NM2 - ___3_____

MONITORING REPORTS YEAR(S):

___2015 - 2018___

Jones, Brad A., EMNRD

From: Herrera, Roxana <ROXANA.HERRERA@bp.com>
Sent: Sunday, November 29, 2015 2:17 PM
To: Jones, Brad A., EMNRD
Cc: Sitomer, Gabrielle; Steinle, Kirk M; Moskal, Steven
Subject: 2015 Annual Treatment Zone Monitoring - Permit NM-02-0003
Attachments: Crouch Mesa_Nov_2015_Final_V2_Signed (2).pdf; BP 2015 Annual Report Cover ltr.pdf

Brad:

Attached is the BP 2015 Annual Treatment Zone Monitoring Report for the Crouch Mesa Waste Management Facility, Permit NM-02-0003. We are also mailing a hard copy of the attached documents. Should you have questions or comments, please contact me.

Respectfully,

Roxana

Roxana Herrera
Water / Waste SME
BP Lower 48 Onshore
737 N. Eldridge Parkway
Houston TX 77079
Office: 281-366-7305
Cell: 713-416-3390
roxana.herrera@bp.com

bp

November 30, 2015

Via Email and U.S. Mail

Mr. Brad Jones
Environmental Engineer
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
Email: brad.a.jones@state.nm.us

Re: BP America Production Company,
Permit NM-02-0003 Crouch Mesa Waste Management Facility
2015 Annual Report on Treatment Zone Monitoring

Dear Mr. Jones:

BP America Production Company is submitting the 2015 Annual Treatment Zone Monitoring Report for the above referenced facility pursuant to the November 25, 1998 issued Permit NM-02-0003. Sampling was conducted by Blagg Engineering, Inc. and represents the period of December 1, 2014 through November 30, 2015. The report and analytical test results attached to his cover letter indicate that the facility met the applicable action levels in each of the four sampling events.

Should you have questions or comments concerning this report, please contact me at (281) 366 -7305.

Respectfully,

Roxana Herrera
Water / Waste SME
BP America Production Company

Cc: Steve Moskal, Field Environmental Coordinator; Kirk Steinle, Area Operations Env. Team Lead; Gabrielle Sitomer, Lead Counsel - HSSE

Enclosures

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

November 25, 2015

Roxana Herrera
BP America Production Co.
737 N. Eldridge Parkway
Houston, TX 77079

Re: BP America Production Company
Crouch Mesa Waste Management Facility, Permit NM-02-003
2015 Annual Report on Treatment Zone Monitoring

Dear Ms. Herrera:

On behalf of BP America Production Company, Blagg Engineering, Inc. (BEI) conducted 2015 annual treatment zone monitoring at the Crouch Mesa Waste Management Facility pursuant to Permit NM-02-003, dated November 25, 1998. This report is for the December 1, 2014 through November 30, 2015 reporting period. Analytical test results (attached) indicate the facility met standards with each sample event.

The landfarm is presently configured into three (3) active cells, identified as Cell 1, Cell 2 and Cell 5 (Figure 1). Cell 5 is used for storage of remediated soils only. The northeast portion of the facility (identified as 'unused cell') is used for equipment, materials, remediated soils storage and unused compost media storage.

Sampling protocol specifies collection of subsurface samples in each cell from the native ground surface below the treatment zone at a depth of between 2' - 3' during quarterly monitoring. Quarterly test procedures include total petroleum hydrocarbons (TPH), chloride and benzene, toluene, ethyl-benzene and xylenes (BTEX). Heavy metals and major cations/anions are to be collected for at least one quarterly sample event. During this reporting period, metals and cations/anions were tested on the November 3, 2015 sample event.

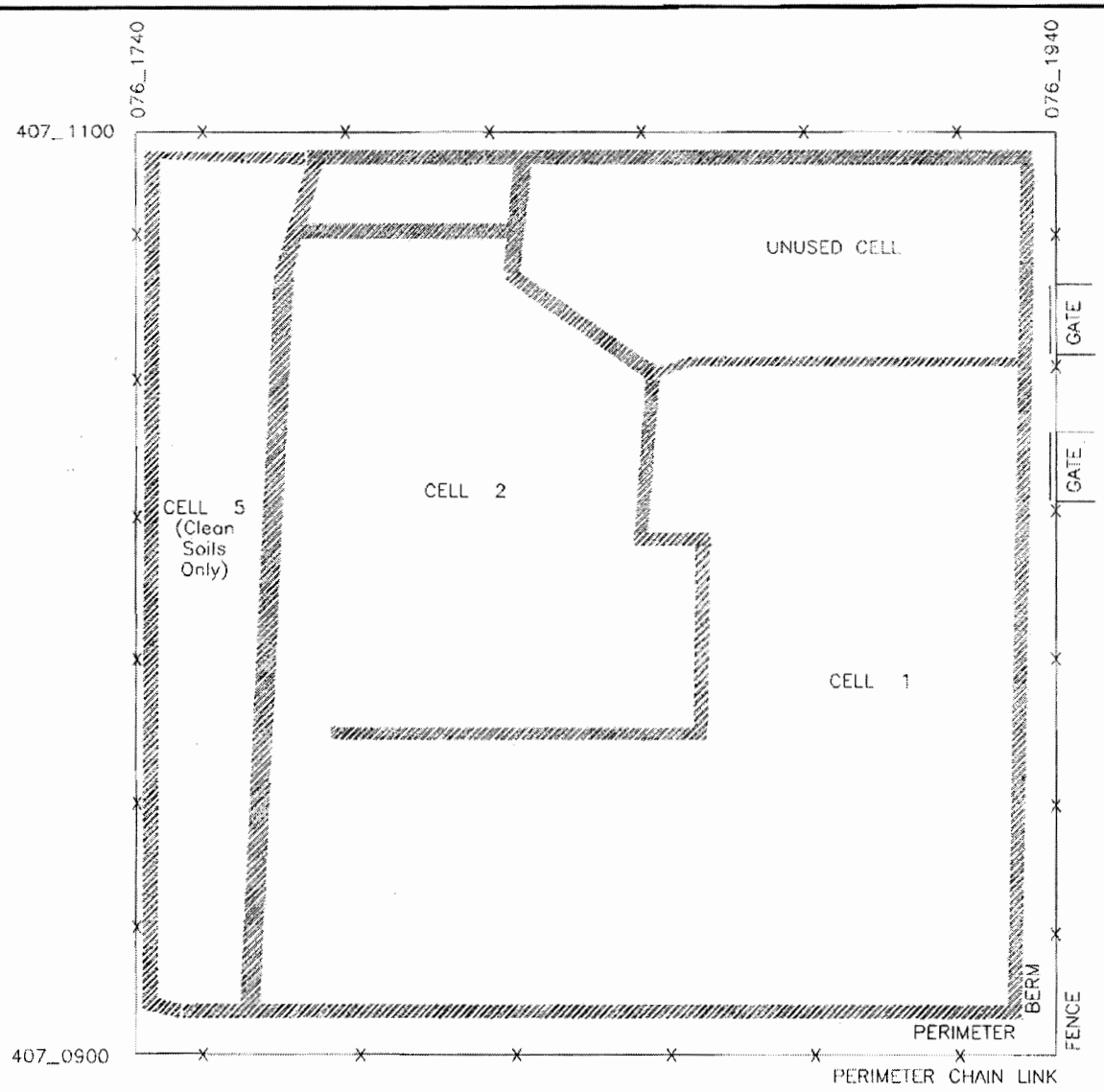
Questions or comments concerning the this transmittal may be directed to myself at (505)320-1183.

Respectfully submitted:
Blagg Engineering, Inc.

Jeffrey C Blagg, PE
Digitally signed by Jeffrey C Blagg, PE
DN: cn=Jeffrey C Blagg, PE, o, ou, email=jeffcblagg@aol.com, c=US
Date: 2015.11.25 13:59:19 -07'00'

Jeffrey C. Blagg, P.E.
President

Attachments: Site Diagrams for each Sample Event (2/2/15, 6/29/15, 9/30/15, 11/3/15)
Soil Treatment Zone Laboratory Monitoring Reports



LEGEND

6' TALL CHAIN LINK FENCE

SOIL BERM

N

0 200 400 FEET

BP AMERICA PRODUCTION CO.
CROUCH MESA WASTE MGMT FAC
SW/4 SE/4 SEC 2 T29N R12W
SAN JUAN CO., NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING ENGINEERING SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

SITE SCHEMATIC

FIGURE 1	DRWN BY: JCB
CRMESA4	PROJ MGR: JCB

BP Church Mesa
Waste Management Facility
Permitted Limits
Sample Points 2/2/2015
Cell 1 - 7:20 am at 2'-3' depth
Cell 2 - 7:50 am at 2'-3' depth
Cell 5 - 8:20 am at 2'-3' depth
View 3/11/2015
N


Sample Points 6/29/2015
Cell 1 - 10:10 am at 2'-3' depth
Cell 2 - 10:30 am at 2'-3' depth
Cell 5 - 10:50 am at 2'-3' depth


