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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company BP America Production Company	Contact Erin Garifalos
Address 200 Energy Court, Farmington, NM 87401	Telephone No. (832) 609-7048
Facility Name HARDIE LS 001A	Facility Type: Natural Gas Well

Surface Owner: Federal	Mineral Owner: Federal	API No. 3004522415

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	26	29N	08W	1,600	South	1,800	East	San Juan

Latitude 36.69403 Longitude -107.64371 NAD83

NATURE OF RELEASE

Type of Release:: Unknown - hydrocarbon	Volume of Release:: unknown	Volume Recovered:: none
Source of Release: Unknown - suspect 95 bbl BGT	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: December 5, 2017
Was Immediate Notice Given? ☐ Yes ☐ No ☑ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☑ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

NMOCD
FEB 26 2018
DISTRICT III

Describe Cause of Problem and Remedial Action Taken.* During the closure of a below grade tank sampling indicated what appears to be hydrocarbon impacts to the soil, likely associated with an earthen pit.

Describe Area Affected and Cleanup Action Taken.* BP fully delineated the impacts via excavation with soils treated onsite using soil-shreding. The treated soil was used to backfill the BGT location. Attached is a narrative of the activities and accompanying laboratory data. BP requests no further action.

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

Signature: erin garifalos	OIL CONSERVATION DIVISION Approved by Environmental Specialist:
Printed Name: Erin Garifalos	
Title: Field Environmental Coordinator	Approval Date: 2/27/18 Expiration Date:
E-mail Address: erin.garifalos@bp.com	Conditions of Approval: — Attached ☐
Date: February 22, 2018 Phone: (832) 609-7048	

* Attach Additional Sheets If Necessary #nCS1801657373

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BP America
Hardie LS 1A
(J) Sec 26 – T29N – R8W
San Juan County, New Mexico
API: 30-045-22415

Summary Record of Impact Remediation

December 5, 2017 Soils impacted with hydrocarbons were encountered during closure of a 95 barrel below grade tank. Analytical laboratory testing of impacted soils immediately below the BGT at the 5' depth reported total petroleum hydrocarbons (TPH) at 1,720 ppm, total BTEX at non-detect (ND) and chlorides at ND. A sample collected at the 11' depth on dense sandstone reported TPH at 1,730 ppm.

Site closure standard determined at 1,000 ppm TPH and 50 ppm total BTEX (with 10 ppm benzene) based on:

Horizontal Distance to Water Course < 1,000 feet (10 points)
Distance to Nearest Water Well > 1,000 feet (0 points)
Depth to Groundwater >100 feet (0 points)

December 8, 2017 Additional removal of impacts completed. Excavation size 21' x 18' x 13' deep. Closure sampling conducted on sidewalls and base, with analytical results as follows:

Initial Closure Sampling Test Results
December 8, 2017

Sample ID	Date/Time	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
North Sidewall 3-pt @ (4'-11')	12/8/2017 @ 8:28	0.7	ND	ND	ND	ND
West Sidewall 3-pt @ (4'-11')	12/8/2017 @ 8:40	0.3	ND	ND	ND	ND
South Sidewall 3-pt @ (4'-11')	12/8/2017 @ 8:50	0.8	ND	ND	ND	ND
East Sidewall 3-pt @ (4'-11')	12/8/2017 @ 8:57	125	3,210	0.6	ND	ND
Base 5-pt @ 13'	12/8/2017 @ 9:10	304	1,801	2.2	ND	ND
Site Closure Standard:			1,000	50	10	600

Additional actions suspended pending development of a remediation plan for east sidewall and base.

January 16 - 17, 2018 Conduct remediation via excavation of impacts with a trackhoe. Site lithology (dense bedrock sandstone) was encountered at the 8' depth. Completed excavation 24' x 21' x 17' deep. Excavated soils stored on-site for subsequent treatment via soil shredding process.

January 17, 2018 Conduct closure sampling on sidewalls and base.

