2		10.00		91.8	70	130			

Sample ID	LCS-23678	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	23678	RunNo:	32069					
Prep Date:	2/11/2016	Analysis Date:	2/11/2016	SeqNo:	980365	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.2	65.8	136			
Surr: DNOP	4.1		5.000		82.1	70	130			

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| 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#: 1602475

12-Feb-16

Client: Blagg Engineering

Project: Ludwick LS 17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	A32073	RunNo:	32073					
Prep Date:		Analysis Date:	2/11/2016	SeqNo:	980782	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	940		1000		93.6	66.2	112			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	A32073	RunNo:	32073					
Prep Date:		Analysis Date:	2/11/2016	SeqNo:	980783	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	79.6	122			
Surr: BFB	1000		1000		104	66.2	112			

## 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 |

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602475

12-Feb-16

Client: Blagg Engineering

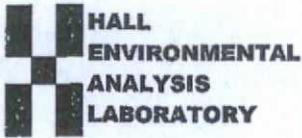
Project: Ludwick LS 17

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	B32073	RunNo:	32073					
Prep Date:		Analysis Date:	2/11/2016	SeqNo:	980788	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	B32073	RunNo:	32073					
Prep Date:		Analysis Date:	2/11/2016	SeqNo:	980789	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	101	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		118	80	120			

## 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: **BLAGG**

Work Order Number: **1602475**

RcptNo: **1**

Received by/date: JA 02/11/16

Logged By: **Anne Thorne** 2/11/2016 8:00:00 AM

*Anne Thorne*

Completed By: **Anne Thorne** 2/11/2016

*Anne Thorne*

Reviewed By: *[Signature]* 2/21/16

**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° 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:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

**18. Cooler Information**

Cooler No.	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By.
1	1.0	Good	Yes			

# Chain-of-Custody Record

Turn-Around Time:

Standard  Rush <sup>ASAP</sup> SAME DAY

Project Name:  
LUDWICK LS 17

Project #:

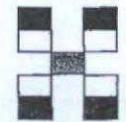
Project Manager:  
J. Blagg

Sampler: J. Blagg  
On Ice:  Yes  No

Sample Temperature: 10

Container Type and #  
Meat kits  
Preservative Type  
COOL  
HEAL No.  
1602475

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
2/20/16	1010	SOIL	BASE 5-pt @ 21'	4 oz x 1	COOL	201
"	1013	"	EAST 3-pt (6'-12'-18')	"	"	202
"	1016	"	NORTH 3-pt (6'-12'-18')	"	"	203
"	1020	"	SOUTH 3-pt (6'-12'-18')	"	"	204
"	1023	"	WEST 3-pt (6'-12'-18')	"	"	205



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

BTEX + MTBE + THMs (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	Air Bubbles (Y or N)
X		X									X	
X		X									X	
X		X									X	
X		X									X	
X		X									X	

Relinquished by: J. Blagg  
Received by: [Signature] Date: 2/10/16 Time: 1116

Relinquished by: [Signature] Date: 02/11/16 Time: 0800

Remarks: Bill BP  
CONTACT: STEVE MOSKAL  
VID: VHIXONEVRM  
REF: P-491

Client: BP AMERICA  
BLAGG ENGINEERING INC.  
Billing Address:  
Phone #: (505) 320-1183  
Mail or Fax #:  
A/QC Package:  
 Standard  Level 4 (Full Validation)  
Accreditation:  
 NELAP  Other  
EDD (Type):

Date: 2/16 Time: 1116 Relinquished by: J. Blagg

Date: 2/16 Time: 1821 Relinquished by: [Signature]

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)

February 23, 2016

Jeff Blagg  
Blagg Engineering  
P. O. Box 87  
Bloomfield, NM 87413  
TEL: (505) 632-1199  
FAX (505) 632-3903

RE: Ludwick LS 17

OrderNo.: 1602863

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/20/2016 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 qualifers 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 light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Blagg Engineering  
**Project:** Ludwick LS 17  
**Lab ID:** 1602863-001