View 3/15/2015
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
Sample Points 9/30/2015
Cell 1 - 14:30 am at 2'-3' depth
Cell 2 - 14:55 am at 2'-3' depth
Cell 5 - 15:10 am at 2'-3' depth
Google earth


View 9/15/2015
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
Sample Points 11/03/2015
Cell 1 - 8:20 am at 2'-3' depth
Cell 2 - 8:40 am at 2'-3' depth
Cell 5 - 9:05 am at 2'-3' depth
Google Earth

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 10, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1502135

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/4/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1502135**
Date Reported: **2/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-001 **Matrix:** SOIL

Client Sample ID: Cell 1
Collection Date: 2/2/2015 7:20:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/6/2015 3:59:08 PM	17564
Surr: DNOP	80.3	63.5-128		%REC	1	2/6/2015 3:59:08 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Surr: BFB	100	80-120		%REC	1	2/5/2015 9:41:22 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Toluene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Ethylbenzene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Xylenes, Total	ND	0.095		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Surr: 4-Bromofluorobenzene	117	80-120		%REC	1	2/5/2015 9:41:22 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 11:21:47 AM	17607

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-002 **Matrix:** SOIL

Client Sample ID: Cell 2
Collection Date: 2/2/2015 7:50:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/6/2015 4:20:50 PM	17564
Surr: DNOP	71.4	63.5-128		%REC	1	2/6/2015 4:20:50 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Surr: BFB	99.7	80-120		%REC	1	2/5/2015 10:10:03 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Toluene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Ethylbenzene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Xylenes, Total	ND	0.098		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Surr: 4-Bromofluorobenzene	114	80-120		%REC	1	2/5/2015 10:10:03 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 12:11:25 PM	17607

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-003
Matrix: SOIL
Client Sample ID: Cell 5
Collection Date: 2/2/2015 8:20:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/6/2015 4:42:40 PM	17564
Surr: DNOP	87.0	63.5-128		%REC	1	2/6/2015 4:42:40 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Surr: BFB	99.7	80-120		%REC	1	2/5/2015 10:38:46 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Toluene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Ethylbenzene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Xylenes, Total	ND	0.094		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Surr: 4-Bromofluorobenzene	114	80-120		%REC	1	2/5/2015 10:38:46 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 1:01:04 PM	17607

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2.
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-17607**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **17607**	RunNo: **24171**
Prep Date: **2/6/2015**	Analysis Date: **2/6/2015**	SeqNo: **712654** Units: **mg/Kg**

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

Sample ID **LCS-17607**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **17607**	RunNo: **24171**
Prep Date: **2/6/2015**	Analysis Date: **2/6/2015**	SeqNo: **712655** 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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-17564**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **17564**	RunNo: **24136**
Prep Date: **2/4/2015**	Analysis Date: **2/6/2015**	SeqNo: **712630** 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	9.0		10.00		89.7	63.5	128			

Sample ID **LCS-17564**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **17564**	RunNo: **24136**
Prep Date: **2/4/2015**	Analysis Date: **2/6/2015**	SeqNo: **712631** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.8	67.8	130			
Surr: DNOP	4.9		5.000		98.2	63.5	128			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-17567**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711439** 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		94.1	80	120			

Sample ID **LCS-17567**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711440** 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	105	64	130			
Surr: BFB	1100		1000		106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-17567**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711478** 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-17567**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711479** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	112	80	120			
Toluene	1.1	0.050	1.000	0	108	80	120			
Ethylbenzene	1.1	0.050	1.000	0	113	80	120			
Xylenes, Total	3.4	0.10	3.000	0	112	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		122	80	120			S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG Work Order Number: 1502135 RcptNo: 1

Received by/date: KM 02/04/15

Logged By: **Ashley Gallegos** 2/4/2015 8:30:00 AM

Completed By: **Ashley Gallegos** 2/4/2015 9:52:44 AM

Reviewed By: AG 02/04/15

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	2.4	Good	Not Present			

Client: Blagg Engineering, Inc.		☒ Standard ☐ Rush	
BP America		Project Name: Crouch Mesa LF	
Mailing Address: P.O. Box 87			
Bloomfield, NM 87413		Project #:	
Phone #: (505)320-1183			
email or Fax#:		Project Manager: Jeff Blagg	
QA/QC Package:			
☒ Standard	☐ Level 4 (Full Validation)	Sampler: Jeff Blagg	
☐ Other		On Ice: ☒ Yes ☐ No	
☐ EDD (Type)		Sample Temperature: 2.4	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1502135	BTEX (8021)		TPH 8015B (GRO / DRO)								Chloride		Air Bubbles (Y or N)
02/02/2015	7:20	Soil	Cell 1	4oz x 1	cool	-001	x		x								x		
02/02/2015	7:50	Soil	Cell 2	4oz x 1	cool	-002	x		x								x		
02/02/2015	8:20	Soil	Cell 5	4oz x 1	cool	-003	x		x								x		

Date	Time	Relinquished by	Received by	Date	Time
2/3/2015	1034	Jeff Blagg	Christine Walker	2/3/15	1033
2/3/15	1747	Christine Walker		02/04/15	0830

Remarks: Bill BP
BP Contact: Jeff Peace
peace.jeffrey@bp.com

Please copy results to:

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

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

July 14, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa Landfarm OrderNo.: 1507054

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/1/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507054**
Date Reported: **7/14/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-001

Client Sample ID: Cell #1 @ 2'-3'
Collection Date: 6/29/2015 10:10:00 AM
Matrix: SOIL
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 2:54:23 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/6/2015 6:17:47 PM	20084
Surr: DNOP	99.2	57.9-140		%REC	1	7/6/2015 6:17:47 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Surr: BFB	86.3	75.4-113		%REC	1	7/6/2015 11:50:49 PM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Toluene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Ethylbenzene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Xylenes, Total	ND	0.097		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Surr: 4-Bromofluorobenzene	89.0	80-120		%REC	1	7/6/2015 11:50:49 PM	20074

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-002 **Matrix:** SOIL

Client Sample ID: Cell #2 @ 2'-3'
Collection Date: 6/29/2015 10:30:00 AM
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 3:06:47 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/6/2015 6:44:51 PM	20084
Surr: DNOP	98.3	57.9-140		%REC	1	7/6/2015 6:44:51 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Surr: BFB	85.3	75.4-113		%REC	1	7/7/2015 12:19:35 AM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Toluene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Ethylbenzene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Xylenes, Total	ND	0.096		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Surr: 4-Bromofluorobenzene	87.6	80-120		%REC	1	7/7/2015 12:19:35 AM	20074

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-003 **Matrix:** SOIL

Client Sample ID: Cell #5 @ 2'-3'
Collection Date: 6/29/2015 10:50:00 AM
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 3:19:12 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	18	9.5		mg/Kg	1	7/6/2015 7:11:55 PM	20084
Surr: DNOP	98.0	57.9-140		%REC	1	7/6/2015 7:11:55 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Surr: BFB	85.7	75.4-113		%REC	1	7/7/2015 12:48:17 AM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Toluene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Ethylbenzene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Xylenes, Total	ND	0.094		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Surr: 4-Bromofluorobenzene	88.0	80-120		%REC	1	7/7/2015 12:48:17 AM	20074

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering
Project: Crouch Mesa Landfarm

Sample ID	**MB-20182**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**20182**	RunNo:	**27409**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**822344**	Units:	**mg/Kg**			

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

Sample ID	**LCS-20182**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**20182**	RunNo:	**27409**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**822345**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20084**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20084**	RunNo: **27290**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **817786** 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	8.8		10.00		88.0	57.9	140			

Sample ID **LCS-20084**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20084**	RunNo: **27290**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **817787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	103	57.4	139			
Surr: DNOP	5.5		5.000		110	57.9	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20074**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818229** 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	840		1000		84.3	75.4	113			

Sample ID **LCS-20074**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.9	64	130			
Surr: BFB	920		1000		91.9	75.4	113			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20074**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818262** 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	0.90		1.000		89.6	80	120			

Sample ID **LCS-20074**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818263** 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	102	76.6	128			
Toluene	0.97	0.050	1.000	0	97.0	75	124			
Ethylbenzene	1.0	0.050	1.000	0	101	79.5	126			
Xylenes, Total	3.1	0.10	3.000	0	102	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **BLAGG** Work Order Number: **1507054** RcptNo: **1**

Received by/date: AG 07/01/15

Logged By: **Lindsay Mangin** **7/1/2015 7:15:00 AM**

Completed By: **Ashley Gallegos** **7/2/2015 7:27:54 AM**

Reviewed By: 07/02/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: BP America

Blagg Engineering Inc.