Excavation Closure Sampling Test Results
January 17, 2017

Sample ID	Date/Time	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
N-W-S Wall 3-pt @ (14'-16')	01/17/2018 @ 11:35	191	204	ND	ND	ND
East Sidewall 5-pt @ (6'-16')	01/17/2018 @ 11:42	28	890	ND	ND	ND
Base 5-pt @ 17'	01/17/2018 @ 11:49	88	790	3.5	ND	ND
Site Closure Standard:			1,000	50	10	600

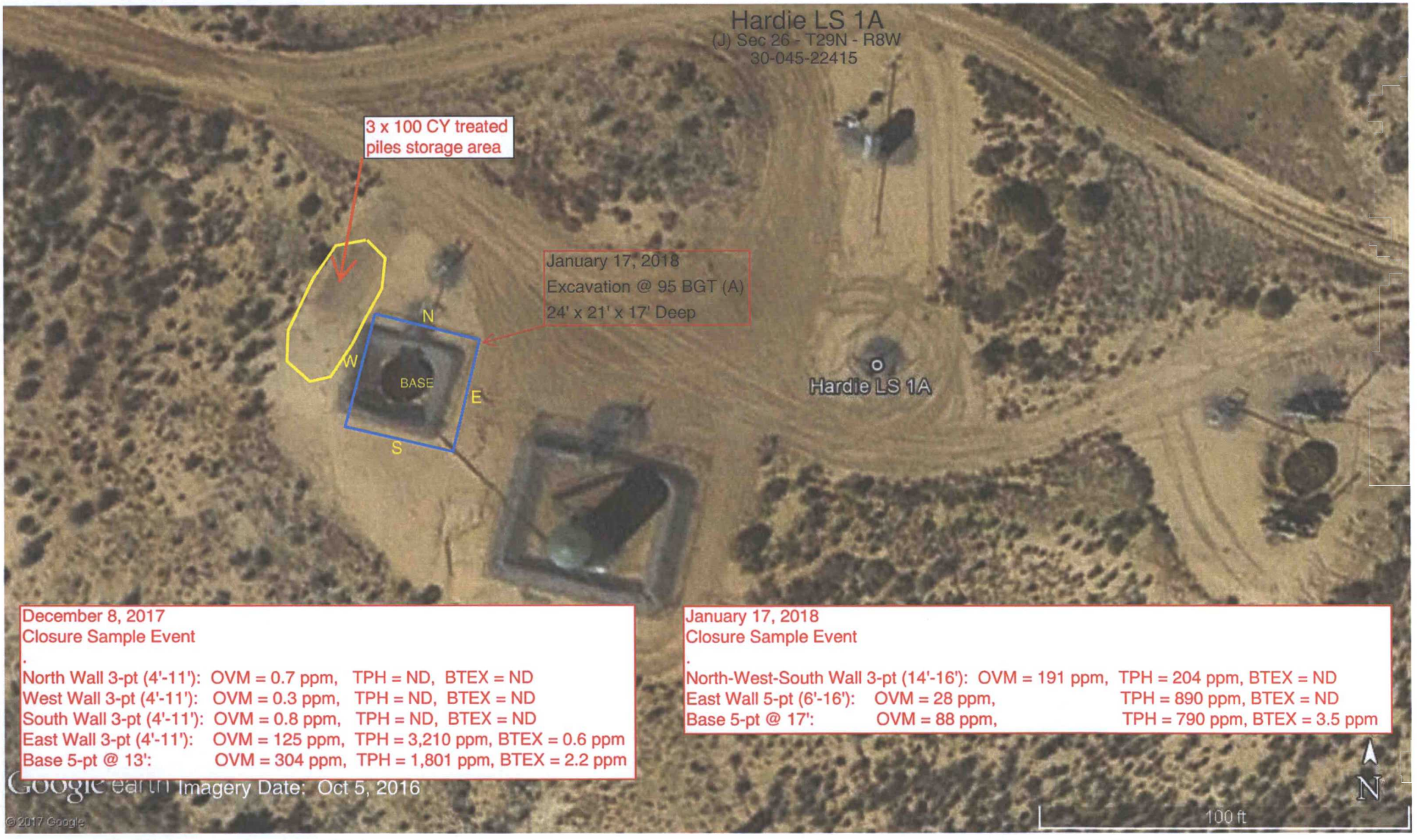
January 17, 2018 Treat excavated soils on-site via soil shredding.