**Client Sample ID:** 5 pt @ 31'  
**Collection Date:** 2/19/2016 1:20:00 PM  
**Received Date:** 2/20/2016 11:15:00 AM

**Matrix:**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.26		mg/Kg	20	2/22/2016 12:02:51 PM	23846
Toluene	5.9	0.51		mg/Kg	20	2/22/2016 12:02:51 PM	23846
Ethylbenzene	2.1	0.51		mg/Kg	20	2/22/2016 12:02:51 PM	23846
Xylenes, Total	31	1.0		mg/Kg	20	2/22/2016 12:02:51 PM	23846
Surr: 4-Bromofluorobenzene	127	80-120	S	%Rec	20	2/22/2016 12:02:51 PM	23846

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#: 1602863

23-Feb-16

Client: Blagg Engineering

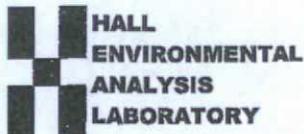
Project: Ludwick LS 17

Sample ID	MB-23846	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	23846	RunNo:	32301					
Prep Date:	2/19/2016	Analysis Date:	2/22/2016	SeqNo:	987873	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		114	80	120			

Sample ID	LCS-23846	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	23846	RunNo:	32301					
Prep Date:	2/19/2016	Analysis Date:	2/22/2016	SeqNo:	987880	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	101	80	120			
Toluene	1.0	0.050	1.000	0	104	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		116	80	120			

### 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 |



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# Sample Log-In Check List

Client Name: **BLAGG**

Work Order Number: **1602863**

RcptNo: **1**

Received by/date: LM 02/20/16

Logged By: **Anne Thorne**      2/20/2016 11:15:00 AM      *Anne Thorne*

Completed By: **Anne Thorne**      2/22/2016      *Anne Thorne*

Reviewed By: *[Signature]*      02/22/16

**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° 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	1.6	Good	Yes			



District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Form C-138  
Revised August 1, 2011

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

\*Surface Waste Management Facility Operator  
and Generator shall maintain and make this  
documentation available for Division inspection.

### REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

<b>1. Generator Name and Address:</b> BP America Production Co. 200 Energy Ct. Farmington, NM 87401	
<b>2. Originating Site:</b> Ludwick LS 017 Paykey: VHXONEVRM	2/22/16 - 70 cy 2/15/16 - 200 cy
<b>3. Location of Material (Street Address, City, State or ULSTR):</b> QRT/QRT: NW/NE Unit: B Section: 29 T30N R10W	2/12/16 - 200 cy 2/11/16 - 140 cy 2/10/16 - 1000 cy
<b>4. Source and Description of Waste:</b> Hydrocarbon Impacted Soils Estimated Volume <u>200</u> yd <sup>3</sup> / bbls Known Volume (to be entered by the operator at the end of the haul) <u>00</u> yd <sup>3</sup> bbls	
<b>5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS</b> I, <u>Steve Moskal</u> , representative or authorized agent for <u>BP America Production Company</u> do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification) <input checked="" type="checkbox"/> RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with other RCRA exempt waste. <u>Operator Use Only: Waste Acceptance Frequency</u> <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Weekly <input type="checkbox"/> Per Load <input type="checkbox"/> RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste acceptance by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR 261.61, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous (Check the appropriate items) <input type="checkbox"/> MSDS Information <input type="checkbox"/> RCRA Hazardous Waste Analysis <input checked="" type="checkbox"/> Process Knowledge <input type="checkbox"/> Other (Provide description) <u>4</u>	
<b>GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS</b> <u>Steve Moskal</u> , representative for <u>BP America Production Company</u> authorize Envirotech to perform the required testing/sign the Generator Waste Testing Certification. I, <u>h. Selph</u> , representative for <u>JET</u> do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and the results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.	
<b>5. Transporter:</b> Crossfire	

**OCD Permitted Surface Waste Management Facility**

Name and Facility Permit #: Industrial Ecosystems Inc., JFJ Waste Management Facility (JFJ), Permit NM-01-0010B

Address of Facility: #49 CR 3150 Aztec, NM

Method of Treatment and/or Disposal:

- Evaporation  Injection  Treating Plant  Landfarm  Landfill  Other

Waste Acceptance Status:

APPROVED

DENIED (Must Be Maintained As Permanent Record)

PRINT NAME: h. Selph

TITLE: Clerk

DATE: 2/9/16

SIGNATURE: h. Selph  
Surface Waste Management Facility Authorized Agent

TELEPHONE NO.: 632-1782

PH=7  
CL=132