Mailing Address:

Phone #: 505-320-1183

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: CROUCH MESA LANDFARM

Project #:

Project Manager: J. Blagg

Sampler: J. Blagg

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

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. 1507054	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / ~~MRO~~)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
6/29/2015	1010	SOIL	CELL #1 @ 2'-3'	4oz x 1	cool	-001	X		X									X				
"	1030	"	CELL #2 @ 2'-3'	"	"	-002	X		X									X				
"	1050	"	CELL #5 @ 2'-3'	"	"	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/30/2015	1130	Jeff Blagg	Christine Walker	6/30/2015	1136
6/30/15	1837	Christine Walker	[illegible]	07/01/15	0715

Remarks: Bill BP
P.O. on File
Contact: Jeff Peace

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

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

October 09, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1510085

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/1/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510085**
Date Reported: **10/9/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-001
Matrix: SOIL
Client Sample ID: Cell 1 @ 2'-3'
Collection Date: 9/30/2015 2:30:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 12:23:47 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/7/2015 12:18:22 AM	21629
Surr: DNOP	104	57.9-140		%REC	1	10/7/2015 12:18:22 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Surr: BFB	88.9	75.4-113		%REC	1	10/6/2015 11:27:19 PM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Toluene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Ethylbenzene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Xylenes, Total	ND	0.099		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	10/6/2015 11:27:19 PM	21665

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-002 **Matrix:** SOIL

Client Sample ID: Cell 2 @ 2'-3'
Collection Date: 9/30/2015 2:55:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 1:01:00 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	10/7/2015 12:45:42 AM	21629
Surr: DNOP	115	57.9-140		%REC	1	10/7/2015 12:45:42 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Surr: BFB	88.1	75.4-113		%REC	1	10/6/2015 11:50:30 PM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Toluene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Ethylbenzene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Xylenes, Total	ND	0.095		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	10/6/2015 11:50:30 PM	21665

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-003
Matrix: SOIL
Client Sample ID: Cell 5 @ 2'-3'
Collection Date: 9/30/2015 3:10:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 1:13:24 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/7/2015 1:13:01 AM	21629
Surr: DNOP	94.7	57.9-140		%REC	1	10/7/2015 1:13:01 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Surr: BFB	88.3	75.4-113		%REC	1	10/7/2015 1:23:16 AM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Toluene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Ethylbenzene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Xylenes, Total	ND	0.094		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	10/7/2015 1:23:16 AM	21665

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-21726**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **21726**	RunNo: **29393**							
Prep Date: **10/7/2015**	Analysis Date: **10/7/2015**	SeqNo: **894029**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-21726**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **21726**	RunNo: **29393**							
Prep Date: **10/7/2015**	Analysis Date: **10/7/2015**	SeqNo: **894030**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.3	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-21652**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **21652**			RunNo: **29273**					
Prep Date: **10/5/2015**	Analysis Date: **10/5/2015**			SeqNo: **890900**		Units: **%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.9		10.00		78.7	57.9	140			

Sample ID **LCS-21652**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **21652**			RunNo: **29273**					
Prep Date: **10/5/2015**	Analysis Date: **10/5/2015**			SeqNo: **890901**		Units: **%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.7	57.9	140			

Sample ID **MB-21629**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **21629**			RunNo: **29273**					
Prep Date: **10/2/2015**	Analysis Date: **10/6/2015**			SeqNo: **892312**		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	10		10.00		103	57.9	140			

Sample ID **LCS-21629**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **21629**			RunNo: **29273**					
Prep Date: **10/2/2015**	Analysis Date: **10/6/2015**			SeqNo: **892314**		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	96.7	57.4	139			
Surr: DNOP	5.3		5.000		107	57.9	140			

Sample ID **MB-21737**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **21737**			RunNo: **29273**					
Prep Date: **10/8/2015**	Analysis Date: **10/8/2015**			SeqNo: **894229**		Units: **%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.9		10.00		98.6	57.9	140			

Sample ID **LCS-21737**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **21737**			RunNo: **29273**					
Prep Date: **10/8/2015**	Analysis Date: **10/8/2015**			SeqNo: **894230**		Units: **%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		103	57.9	140			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-21665**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892336** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.5	75.4	113			

Sample ID **LCS-21665**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892337** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.4	79.6	122			
Surr: BFB	950		1000		95.5	75.4	113			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-21665**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892380** 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		106	80	120			

Sample ID **LCS-21665**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892381** 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	103	80	120			
Toluene	0.99	0.050	1.000	0	99.1	80	120			
Ethylbenzene	1.0	0.050	1.000	0	100	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.8	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		113	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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1510085 | RcptNo: 1

Received by/date: 10/01/15

Logged By: Lindsay Mangin 10/1/2015 8:00:00 AM

Completed By: Lindsay Mangin 10/2/2015 1:23:36 PM

Reviewed By: 10/05/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: Blagg Engineering, Inc.

BP America

Mailing Address: P.O. Box 87
Bloomfield, NM 87413

Phone #: (505)320-1183

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Crouch Mesa LF

Project #:

Project Manager: Jeff Blagg

Sampler: Jeff Blagg
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510085	BTEX (8021)		TPH 8015B (GRO / DRO)								Chloride		Air Bubbles (Y or N)
							Analysis Request												
09/30/2015	14:30	Soil	Cell 1 @ 2'-3'	4oz x 1	cool	-001	x		x								x		
09/30/2015	14:55	Soil	Cell 2 @ 2'-3'	4oz x 1	cool	-002	x		x								x		
09/30/2015	15:10	Soil	Cell 5 @ 2'-5'	4oz x 1	cool	-003	x		x								x		

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/1/2015	1322	Jeff Blagg		10/1/2015	1322
10/1/15	1934			10/01/15	0800

Remarks: Bill BP
BP Contact: John Ritchie Please copy results to:
john.ritchie@bp.com

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

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

November 25, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1511325

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 11/7/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued November 18, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1511325**
Date Reported: **11/25/2015**

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-001
Matrix: SOIL
Client Sample ID: Cell 1 @ 2'-3' Depth
Collection Date: 11/3/2015 8:20:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.83	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Nitrogen, Nitrate (As N)	0.49	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Phosphorus, Orthophosphate (As P)	ND	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Sulfate	55	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.032		mg/Kg	1	11/16/2015 5:42:24 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.5		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Barium	130	0.099		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Cadmium	ND	0.099		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Calcium	4800	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Chromium	2.1	0.30		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Lead	3.2	0.25		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Magnesium	1600	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Potassium	660	99		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Sodium	78	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	11	9.4		mg/Kg	1	11/10/2015 1:59:59 PM	22220
Surr: DNOP	125	70-130		%REC	1	11/10/2015 1:59:59 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Surr: BFB	86.3	75.4-113		%REC	1	11/11/2015 3:40:36 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Toluene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Ethylbenzene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Xylenes, Total	ND	0.099		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	11/11/2015 3:40:36 AM	22241

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-002 **Matrix:** SOIL

Client Sample ID: Cell 2 @ 2'-3' Depth
Collection Date: 11/3/2015 8:40:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.4	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Phosphorus, Orthophosphate (As P)	ND	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Sulfate	2.6	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.034		mg/Kg	1	11/16/2015 5:44:10 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.5		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Barium	21	0.099		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Cadmium	ND	0.099		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Calcium	4200	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Chromium	1.7	0.30		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Lead	2.4	0.25		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Magnesium	960	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Potassium	380	49		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Sodium	29	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	19	9.5		mg/Kg	1	11/10/2015 2:27:04 PM	22220
Surr: DNOP	129	70-130		%REC	1	11/10/2015 2:27:04 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Surr: BFB	87.6	75.4-113		%REC	1	11/11/2015 4:03:58 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Toluene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Ethylbenzene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Xylenes, Total	ND	0.094		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	11/11/2015 4:03:58 AM	22241

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-003 **Matrix:** SOIL

Client Sample ID: Cell 5 @ 2'-3' Depth
Collection Date: 11/3/2015 9:05:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.72	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	11/12/2015 10:44:39 PM	22318
Sulfate	1500	30		mg/Kg	20	11/12/2015 10:44:39 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.033		mg/Kg	1	11/16/2015 5:49:30 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	2.7	2.5		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Barium	15	0.098		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Cadmium	ND	0.098		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Calcium	3400	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Chromium	0.40	0.30		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Lead	2.3	0.25		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Magnesium	950	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Potassium	310	49		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Sodium	40	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/10/2015 3:05:51 PM	22220
Surr: DNOP	120	70-130		%REC	1	11/10/2015 3:05:51 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Surr: BFB	85.8	75.4-113		%REC	1	11/11/2015 4:27:20 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Toluene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Ethylbenzene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Xylenes, Total	ND	0.10		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	11/11/2015 4:27:20 AM	22241

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-22318**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **22318**	RunNo: **30221**
Prep Date: **11/12/2015**	Analysis Date: **11/12/2015**	SeqNo: **920945** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-22318**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **22318**	RunNo: **30221**
Prep Date: **11/12/2015**	Analysis Date: **11/12/2015**	SeqNo: **920946** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	97.8	90	110			
Chloride	14	1.5	15.00	0	92.1	90	110			
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	94.3	90	110			
Bromide	6.9	0.30	7.500	0	91.8	90	110			
Nitrogen, Nitrate (As N)	7.2	0.30	7.500	0	96.4	90	110			
Phosphorus, Orthophosphate (As P	14	1.5	15.00	0	93.9	90	110			
Sulfate	29	1.5	30.00	0	95.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22220**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **22220**	RunNo: **30124**
Prep Date: **11/6/2015**	Analysis Date: **11/10/2015**	SeqNo: **917919** 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	12		10.00		117	70	130			