January 19, 2018 Sample treated soils (3 x 100 cubic yard piles) for closure.

Treated Soil Sampling Test Results
January 19, 2017

Sample ID	Date/Time	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
TSP-1	01/19/2018 @ 11:12	77.1	536	0.78	ND	ND
TSP-2	01/19/2018 @ 11:17	85.7	538	0.96	ND	ND
TSP-3	01/19/2018 @ 11:22	54.4	437	0.4	ND	ND
Site Closure Standard:			1,000	50	10	600

February 9, 2018 Conduct composite sampling of soil shredding surface area vadose zone (TSP-VZ @ 0.5'-1.0'). Laboratory analytical test results report non-detect for all constituents (TPH, BTEX and Chlorides).


Hardie LS 1A
(J) Sec 26 - T29N - R8W
30-045-22415
3 x 100 CY treated piles storage area
January 17, 2018
Excavation @ 95 BGT (A)
24' x 21' x 17' Deep
N
W
BASE
E
S
Hardie LS 1A
December 8, 2017
Closure Sample Event
.
North Wall 3-pt (4'-11'): OVM = 0.7 ppm, TPH = ND, BTEX = ND
West Wall 3-pt (4'-11'): OVM = 0.3 ppm, TPH = ND, BTEX = ND
South Wall 3-pt (4'-11'): OVM = 0.8 ppm, TPH = ND, BTEX = ND
East Wall 3-pt (4'-11'): OVM = 125 ppm, TPH = 3,210 ppm, BTEX = 0.6 ppm
Base 5-pt @ 13': OVM = 304 ppm, TPH = 1,801 ppm, BTEX = 2.2 ppm
January 17, 2018
Closure Sample Event
.
North-West-South Wall 3-pt (14'-16'): OVM = 191 ppm, TPH = 204 ppm, BTEX = ND
East Wall 5-pt (6'-16'): OVM = 28 ppm, TPH = 890 ppm, BTEX = ND
Base 5-pt @ 17': OVM = 88 ppm, TPH = 790 ppm, BTEX = 3.5 ppm
Google earth Imagery Date: Oct 5, 2016
© 2017 Google
N
100 ft

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

December 12, 2017

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

RE: HARDIE LS 1A OrderNo.: 1712528

Dear Erin Garifalos:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712528**
Date Reported: **12/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1712528-001 **Matrix:** SOIL

Client Sample ID: N Wall 3-pt (4'-11')
Collection Date: 12/8/2017 8:28:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	12/11/2017 10:08:37 AM	35435
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/11/2017 10:41:28 AM	35427
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/11/2017 10:41:28 AM	35427
Surr: DNOP	102	70-130		%Rec	1	12/11/2017 10:41:28 AM	35427
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.1		mg/Kg	1	12/11/2017 9:36:43 AM	G47673
Surr: BFB	93.0	15-316		%Rec	1	12/11/2017 9:36:43 AM	G47673
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	12/11/2017 9:36:43 AM	B47673
Toluene	ND	0.041		mg/Kg	1	12/11/2017 9:36:43 AM	B47673
Ethylbenzene	ND	0.041		mg/Kg	1	12/11/2017 9:36:43 AM	B47673
Xylenes, Total	ND	0.082		mg/Kg	1	12/11/2017 9:36:43 AM	B47673
Surr: 4-Bromofluorobenzene	115	80-120		%Rec	1	12/11/2017 9:36:43 AM	B47673

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1712528**
Date Reported: **12/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1712528-002 **Matrix:** SOIL

Client Sample ID: W Wall 3-pt (4'-11')
Collection Date: 12/8/2017 8:40:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	12/11/2017 10:21:01 AM	35435
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/11/2017 11:05:45 AM	35427
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/11/2017 11:05:45 AM	35427
Surr: DNOP	101	70-130		%Rec	1	12/11/2017 11:05:45 AM	35427
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.2		mg/Kg	1	12/11/2017 10:00:10 AM	G47673
Surr: BFB	97.9	15-316		%Rec	1	12/11/2017 10:00:10 AM	G47673
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.021		mg/Kg	1	12/11/2017 10:00:10 AM	B47673
Toluene	ND	0.042		mg/Kg	1	12/11/2017 10:00:10 AM	B47673
Ethylbenzene	ND	0.042		mg/Kg	1	12/11/2017 10:00:10 AM	B47673
Xylenes, Total	ND	0.083		mg/Kg	1	12/11/2017 10:00:10 AM	B47673
Surr: 4-Bromofluorobenzene	119	80-120		%Rec	1	12/11/2017 10:00:10 AM	B47673

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1712528-003 **Matrix:** SOIL

Client Sample ID: S Wall 3-pt (4'-11')
Collection Date: 12/8/2017 8:50:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	12/11/2017 10:33:25 AM	35435
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/11/2017 11:30:10 AM	35427
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/11/2017 11:30:10 AM	35427
Surr: DNOP	103	70-130		%Rec	1	12/11/2017 11:30:10 AM	35427
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.3		mg/Kg	1	12/11/2017 10:23:56 AM	G47673
Surr: BFB	96.2	15-316		%Rec	1	12/11/2017 10:23:56 AM	G47673
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.027		mg/Kg	1	12/11/2017 10:23:56 AM	B47673
Toluene	ND	0.053		mg/Kg	1	12/11/2017 10:23:56 AM	B47673
Ethylbenzene	ND	0.053		mg/Kg	1	12/11/2017 10:23:56 AM	B47673
Xylenes, Total	ND	0.11		mg/Kg	1	12/11/2017 10:23:56 AM	B47673
Surr: 4-Bromofluorobenzene	118	80-120		%Rec	1	12/11/2017 10:23:56 AM	B47673

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1712528-004 **Matrix:** SOIL

Client Sample ID: E Wall 3-pt (4'-11')
Collection Date: 12/8/2017 8:57:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	12/11/2017 10:45:49 AM	35435
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	2000	93		mg/Kg	10	12/11/2017 11:54:33 AM	35427
Motor Oil Range Organics (MRO)	1100	470		mg/Kg	10	12/11/2017 11:54:33 AM	35427
Surr: DNOP	0	70-130	S	%Rec	10	12/11/2017 11:54:33 AM	35427
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	110	4.0		mg/Kg	1	12/11/2017 10:47:42 AM	G47673
Surr: BFB	841	15-316	S	%Rec	1	12/11/2017 10:47:42 AM	G47673
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.020		mg/Kg	1	12/11/2017 10:47:42 AM	B47673
Toluene	ND	0.040		mg/Kg	1	12/11/2017 10:47:42 AM	B47673
Ethylbenzene	ND	0.040		mg/Kg	1	12/11/2017 10:47:42 AM	B47673
Xylenes, Total	0.60	0.079		mg/Kg	1	12/11/2017 10:47:42 AM	B47673
Surr: 4-Bromofluorobenzene	131	80-120	S	%Rec	1	12/11/2017 10:47:42 AM	B47673

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1712528-005 **Matrix:** SOIL

Client Sample ID: Base 5-pt @ 13'
Collection Date: 12/8/2017 9:10:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	12/11/2017 10:58:14 AM	35435
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	1200	99		mg/Kg	10	12/11/2017 12:27:30 PM	35427
Motor Oil Range Organics (MRO)	530	490		mg/Kg	10	12/11/2017 12:27:30 PM	35427
Surr: DNOP	0	70-130	S	%Rec	10	12/11/2017 12:27:30 PM	35427
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	71	20		mg/Kg	5	12/11/2017 11:11:32 AM	G47673
Surr: BFB	161	15-316		%Rec	5	12/11/2017 11:11:32 AM	G47673
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.098		mg/Kg	5	12/11/2017 11:11:32 AM	B47673
Toluene	ND	0.20		mg/Kg	5	12/11/2017 11:11:32 AM	B47673
Ethylbenzene	ND	0.20		mg/Kg	5	12/11/2017 11:11:32 AM	B47673
Xylenes, Total	2.2	0.39		mg/Kg	5	12/11/2017 11:11:32 AM	B47673
Surr: 4-Bromofluorobenzene	122	80-120	S	%Rec	5	12/11/2017 11:11:32 AM	B47673