Sample ID **LCS-22220**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **22220**	RunNo: **30124**
Prep Date: **11/6/2015**	Analysis Date: **11/10/2015**	SeqNo: **917920** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	126	57.4	139			
Surr: DNOP	7.4		5.000		147	70	130			S

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511325

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22241**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918420** 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	860		1000		85.6	75.4	113			

Sample ID **LCS-22241**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918421** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	79.6	122			
Surr: BFB	930		1000		92.7	75.4	113			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22241**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918501** 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		109	80	120			

Sample ID **LCS-22241**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918502** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	99.0	80	120			
Toluene	0.98	0.050	1.000	0	98.1	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		115	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID	**MB-22353**	SampType:	**MBLK**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID:	**22353**		RunNo:	**30272**					
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923042**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.033									

Sample ID	**LCS-22353**	SampType:	**LCS**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID:	**22353**		RunNo:	**30272**					
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923043**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.17	0.033	0.1667	0	100	80	120				

Sample ID	**1511325-002BMS**	SampType:	**MS**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**Cell 2 @ 2'-3' Depth**	Batch ID:	**22353**		RunNo:	**30272**					
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923052**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.16	0.033	0.1685	0	94.7	75	125				

Sample ID	**1511325-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**Cell 2 @ 2'-3' Depth**	Batch ID:	**22353**		RunNo:	**30272**					
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923053**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.16	0.033	0.1674	0	94.9	75	125	0.444	20		

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22298**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **22298**	RunNo: **30218**
Prep Date: **11/11/2015**	Analysis Date: **11/13/2015**	SeqNo: **920723** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Sample ID **LCS-22298**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **22298**	RunNo: **30218**
Prep Date: **11/11/2015**	Analysis Date: **11/13/2015**	SeqNo: **920724** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	98.3	80	120			
Barium	25	0.10	25.00	0	98.2	80	120			
Cadmium	24	0.10	25.00	0	97.3	80	120			
Chromium	25	0.30	25.00	0	98.1	80	120			
Lead	24	0.25	25.00	0	97.2	80	120			
Selenium	24	2.5	25.00	0	96.0	80	120			
Silver	4.9	0.25	5.000	0	98.2	80	120			

Sample ID **1511325-001BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Cell 1 @ 2'-3' Depth**	Batch ID: **22298**	RunNo: **30218**
Prep Date: **11/11/2015**	Analysis Date: **11/13/2015**	SeqNo: **920765** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	22	2.4	24.36	1.009	86.2	75	125			
Barium	180	0.097	24.36	127.4	232	75	125			S
Cadmium	21	0.097	24.36	0	87.3	75	125			
Chromium	24	0.29	24.36	2.073	90.7	75	125			
Lead	22	0.24	24.36	3.225	79.1	75	125			B
Selenium	19	2.4	24.36	0	76.0	75	125			
Silver	4.3	0.24	4.872	0	87.2	75	125			

Sample ID **1511325-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Cell 1 @ 2'-3' Depth**	Batch ID: **22298**	RunNo: **30218**
Prep Date: **11/11/2015**	Analysis Date: **11/13/2015**	SeqNo: **920767** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	22	2.5	24.63	1.009	86.5	75	125	1.43	20	

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **1511325-001BMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Cell 1 @ 2'-3' Depth** Batch ID: **22298** RunNo: **30218**
Prep Date: **11/11/2015** Analysis Date: **11/13/2015** SeqNo: **920767** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	160	0.099	24.63	127.4	130	75	125	14.4	20	S
Cadmium	21	0.099	24.63	0	86.1	75	125	0.223	20	
Chromium	24	0.30	24.63	2.073	88.9	75	125	0.803	20	
Lead	23	0.25	24.63	3.225	81.0	75	125	3.05	20	
Selenium	19	2.5	24.63	0	76.8	75	125	2.14	20	
Silver	4.2	0.25	4.927	0	85.0	75	125	1.48	20	

Sample ID **MB-22298** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **22298** RunNo: **30443**
Prep Date: **11/11/2015** Analysis Date: **11/24/2015** SeqNo: **928963** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	25								
Magnesium	ND	25								
Potassium	ND	50								
Sodium	ND	25								

Sample ID **LCS-22298** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **22298** RunNo: **30443**
Prep Date: **11/11/2015** Analysis Date: **11/24/2015** SeqNo: **928964** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	2500	25	2500	0	98.3	80	120			
Magnesium	2500	25	2500	0	98.6	80	120			
Potassium	2400	50	2500	0	95.1	80	120			
Sodium	2400	25	2500	0	97.3	80	120			

Sample ID **1511325-001BMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Cell 1 @ 2'-3' Depth** Batch ID: **22298** RunNo: **30443**
Prep Date: **11/11/2015** Analysis Date: **11/24/2015** SeqNo: **929121** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	6800	49	2436	4807	81.3	75	125			
Magnesium	4200	49	2436	1560	109	75	125			
Potassium	3000	97	2436	657.7	95.8	75	125			
Sodium	2300	49	2436	77.85	91.3	75	125			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **1511325-001BMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 @ 2'-3' Depth** Batch ID: **22298** RunNo: **30443**

Prep Date: **11/11/2015** Analysis Date: **11/24/2015** SeqNo: **929122** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	7100	49	2463	4807	91.5	75	125	3.97	20	
Magnesium	4200	49	2463	1560	107	75	125	0.285	20	
Potassium	3000	99	2463	657.7	94.5	75	125	0.224	20	
Sodium	2300	49	2463	77.85	89.6	75	125	0.665	20	

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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1511325 | RcptNo: 1

Received by/date: CM 11/07/15

Logged By: **Anne Thorne** 11/7/2015 8:45:00 AM

Completed By: **Anne Thorne** 11/9/2015

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° 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	1.2	Good	Yes			

Chain-of-Custody Record

Client: Blagg Engineering, Inc.

BP America

Mailing Address: P.O. Box 87
Bloomfield, NM 87413

Phone #: (505)320-1183

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Crouch Mesa LF

Project #:

Project Manager: Jeff Blagg

Sampler: Jeff Blagg
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.2

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. 1511325	BTEX (8021)		TPH 8015B (GRO / DRO)		RCRA 8 Metals		Cations/Anions							Air Bubbles (Y or N)
11/03/2015	8:20	Soil	Cell 1 @ 2'-3' Depth	4oz x 2	cool	001	x		x		x		x							
11/03/2015	8:40	Soil	Cell 2 @ 2'-3' Depth	4oz x 2	cool	002	x		x		x		x							
11/03/2015	9:05	Soil	Cell 5 @ 2'-3' Depth	4oz x 2	cool	003	x		x		x		x							

Date	Time	Relinquished by	Received by	Date	Time
11/6/2015	1540	Jeff Blagg	Christie Walker	11/6/15	1540
11/6/15	1800	Christie Walker		11/07/15	0845

Remarks: Bill BP
BP Contact: John Ritchie Please copy results to: john.ritchie@bp.com

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.

bp

November 30, 2015

Via Email and U.S. Mail

Mr. Brad Jones
Environmental Engineer
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505
Email: brad.a.jones@state.nm.us

Re: BP America Production Company,
Permit NM-02-0003 Crouch Mesa Waste Management Facility
2015 Annual Report on Treatment Zone Monitoring

Dear Mr. Jones:

BP America Production Company is submitting the 2015 Annual Treatment Zone Monitoring Report for the above referenced facility pursuant to the November 25, 1998 issued Permit NM-02-0003. Sampling was conducted by Blagg Engineering, Inc. and represents the period of December 1, 2014 through November 30, 2015. The report and analytical test results attached to his cover letter indicate that the facility met the applicable action levels in each of the four sampling events.

Should you have questions or comments concerning this report, please contact me at (281) 366 -7305.

Respectfully,

Roxana Herrera
Water / Waste SME
BP America Production Company

Cc: Steve Moskal, Field Environmental Coordinator; Kirk Steinle, Area Operations Env. Team Lead; Gabrielle Sitomer, Lead Counsel - HSSE

Enclosures

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

November 25, 2015

Roxana Herrera
BP America Production Co.
737 N. Eldridge Parkway
Houston, TX 77079

Re: BP America Production Company
Crouch Mesa Waste Management Facility, Permit NM-02-003
2015 Annual Report on Treatment Zone Monitoring

Dear Ms. Herrera:

On behalf of BP America Production Company, Blagg Engineering, Inc. (BEI) conducted 2015 annual treatment zone monitoring at the Crouch Mesa Waste Management Facility pursuant to Permit NM-02-003, dated November 25, 1998. This report is for the December 1, 2014 through November 30, 2015 reporting period. Analytical test results (attached) indicate the facility met standards with each sample event.

The landfarm is presently configured into three (3) active cells, identified as Cell 1, Cell 2 and Cell 5 (Figure 1). Cell 5 is used for storage of remediated soils only. The northeast portion of the facility (identified as 'unused cell') is used for equipment, materials, remediated soils storage and unused compost media storage.

Sampling protocol specifies collection of subsurface samples in each cell from the native ground surface below the treatment zone at a depth of between 2' - 3' during quarterly monitoring. Quarterly test procedures include total petroleum hydrocarbons (TPH), chloride and benzene, toluene, ethyl-benzene and xylenes (BTEX). Heavy metals and major cations/anions are to be collected for at least one quarterly sample event. During this reporting period, metals and cations/anions were tested on the November 3, 2015 sample event.

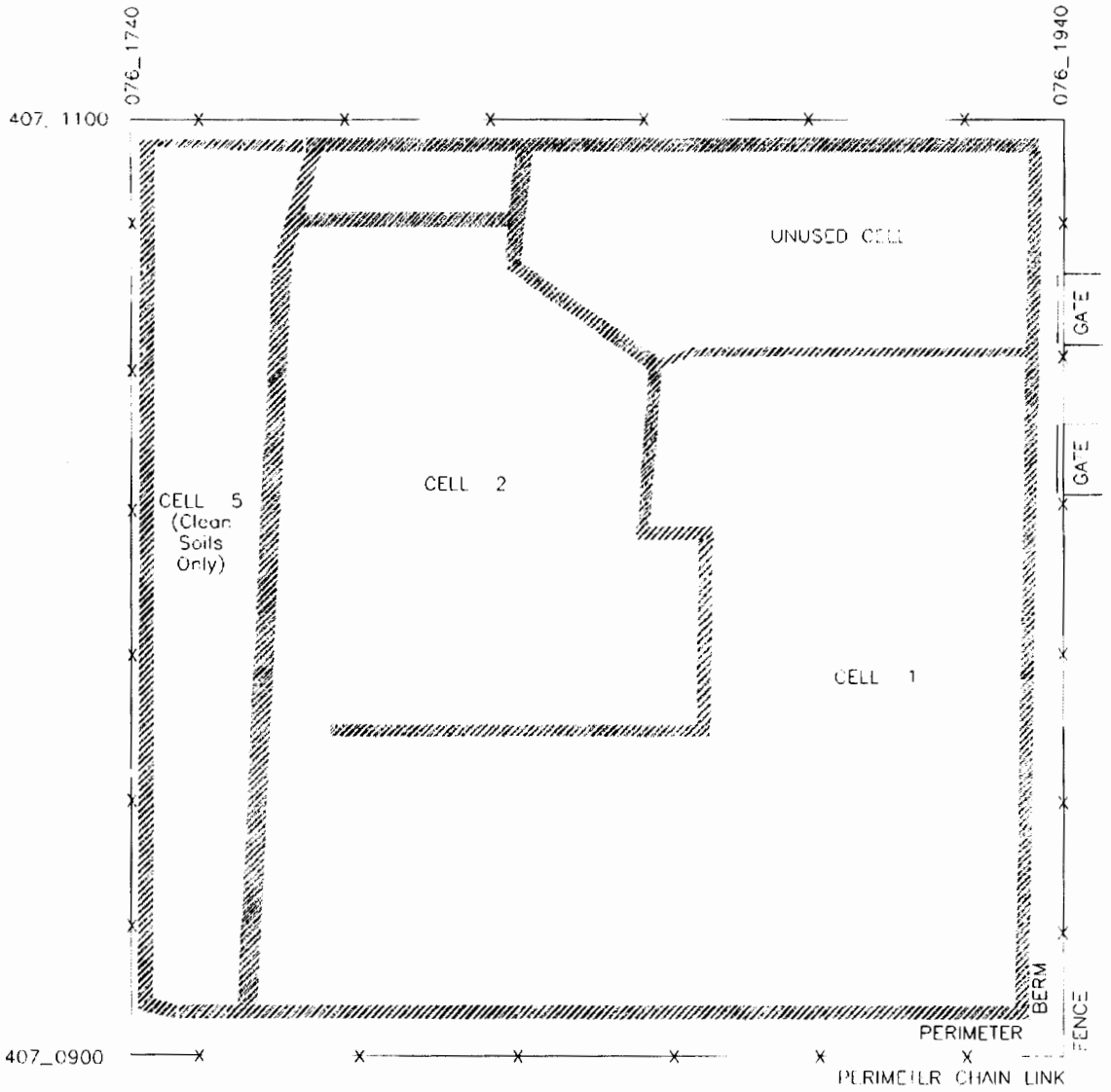
Questions or comments concerning the this transmittal may be directed to myself at (505)320-1183.

Respectfully submitted:
Blagg Engineering, Inc.

Jeffrey C Blagg, PE
Digitally signed by Jeffrey C Blagg, PE
DN: cn=Jeffrey C Blagg, PE, o, ou, email=jeffcblagg@aol.com, c=US
Date: 2015.11.25 13:59:19 -07'00'

Jeffrey C. Blagg, P.E.
President

Attachments: Site Diagrams for each Sample Event (2/2/15, 6/29/15, 9/30/15, 11/3/15)
Soil Treatment Zone Laboratory Monitoring Reports



LEGEND

6' TALL CHAIN LINK FENCE

SOIL BERM

N

0 200 400 FEET

BP AMERICA PRODUCTION CO.
CROUCH MESA WASTE MGMT FAC
SW/4 SE/4 SEC 2 T29N R12W
SAN JUAN CO., NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING ENGINEERING SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

SITE SCHEMATIC

FIGURE 1	DRWN BY JCB
CRMESA4	PROJ MGR JCB


Google Earth View 3/15/2015
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
CELL 2
CELL 5
CELL 1
5
2
1
Sample Points 2/2/2015
Cell 1 - 7:20 am at 2'-3' depth
Cell 2 - 7:50 am at 2'-3' depth
Cell 5 - 8:20 am at 2'-3' depth
Google earth
N
300 ft


Google Earth View 3/15/2015
5
CELL 5
CELL 2
2
CELL 1
1
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
Sample Points 6/29/2015
Cell 1 - 10:10 am at 2'-3' depth
Cell 2 - 10:30 am at 2'-3' depth
Cell 5 - 10:50 am at 2'-3' depth
N
300 ft
Google earth


Google Earth View 3/15/2015
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
CELL 2
CELL 5
CELL 1
2
5
1
Sample Points 9/30/2015
Cell 1 - 14:30 am at 2'-3' depth
Cell 2 - 14:55 am at 2'-3' depth
Cell 5 - 15:10 am at 2'-3' depth
Google earth
N
300 ft


Google Earth View 3/15/2015
BP Crouch Mesa
Waste Management Facility
Perimeter Fence
CELL 5
CELL 2
CELL 1
Sample Points 11/03/2015
Cell 1 - 8:20 am at 2'-3' depth
Cell 2 - 8:40 am at 2'-3' depth
Cell 5 - 9:05 am at 2'-3' depth
2
5
1
N
300 ft
Google earth

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

February 10, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1502135

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 2/4/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1502135**
Date Reported: **2/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-001 **Matrix:** SOIL

Client Sample ID: Cell 1
Collection Date: 2/2/2015 7:20:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/6/2015 3:59:08 PM	17564
Surr: DNOP	80.3	63.5-128		%REC	1	2/6/2015 3:59:08 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Surr: BFB	100	80-120		%REC	1	2/5/2015 9:41:22 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Toluene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Ethylbenzene	ND	0.048		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Xylenes, Total	ND	0.095		mg/Kg	1	2/5/2015 9:41:22 PM	17567
Surr: 4-Bromofluorobenzene	117	80-120		%REC	1	2/5/2015 9:41:22 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 11:21:47 AM	17607

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
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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-002 **Matrix:** SOIL

Client Sample ID: Cell 2
Collection Date: 2/2/2015 7:50:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/6/2015 4:20:50 PM	17564
Surr: DNOP	71.4	63.5-128		%REC	1	2/6/2015 4:20:50 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Surr: BFB	99.7	80-120		%REC	1	2/5/2015 10:10:03 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Toluene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Ethylbenzene	ND	0.049		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Xylenes, Total	ND	0.098		mg/Kg	1	2/5/2015 10:10:03 PM	17567
Surr: 4-Bromofluorobenzene	114	80-120		%REC	1	2/5/2015 10:10:03 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 12:11:25 PM	17607

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
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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1502135-003 **Matrix:** SOIL

Client Sample ID: Cell 5
Collection Date: 2/2/2015 8:20:00 AM
Received Date: 2/4/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/6/2015 4:42:40 PM	17564
Surr: DNOP	87.0	63.5-128		%REC	1	2/6/2015 4:42:40 PM	17564
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Surr: BFB	99.7	80-120		%REC	1	2/5/2015 10:38:46 PM	17567
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Toluene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Ethylbenzene	ND	0.047		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Xylenes, Total	ND	0.094		mg/Kg	1	2/5/2015 10:38:46 PM	17567
Surr: 4-Bromofluorobenzene	114	80-120		%REC	1	2/5/2015 10:38:46 PM	17567
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	1.5		mg/Kg	1	2/6/2015 1:01:04 PM	17607