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712528**

12-Dec-17

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID	**MB-35435**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**35435**		RunNo:	**47666**				
Prep Date:	**12/11/2017**	Analysis Date:	**12/11/2017**		SeqNo:	**1524960**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-35435**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**35435**		RunNo:	**47666**				
Prep Date:	**12/11/2017**	Analysis Date:	**12/11/2017**		SeqNo:	**1524961**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712528**

12-Dec-17

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **LCS-35427**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **35427**			RunNo: **47662**					
Prep Date: **12/11/2017**	Analysis Date: **12/11/2017**			SeqNo: **1523103**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.7	73.2	114			
Surr: DNOP	4.6		5.000		92.4	70	130			

Sample ID **MB-35427**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **35427**			RunNo: **47662**					
Prep Date: **12/11/2017**	Analysis Date: **12/11/2017**			SeqNo: **1523104**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712528**

12-Dec-17

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523817** 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	980		1000		98.1	15	316			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523818** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.2	75.9	131			
Surr: BFB	1000		1000		104	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712528**

12-Dec-17

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523831** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		118	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B47673**	RunNo: **47673**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1523832** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.8	77.3	128			
Toluene	0.96	0.050	1.000	0	95.9	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.7	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	96.9	81.6	129			
Surr: 4-Bromofluorobenzene	1.2		1.000		117	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
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG Work Order Number: 1712528 RcptNo: 1

Received By: Sophia Campuzano 12/9/2017 Sophia Campuzano

Completed By: Anne Thorne 12/11/2017 7:28:43 AM Anne Thorne

Reviewed By: DDS 12/11/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person	
Regarding:			
Client Instructions:			

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Chain-of-Custody Record

Client: BP AMERICA

BLAGG ENGINEERING

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 SAME DAY

Project Name: HARDIE LS 1A

Project #:

Project Manager: ERIN GARIFALOS

Sampler: JEFF BLAGG

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.9 + 0.2 = 2.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and # (At 12/11/17)	Preservative Type	HEAL No. (CF) 1712528	BTEX + ~~MTBE~~ + TMBs (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)
12/8/2017	0820	SOIL	NORTH WALL 3-PT (4'-11')	4oz x 1	COOL	001	X		X									X				
	0840		WEST WALL 3-PT (4'-11')			002																
	0850		SOUTH WALL 3-PT (4'-11')			003																
	0857		EAST WALL 3-PT (4'-11')			004																
	0910		BASE 5-PT @ 13'			005																

Date	Time	Relinquished by:	Received by:	Date	Time
12/8/2017	1804	Jeff Blagg		12/8/17	1804
12/8/17	1947			12/09/17	0930

Remarks: BILL BP
CONTACT: ERIN GARIFALOS
VID: VHIXONEVRM
REF: P-875

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

January 22, 2018

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

RE: HARDIE LS 1A OrderNo.: 1801890

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 3 sample(s) on 1/18/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1801890**
Date Reported: **1/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1801890-001 **Matrix:** SOIL

Client Sample ID: N-W-S Walls 3-pt @ (14'-16')
Collection Date: 1/17/2018 11:35:00 AM
Received Date: 1/18/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/18/2018 10:42:28 AM	36090
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	150	9.7		mg/Kg	1	1/18/2018 10:38:29 AM	36086
Motor Oil Range Organics (MRO)	54	48		mg/Kg	1	1/18/2018 10:38:29 AM	36086
Surr: DNOP	94.9	70-130		%Rec	1	1/18/2018 10:38:29 AM	36086
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	19		mg/Kg	5	1/18/2018 9:43:08 AM	36077
Surr: BFB	85.9	15-316		%Rec	5	1/18/2018 9:43:08 AM	36077
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.095		mg/Kg	5	1/18/2018 9:43:08 AM	36077
Toluene	ND	0.19		mg/Kg	5	1/18/2018 9:43:08 AM	36077
Ethylbenzene	ND	0.19		mg/Kg	5	1/18/2018 9:43:08 AM	36077
Xylenes, Total	ND	0.38		mg/Kg	5	1/18/2018 9:43:08 AM	36077
Surr: 4-Bromofluorobenzene	93.7	80-120		%Rec	5	1/18/2018 9:43:08 AM	36077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1801890-002 **Matrix:** SOIL

Client Sample ID: EastWall 5-pt @ (6'-16')
Collection Date: 1/17/2018 11:42:00 AM
Received Date: 1/18/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/18/2018 10:54:53 AM	36090
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	620	9.9		mg/Kg	1	1/18/2018 11:03:33 AM	36086
Motor Oil Range Organics (MRO)	270	50		mg/Kg	1	1/18/2018 11:03:33 AM	36086
Surr: DNOP	102	70-130		%Rec	1	1/18/2018 11:03:33 AM	36086
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	18		mg/Kg	5	1/18/2018 10:53:15 AM	36077
Surr: BFB	92.8	15-316		%Rec	5	1/18/2018 10:53:15 AM	36077
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.089		mg/Kg	5	1/18/2018 10:53:15 AM	36077
Toluene	ND	0.18		mg/Kg	5	1/18/2018 10:53:15 AM	36077
Ethylbenzene	ND	0.18		mg/Kg	5	1/18/2018 10:53:15 AM	36077
Xylenes, Total	ND	0.35		mg/Kg	5	1/18/2018 10:53:15 AM	36077
Surr: 4-Bromofluorobenzene	92.1	80-120		%Rec	5	1/18/2018 10:53:15 AM	36077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1801890-003 **Matrix:** SOIL

Client Sample ID: Base 5-pt @ 17'
Collection Date: 1/17/2018 11:49:00 AM
Received Date: 1/18/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/18/2018 11:07:17 AM	36090
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	540	9.6		mg/Kg	1	1/18/2018 11:28:04 AM	36086
Motor Oil Range Organics (MRO)	190	48		mg/Kg	1	1/18/2018 11:28:04 AM	36086
Surr: DNOP	98.3	70-130		%Rec	1	1/18/2018 11:28:04 AM	36086
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	60	18		mg/Kg	5	1/18/2018 11:16:39 AM	36077
Surr: BFB	143	15-316		%Rec	5	1/18/2018 11:16:39 AM	36077
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.089		mg/Kg	5	1/18/2018 11:16:39 AM	36077
Toluene	0.20	0.18		mg/Kg	5	1/18/2018 11:16:39 AM	36077
Ethylbenzene	ND	0.18		mg/Kg	5	1/18/2018 11:16:39 AM	36077
Xylenes, Total	3.3	0.36		mg/Kg	5	1/18/2018 11:16:39 AM	36077
Surr: 4-Bromofluorobenzene	97.4	80-120		%Rec	5	1/18/2018 11:16:39 AM	36077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801890**

22-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID	**MB-36090**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36090**	RunNo:	**48535**					
Prep Date:	**1/18/2018**	Analysis Date:	**1/18/2018**	SeqNo:	**1561668**	Units:	**mg/Kg**			

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

Sample ID	**LCS-36090**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36090**	RunNo:	**48535**					
Prep Date:	**1/18/2018**	Analysis Date:	**1/18/2018**	SeqNo:	**1561669**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801890**

22-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **LCS-36086**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **36086**			RunNo: **48527**					
Prep Date: **1/18/2018**	Analysis Date: **1/18/2018**			SeqNo: **1560409**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.1	70	130			
Surr: DNOP	4.3		5.000		85.3	70	130			