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
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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID	**MB-17607**	SampType:	**MBLK**		TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**17607**		RunNo:	**24171**					
Prep Date:	**2/6/2015**	Analysis Date:	**2/6/2015**		SeqNo:	**712654**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chloride	ND	1.5									

Sample ID	**LCS-17607**	SampType:	**LCS**		TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**17607**		RunNo:	**24171**					
Prep Date:	**2/6/2015**	Analysis Date:	**2/6/2015**		SeqNo:	**712655**	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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-17564**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **17564**	RunNo: **24136**
Prep Date: **2/4/2015**	Analysis Date: **2/6/2015**	SeqNo: **712630** 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	9.0		10.00		89.7	63.5	128			

Sample ID **LCS-17564**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **17564**	RunNo: **24136**
Prep Date: **2/4/2015**	Analysis Date: **2/6/2015**	SeqNo: **712631** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.8	67.8	130			
Surr: DNOP	4.9		5.000		98.2	63.5	128			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-17567**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711439** 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		94.1	80	120			

Sample ID **LCS-17567**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711440** 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	105	64	130			
Surr: BFB	1100		1000		106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502135**

10-Feb-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-17567**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711478** 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-17567**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **17567**	RunNo: **24122**
Prep Date: **2/4/2015**	Analysis Date: **2/5/2015**	SeqNo: **711479** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	112	80	120			
Toluene	1.1	0.050	1.000	0	108	80	120			
Ethylbenzene	1.1	0.050	1.000	0	113	80	120			
Xylenes, Total	3.4	0.10	3.000	0	112	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		122	80	120			S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG Work Order Number: 1502135 RcptNo: 1

Received by/date: AYG 02/04/15

Logged By: Ashley Gallegos 2/4/2015 8:30:00 AM

Completed By: Ashley Gallegos 2/4/2015 9:52:44 AM

Reviewed By: AT 02/04/15

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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (If applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Not Present			

Client:	Blagg Engineering, Inc.	☒ Standard ☐ Rush	
	BP America	Project Name:	Crouch Mesa LF
Mailing Address:	P.O. Box 87		
	Bloomfield, NM 87413	Project #:	
Phone #:	(505)320-1183		
email or Fax#:		Project Manager:	Jeff Blagg
QA/QC Package:			
☒ Standard	☐ Level 4 (Full Validation)		
☐ Other		Sampler:	Jeff Blagg
☐ EDD (Type)		On Ice:	☒ Yes ☐ No
		Sample Temperature:	2.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1502135	BTEX (8021)		TPH 8015B (GRO / DRO)									Chloride		Air Bubbles (Y or N)
							Analysis Request													
02/02/2015	7:20	Soil	Cell 1	4oz x 1	cool	001	x		x									x		
02/02/2015	7:50	Soil	Cell 2	4oz x 1	cool	-002	x		x									x		
02/02/2015	8:20	Soil	Cell 5	4oz x 1	cool	-003	x		x									x		

Date: 2/3/2015	Time: 1034	Relinquished by: Jeff Blagg	Received by: Christie Walters	Date: 2/3/15	Time: 1033
Date: 2/3/15	Time: 1747	Relinquished by: Christie Walters	Received by:	Date: 02/04/15	Time: 0830

Remarks: Bill BP
BP Contact: Jeff Peace
peace.jeffrey@bp.com
Please copy results to:

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

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

July 14, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa Landfarm OrderNo.: 1507054

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/1/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507054**
Date Reported: **7/14/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-001 **Matrix:** SOIL

Client Sample ID: Cell #1 @ 2'-3'
Collection Date: 6/29/2015 10:10:00 AM
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 2:54:23 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/6/2015 6:17:47 PM	20084
Surr: DNOP	99.2	57.9-140		%REC	1	7/6/2015 6:17:47 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Surr: BFB	86.3	75.4-113		%REC	1	7/6/2015 11:50:49 PM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Toluene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Ethylbenzene	ND	0.048		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Xylenes, Total	ND	0.097		mg/Kg	1	7/6/2015 11:50:49 PM	20074
Surr: 4-Bromofluorobenzene	89.0	80-120		%REC	1	7/6/2015 11:50:49 PM	20074

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-002 **Matrix:** SOIL

Client Sample ID: Cell #2 @ 2'-3'
Collection Date: 6/29/2015 10:30:00 AM
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 3:06:47 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/6/2015 6:44:51 PM	20084
Surr: DNOP	98.3	57.9-140		%REC	1	7/6/2015 6:44:51 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Surr: BFB	85.3	75.4-113		%REC	1	7/7/2015 12:19:35 AM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Toluene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Ethylbenzene	ND	0.048		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Xylenes, Total	ND	0.096		mg/Kg	1	7/7/2015 12:19:35 AM	20074
Surr: 4-Bromofluorobenzene	87.6	80-120		%REC	1	7/7/2015 12:19:35 AM	20074

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa Landfarm
Lab ID: 1507054-003 **Matrix:** SOIL

Client Sample ID: Cell #5 @ 2'-3'
Collection Date: 6/29/2015 10:50:00 AM
Received Date: 7/1/2015 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/9/2015 3:19:12 PM	20182
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	18	9.5		mg/Kg	1	7/6/2015 7:11:55 PM	20084
Surr: DNOP	98.0	57.9-140		%REC	1	7/6/2015 7:11:55 PM	20084
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Surr: BFB	85.7	75.4-113		%REC	1	7/7/2015 12:48:17 AM	20074
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Toluene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Ethylbenzene	ND	0.047		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Xylenes, Total	ND	0.094		mg/Kg	1	7/7/2015 12:48:17 AM	20074
Surr: 4-Bromofluorobenzene	88.0	80-120		%REC	1	7/7/2015 12:48:17 AM	20074

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID	**MB-20182**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**20182**	RunNo:	**27409**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**822344**	Units:	**mg/Kg**			

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

Sample ID	**LCS-20182**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**20182**	RunNo:	**27409**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**822345**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20084**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20084**	RunNo: **27290**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **817786** 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	8.8		10.00		88.0	57.9	140			

Sample ID **LCS-20084**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20084**	RunNo: **27290**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **817787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	103	57.4	139			
Surr: DNOP	5.5		5.000		110	57.9	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20074**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818229** 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	840		1000		84.3	75.4	113			

Sample ID **LCS-20074**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.9	64	130			
Surr: BFB	920		1000		91.9	75.4	113			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507054**

14-Jul-15

Client: Blagg Engineering

Project: Crouch Mesa Landfarm

Sample ID **MB-20074**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818262** 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	0.90		1.000		89.6	80	120			

Sample ID **LCS-20074**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **20074**	RunNo: **27293**
Prep Date: **7/2/2015**	Analysis Date: **7/6/2015**	SeqNo: **818263** 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	102	76.6	128			
Toluene	0.97	0.050	1.000	0	97.0	75	124			
Ethylbenzene	1.0	0.050	1.000	0	101	79.5	126			
Xylenes, Total	3.1	0.10	3.000	0	102	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.7	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **BLAGG** Work Order Number: **1507054** RcptNo: **1**

Received by/date: AG 07/01/15

Logged By: **Lindsay Mangin** **7/1/2015 7:15:00 AM**

Completed By: **Ashley Gallegos** **7/2/2015 7:27:54 AM** AG

Reviewed By: 07/02/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (If applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

Chain-of-Custody Record

Client: BP America

Blagg Engineering Inc.

Mailing Address:

Phone #: 505-320-1183

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: CROUCH MESA LANDFARM

Project #:

Project Manager: J. Blagg

Sampler: J. Blagg

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.3

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. 1507054	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / ~~MRO~~)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
6/29/2015	1010	SOIL	CELL #1 @ 2'-3'	4oz x 1	COC	-001	X		X									X				
"	1030	"	CELL #2 @ 2'-3'	"	"	-002	X		X									X				
"	1050	"	CELL #5 @ 2'-3'	"	"	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/30/2015	1136	Jeff Blagg	Christine Walters	6/30/2015	1136
6/30/15	1837	Christine Walters	[illegible]	07/01/15	0715

Remarks: Bill BP
P.O. ON FILE
contact: Jeff Peace

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

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

October 09, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1510085

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 10/1/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-001 **Matrix:** SOIL

Client Sample ID: Cell 1 @ 2'-3'
Collection Date: 9/30/2015 2:30:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 12:23:47 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/7/2015 12:18:22 AM	21629
Surr: DNOP	104	57.9-140		%REC	1	10/7/2015 12:18:22 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Surr: BFB	88.9	75.4-113		%REC	1	10/6/2015 11:27:19 PM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Toluene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Ethylbenzene	ND	0.049		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Xylenes, Total	ND	0.099		mg/Kg	1	10/6/2015 11:27:19 PM	21665
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	10/6/2015 11:27:19 PM	21665