Sample ID **MB-36086**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **36086**			RunNo: **48527**					
Prep Date: **1/18/2018**	Analysis Date: **1/18/2018**			SeqNo: **1560410**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801890**

22-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36077**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **36077**	RunNo: **48542**
Prep Date: **1/17/2018**	Analysis Date: **1/18/2018**	SeqNo: **1561107** 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		88.4	15	316			

Sample ID **LCS-36077**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **36077**	RunNo: **48542**
Prep Date: **1/17/2018**	Analysis Date: **1/18/2018**	SeqNo: **1561108** 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	75.9	131			
Surr: BFB	950		1000		94.6	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801890**

22-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36077**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **36077**	RunNo: **48542**
Prep Date: **1/17/2018**	Analysis Date: **1/18/2018**	SeqNo: **1561128** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.6	80	120			

Sample ID **LCS-36077**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **36077**	RunNo: **48542**
Prep Date: **1/17/2018**	Analysis Date: **1/18/2018**	SeqNo: **1561129** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.0	77.3	128			
Toluene	0.94	0.050	1.000	0	93.5	79.2	125			
Ethylbenzene	0.91	0.050	1.000	0	91.5	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.4	81.6	129			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	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
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1801890 | RcptNo: 1

Received By: Anne Thorne 1/18/2018 7:00:00 AM

Completed By: Anne Thorne 1/18/2018 7:09:24 AM

Reviewed By: 1/18/2018

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. 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)

15. 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: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	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 SAME DAY
Project Name: HARDIE LS 1A
Project #:
Project Manager: STEVE MOSKAL
Sampler: JEFF BLAGG
On Ice: ☒ Yes ☐ No
Sample Temperature: 2.7-CF-1.0=1.7

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1801896	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)
1/17/2018	1135	SOIL	N-W-S Walls 3-pt @ (14'-16')	4oz x 1	COOL	001	X		X									X				
"	1142	"	East Wall 5-pt @ (6'-16')	"	"	002	X		X									X				
"	1149	"	Base 5-pt @ 17'	"	"	003	X		X									X				

Date: 1/17/2018 Time: 1540 Relinquished by: Jeff Blagg
Received by: Christine Walters Date Time: 1/17/18 1540
Date: 1/18 Time: 1819 Relinquished by: Christine Walters
Received by: Date Time: 01/18/18 0700

Remarks: BILL BP
CONTACT: STEVE MOSKAL
VID: VHIXONEVRM

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

January 24, 2018

Steve Moskal

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

RE: HARDIE LS 1A OrderNo.: 1801A13

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 3 sample(s) on 1/20/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1801A13**
Date Reported: **1/24/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1801A13-001 **Matrix:** SOIL

Client Sample ID: TSP-1
Collection Date: 1/19/2018 11:12:00 AM
Received Date: 1/20/2018 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/22/2018 2:42:11 PM	36137
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	350	9.5		mg/Kg	1	1/22/2018 10:21:16 AM	36124
Motor Oil Range Organics (MRO)	150	48		mg/Kg	1	1/22/2018 10:21:16 AM	36124
Surr: DNOP	109	70-130		%Rec	1	1/22/2018 10:21:16 AM	36124
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	36	18		mg/Kg	5	1/22/2018 9:44:44 AM	36117
Surr: BFB	141	15-316		%Rec	5	1/22/2018 9:44:44 AM	36117
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.088		mg/Kg	5	1/22/2018 9:44:44 AM	36117
Toluene	ND	0.18		mg/Kg	5	1/22/2018 9:44:44 AM	36117
Ethylbenzene	ND	0.18		mg/Kg	5	1/22/2018 9:44:44 AM	36117
Xylenes, Total	0.78	0.35		mg/Kg	5	1/22/2018 9:44:44 AM	36117
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	5	1/22/2018 9:44:44 AM	36117

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1801A13**
Date Reported: **1/24/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1801A13-002 **Matrix:** SOIL