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-002 **Matrix:** SOIL

Client Sample ID: Cell 2 @ 2'-3'
Collection Date: 9/30/2015 2:55:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 1:01:00 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	10/7/2015 12:45:42 AM	21629
Surr: DNOP	115	57.9-140		%REC	1	10/7/2015 12:45:42 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Surr: BFB	88.1	75.4-113		%REC	1	10/6/2015 11:50:30 PM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Toluene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Ethylbenzene	ND	0.047		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Xylenes, Total	ND	0.095		mg/Kg	1	10/6/2015 11:50:30 PM	21665
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	10/6/2015 11:50:30 PM	21665

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1510085-003 **Matrix:** SOIL

Client Sample ID: Cell 5 @ 2'-3'
Collection Date: 9/30/2015 3:10:00 PM
Received Date: 10/1/2015 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/7/2015 1:13:24 PM	21726
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/7/2015 1:13:01 AM	21629
Surr: DNOP	94.7	57.9-140		%REC	1	10/7/2015 1:13:01 AM	21629
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Surr: BFB	88.3	75.4-113		%REC	1	10/7/2015 1:23:16 AM	21665
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Toluene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Ethylbenzene	ND	0.047		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Xylenes, Total	ND	0.094		mg/Kg	1	10/7/2015 1:23:16 AM	21665
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	10/7/2015 1:23:16 AM	21665

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID	**MB-21726**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**21726**	RunNo:	**29393**					
Prep Date:	**10/7/2015**	Analysis Date:	**10/7/2015**	SeqNo:	**894029**	Units:	**mg/Kg**			

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

Sample ID	**LCS-21726**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**21726**	RunNo:	**29393**					
Prep Date:	**10/7/2015**	Analysis Date:	**10/7/2015**	SeqNo:	**894030**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.3	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID	**MB-21652**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**21652**		RunNo:	**29273**				
Prep Date:	**10/5/2015**	Analysis Date:	**10/5/2015**		SeqNo:	**890900**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.9		10.00		78.7	57.9	140			

Sample ID	**LCS-21652**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**21652**		RunNo:	**29273**				
Prep Date:	**10/5/2015**	Analysis Date:	**10/5/2015**		SeqNo:	**890901**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.7	57.9	140			

Sample ID	**MB-21629**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**21629**		RunNo:	**29273**				
Prep Date:	**10/2/2015**	Analysis Date:	**10/6/2015**		SeqNo:	**892312**	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	10		10.00		103	57.9	140			

Sample ID	**LCS-21629**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**21629**		RunNo:	**29273**				
Prep Date:	**10/2/2015**	Analysis Date:	**10/6/2015**		SeqNo:	**892314**	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	96.7	57.4	139			
Surr: DNOP	5.3		5.000		107	57.9	140			

Sample ID	**MB-21737**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**21737**		RunNo:	**29273**				
Prep Date:	**10/8/2015**	Analysis Date:	**10/8/2015**		SeqNo:	**894229**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.9		10.00		98.6	57.9	140			

Sample ID	**LCS-21737**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**21737**		RunNo:	**29273**				
Prep Date:	**10/8/2015**	Analysis Date:	**10/8/2015**		SeqNo:	**894230**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		103	57.9	140			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-21665**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892336** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.5	75.4	113			

Sample ID **LCS-21665**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892337** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.4	79.6	122			
Surr: BFB	950		1000		95.5	75.4	113			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510085**

09-Oct-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-21665**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892380** 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		106	80	120			

Sample ID **LCS-21665**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **21665**	RunNo: **29332**
Prep Date: **10/5/2015**	Analysis Date: **10/6/2015**	SeqNo: **892381** 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	103	80	120			
Toluene	0.99	0.050	1.000	0	99.1	80	120			
Ethylbenzene	1.0	0.050	1.000	0	100	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.8	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		113	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
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1510085 | RcptNo: 1

Received by/date: SA 10/01/15

Logged By: Lindsay Mangin 10/1/2015 8:00:00 AM

Completed By: Lindsay Mangin 10/2/2015 1:23:36 PM

Reviewed By: SA 10/05/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks

18. Cooler Information

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

Chain-of-Custody Record

Client: Blagg Engineering, Inc.

BP America

Mailing Address: P.O. Box 87
Bloomfield, NM 87413

Phone #: (505)320-1183

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Crouch Mesa LF

Project #:

Project Manager:
Jeff Blagg

Sampler: Jeff Blagg
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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. 1510085	BTEX (8021)		TPH 8015B (GRO / DRO)								Chloride		Air Bubbles (Y or N)
09/30/2015	14:30	Soil	Cell 1 @ 2'-3'	4oz x 1	cool	-001	x		x								x		
09/30/2015	14:55	Soil	Cell 2 @ 2'-3'	4oz x 1	cool	-002	x		x								x		
09/30/2015	15:10	Soil	Cell 5 @ 2'-3'	4oz x 1	cool	-003	x		x								x		

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/1/2015	1322	Jeff Blagg		10/1/2015	1322
10/1/15	1934			10/01/15	0800

Remarks: Bill BP
BP Contact: John Ritchie Please copy results to:
john.ritchie@bp.com

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

November 25, 2015

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 320-1183
FAX (505) 632-3903

RE: Crouch Mesa LF OrderNo.: 1511325

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 11/7/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued November 18, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1511325**
Date Reported: **11/25/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-001 **Matrix:** SOIL

Client Sample ID: Cell 1 @ 2'-3' Depth
Collection Date: 11/3/2015 8:20:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.83	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Nitrogen, Nitrate (As N)	0.49	0.30		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Phosphorus, Orthophosphate (As P)	ND	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
Sulfate	55	1.5		mg/Kg	1	11/12/2015 9:17:47 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.032		mg/Kg	1	11/16/2015 5:42:24 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.5		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Barium	130	0.099		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Cadmium	ND	0.099		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Calcium	4800	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Chromium	2.1	0.30		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Lead	3.2	0.25		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Magnesium	1600	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Potassium	660	99		mg/Kg	2	11/24/2015 10:27:07 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 10:18:45 AM	22298
Sodium	78	50		mg/Kg	2	11/24/2015 10:27:07 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	11	9.4		mg/Kg	1	11/10/2015 1:59:59 PM	22220
Surr: DNOP	125	70-130		%REC	1	11/10/2015 1:59:59 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Surr: BFB	86.3	75.4-113		%REC	1	11/11/2015 3:40:36 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Toluene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Ethylbenzene	ND	0.050		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Xylenes, Total	ND	0.099		mg/Kg	1	11/11/2015 3:40:36 AM	22241
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	11/11/2015 3:40:36 AM	22241

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-002 **Matrix:** SOIL

Client Sample ID: Cell 2 @ 2'-3' Depth
Collection Date: 11/3/2015 8:40:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.4	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Phosphorus, Orthophosphate (As P)	ND	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
Sulfate	2.6	1.5		mg/Kg	1	11/12/2015 9:42:35 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.034		mg/Kg	1	11/16/2015 5:44:10 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	ND	2.5		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Barium	21	0.099		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Cadmium	ND	0.099		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Calcium	4200	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Chromium	1.7	0.30		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Lead	2.4	0.25		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Magnesium	960	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Potassium	380	49		mg/Kg	1	11/24/2015 11:22:07 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 9:54:10 AM	22298
Sodium	29	25		mg/Kg	1	11/24/2015 11:22:07 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	19	9.5		mg/Kg	1	11/10/2015 2:27:04 PM	22220
Surr: DNOP	129	70-130		%REC	1	11/10/2015 2:27:04 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Surr: BFB	87.6	75.4-113		%REC	1	11/11/2015 4:03:58 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Toluene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Ethylbenzene	ND	0.047		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Xylenes, Total	ND	0.094		mg/Kg	1	11/11/2015 4:03:58 AM	22241
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	11/11/2015 4:03:58 AM	22241

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Crouch Mesa LF
Lab ID: 1511325-003 **Matrix:** SOIL

Client Sample ID: Cell 5 @ 2'-3' Depth
Collection Date: 11/3/2015 9:05:00 AM
Received Date: 11/7/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.72	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Chloride	ND	1.5		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Nitrogen, Nitrite (As N)	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Bromide	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	11/12/2015 10:32:14 PM	22318
Phosphorus, Orthophosphate (As P)	ND	30		mg/Kg	20	11/12/2015 10:44:39 PM	22318
Sulfate	1500	30		mg/Kg	20	11/12/2015 10:44:39 PM	22318
EPA METHOD 7471: MERCURY						Analyst: **DBD**	
Mercury	ND	0.033		mg/Kg	1	11/16/2015 5:49:30 PM	22353
EPA METHOD 6010B: SOIL METALS						Analyst: **MED**	
Arsenic	2.7	2.5		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Barium	15	0.098		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Cadmium	ND	0.098		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Calcium	3400	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Chromium	0.40	0.30		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Lead	2.3	0.25		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Magnesium	950	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Potassium	310	49		mg/Kg	1	11/24/2015 11:23:52 AM	22298
Selenium	ND	2.5		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Silver	ND	0.25		mg/Kg	1	11/13/2015 10:01:07 AM	22298
Sodium	40	25		mg/Kg	1	11/24/2015 11:23:52 AM	22298
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/10/2015 3:05:51 PM	22220
Surr: DNOP	120	70-130		%REC	1	11/10/2015 3:05:51 PM	22220
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Surr: BFB	85.8	75.4-113		%REC	1	11/11/2015 4:27:20 AM	22241
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Toluene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Ethylbenzene	ND	0.050		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Xylenes, Total	ND	0.10		mg/Kg	1	11/11/2015 4:27:20 AM	22241
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	11/11/2015 4:27:20 AM	22241

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22318**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **22318**	RunNo: **30221**
Prep Date: **11/12/2015**	Analysis Date: **11/12/2015**	SeqNo: **920945** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-22318**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **22318**	RunNo: **30221**
Prep Date: **11/12/2015**	Analysis Date: **11/12/2015**	SeqNo: **920946** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	97.8	90	110			
Chloride	14	1.5	15.00	0	92.1	90	110			
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	94.3	90	110			
Bromide	6.9	0.30	7.500	0	91.8	90	110			
Nitrogen, Nitrate (As N)	7.2	0.30	7.500	0	96.4	90	110			
Phosphorus, Orthophosphate (As P	14	1.5	15.00	0	93.9	90	110			
Sulfate	29	1.5	30.00	0	95.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22220**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **22220**	RunNo: **30124**
Prep Date: **11/6/2015**	Analysis Date: **11/10/2015**	SeqNo: **917919** 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	12		10.00		117	70	130			

Sample ID **LCS-22220**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **22220**	RunNo: **30124**
Prep Date: **11/6/2015**	Analysis Date: **11/10/2015**	SeqNo: **917920** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	126	57.4	139			
Surr: DNOP	7.4		5.000		147	70	130			S

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID **MB-22241**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918420** 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	860		1000		85.6	75.4	113			

Sample ID **LCS-22241**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918421** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	79.6	122			
Surr: BFB	930		1000		92.7	75.4	113			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **MB-22241**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918501** 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		109	80	120			

Sample ID **LCS-22241**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **22241**	RunNo: **30136**
Prep Date: **11/9/2015**	Analysis Date: **11/10/2015**	SeqNo: **918502** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	99.0	80	120			
Toluene	0.98	0.050	1.000	0	98.1	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		115	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID	**MB-22353**	SampType:	**MBLK**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**PBS**	Batch ID:	**22353**		RunNo:	**30272**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923042**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-22353**	SampType:	**LCS**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**LCSS**	Batch ID:	**22353**		RunNo:	**30272**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923043**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	100	80	120			

Sample ID	**1511325-002BMS**	SampType:	**MS**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**Cell 2 @ 2'-3' Depth**	Batch ID:	**22353**		RunNo:	**30272**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923052**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1685	0	94.7	75	125			

Sample ID	**1511325-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**Cell 2 @ 2'-3' Depth**	Batch ID:	**22353**		RunNo:	**30272**				
Prep Date:	**11/16/2015**	Analysis Date:	**11/16/2015**		SeqNo:	**923053**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1674	0	94.9	75	125	0.444	20	

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID	MB-22298	SampType:	MBLK		TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	PBS	Batch ID:	22298		RunNo:	30218				
Prep Date:	11/11/2015	Analysis Date:	11/13/2015		SeqNo:	920723	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								

Sample ID	LCS-22298	SampType:	LCS		TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	LCSS	Batch ID:	22298		RunNo:	30218				
Prep Date:	11/11/2015	Analysis Date:	11/13/2015		SeqNo:	920724	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	98.3	80	120			
Barium	25	0.10	25.00	0	98.2	80	120			
Cadmium	24	0.10	25.00	0	97.3	80	120			
Chromium	25	0.30	25.00	0	98.1	80	120			
Lead	24	0.25	25.00	0	97.2	80	120			
Selenium	24	2.5	25.00	0	96.0	80	120			
Silver	4.9	0.25	5.000	0	98.2	80	120			

Sample ID	1511325-001BMS	SampType:	MS		TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	Cell 1 @ 2'-3' Depth	Batch ID:	22298		RunNo:	30218				
Prep Date:	11/11/2015	Analysis Date:	11/13/2015		SeqNo:	920765	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	22	2.4	24.36	1.009	86.2	75	125			
Barium	180	0.097	24.36	127.4	232	75	125			S
Cadmium	21	0.097	24.36	0	87.3	75	125			
Chromium	24	0.29	24.36	2.073	90.7	75	125			
Lead	22	0.24	24.36	3.225	79.1	75	125			B
Selenium	19	2.4	24.36	0	76.0	75	125			
Silver	4.3	0.24	4.872	0	87.2	75	125			

Sample ID	1511325-001BMSD	SampType:	MSD		TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	Cell 1 @ 2'-3' Depth	Batch ID:	22298		RunNo:	30218				
Prep Date:	11/11/2015	Analysis Date:	11/13/2015		SeqNo:	920767	Units:	mg/Kg		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	22	2.5	24.63	1.009	86.5	75	125	1.43	20	

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering
Project: Crouch Mesa LF

Sample ID	**1511325-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**Cell 1 @ 2'-3' Depth**	Batch ID: **22298**		RunNo: **30218**					
Prep Date:	**11/11/2015**	Analysis Date: **11/13/2015**		SeqNo: **920767**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	160	0.099	24.63	127.4	130	75	125	14.4	20	S
Cadmium	21	0.099	24.63	0	86.1	75	125	0.223	20	
Chromium	24	0.30	24.63	2.073	88.9	75	125	0.803	20	
Lead	23	0.25	24.63	3.225	81.0	75	125	3.05	20	
Selenium	19	2.5	24.63	0	76.8	75	125	2.14	20	
Silver	4.2	0.25	4.927	0	85.0	75	125	1.48	20	

Sample ID	**MB-22298**	SampType: **MBLK**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID: **22298**		RunNo: **30443**					
Prep Date:	**11/11/2015**	Analysis Date: **11/24/2015**		SeqNo: **928963**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	25								
Magnesium	ND	25								
Potassium	ND	50								
Sodium	ND	25								

Sample ID	**LCS-22298**	SampType: **LCS**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID: **22298**		RunNo: **30443**					
Prep Date:	**11/11/2015**	Analysis Date: **11/24/2015**		SeqNo: **928964**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	2500	25	2500	0	98.3	80	120			
Magnesium	2500	25	2500	0	98.6	80	120			
Potassium	2400	50	2500	0	95.1	80	120			
Sodium	2400	25	2500	0	97.3	80	120			

Sample ID	**1511325-001BMS**	SampType: **MS**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**Cell 1 @ 2'-3' Depth**	Batch ID: **22298**		RunNo: **30443**					
Prep Date:	**11/11/2015**	Analysis Date: **11/24/2015**		SeqNo: **929121**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	6800	49	2436	4807	81.3	75	125			
Magnesium	4200	49	2436	1560	109	75	125			
Potassium	3000	97	2436	657.7	95.8	75	125			
Sodium	2300	49	2436	77.85	91.3	75	125			

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511325**

25-Nov-15

Client: Blagg Engineering

Project: Crouch Mesa LF

Sample ID **1511325-001BMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 @ 2'-3' Depth** Batch ID: **22298** RunNo: **30443**

Prep Date: **11/11/2015** Analysis Date: **11/24/2015** SeqNo: **929122** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	7100	49	2463	4807	91.5	75	125	3.97	20	
Magnesium	4200	49	2463	1560	107	75	125	0.285	20	
Potassium	3000	99	2463	657.7	94.5	75	125	0.224	20	
Sodium	2300	49	2463	77.85	89.6	75	125	0.665	20	

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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **BLAGG** Work Order Number: **1511325** RcptNo: **1**

Received by/date: CM 11/07/15

Logged By: **Anne Thorne** **11/7/2015 8:45:00 AM** Anne Thorne

Completed By: **Anne Thorne** **11/9/2015** Anne Thorne

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° 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	1.2	Good	Yes			

Chain-of-Custody Record

Client: Blagg Engineering, Inc.

BP America

Mailing Address: P.O. Box 87
Bloomfield, NM 87413

Phone #: (505)320-1183

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Crouch Mesa LF

Project #:

Project Manager: Jeff Blagg

Sampler: Jeff Blagg
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.2

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1511325	BTEX (8021)		TPH 8015B (GRO / DRO)		RCRA 8 Metals		Cations/Anions								Air Bubbles (Y or N)
11/03/2015	8:20	Soil	Cell 1 @ 2'-3' Depth	4oz x 2	cool	001	x		x		x		x								
11/03/2015	8:40	Soil	Cell 2 @ 2'-3' Depth	4oz x 2	cool	002	x		x		x		x								
11/03/2015	9:05	Soil	Cell 5 @ 2'-3' Depth	4oz x 2	cool	003	x		x		x		x								

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/6/2015	1540	Jeff Blagg	Christie Wolet	11/6/15	1540
11/6/15	1800	Christie Wooler		11/07/15	0845

Remarks: Bill BP
BP Contact: John Ritchie Please copy results to:
john.ritchie@bp.com

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.