Client Sample ID: TSP-2
Collection Date: 1/19/2018 11:17:00 AM
Received Date: 1/20/2018 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/22/2018 2:54:36 PM	36137
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	350	9.7		mg/Kg	1	1/22/2018 11:05:12 AM	36124
Motor Oil Range Organics (MRO)	150	48		mg/Kg	1	1/22/2018 11:05:12 AM	36124
Surr: DNOP	113	70-130		%Rec	1	1/22/2018 11:05:12 AM	36124
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	38	18		mg/Kg	5	1/22/2018 10:31:30 AM	36117
Surr: BFB	139	15-316		%Rec	5	1/22/2018 10:31:30 AM	36117
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.091		mg/Kg	5	1/22/2018 10:31:30 AM	36117
Toluene	ND	0.18		mg/Kg	5	1/22/2018 10:31:30 AM	36117
Ethylbenzene	ND	0.18		mg/Kg	5	1/22/2018 10:31:30 AM	36117
Xylenes, Total	0.96	0.37		mg/Kg	5	1/22/2018 10:31:30 AM	36117
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	5	1/22/2018 10:31:30 AM	36117

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: TSP-3
Project: HARDIE LS 1A
Collection Date: 1/19/2018 11:22:00 AM
Lab ID: 1801A13-003 **Matrix:** SOIL **Received Date:** 1/20/2018 9:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	1/22/2018 3:07:01 PM	36137
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	280	9.5		mg/Kg	1	1/22/2018 11:49:20 AM	36124
Motor Oil Range Organics (MRO)	130	47		mg/Kg	1	1/22/2018 11:49:20 AM	36124
Surr: DNOP	105	70-130		%Rec	1	1/22/2018 11:49:20 AM	36124
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	27	18		mg/Kg	5	1/22/2018 11:18:40 AM	36117
Surr: BFB	128	15-316		%Rec	5	1/22/2018 11:18:40 AM	36117
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.091		mg/Kg	5	1/22/2018 11:18:40 AM	36117
Toluene	ND	0.18		mg/Kg	5	1/22/2018 11:18:40 AM	36117
Ethylbenzene	ND	0.18		mg/Kg	5	1/22/2018 11:18:40 AM	36117
Xylenes, Total	0.40	0.36		mg/Kg	5	1/22/2018 11:18:40 AM	36117
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	5	1/22/2018 11:18:40 AM	36117

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801A13**

24-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36137**	SampType: **mblk**			TestCode: **EPA Method 300.0: Anions**						
Client ID: **PBS**	Batch ID: **36137**			RunNo: **48603**						
Prep Date: **1/22/2018**	Analysis Date: **1/22/2018**			SeqNo: **1564123**		Units: **mg/Kg**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-36137**	SampType: **lcs**			TestCode: **EPA Method 300.0: Anions**						
Client ID: **LCSS**	Batch ID: **36137**			RunNo: **48603**						
Prep Date: **1/22/2018**	Analysis Date: **1/22/2018**			SeqNo: **1564124**		Units: **mg/Kg**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801A13**

24-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **LCS-36124**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **36124**	RunNo: **48589**
Prep Date: **1/22/2018**	Analysis Date: **1/22/2018**	SeqNo: **1562829** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	70	130			
Surr: DNOP	4.6		5.000		91.7	70	130			

Sample ID **MB-36124**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **36124**	RunNo: **48589**
Prep Date: **1/22/2018**	Analysis Date: **1/22/2018**	SeqNo: **1562830** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801A13**

24-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36117**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **36117**	RunNo: **48595**
Prep Date: **1/19/2018**	Analysis Date: **1/22/2018**	SeqNo: **1563288** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	940		1000		93.9	15	316			

Sample ID **LCS-36117**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **36117**	RunNo: **48595**
Prep Date: **1/19/2018**	Analysis Date: **1/22/2018**	SeqNo: **1563289** 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	98.6	75.9	131			
Surr: BFB	1000		1000		102	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1801A13**

24-Jan-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36117**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **36117**	RunNo: **48595**
Prep Date: **1/19/2018**	Analysis Date: **1/22/2018**	SeqNo: **1563305** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Sample ID **LCS-36117**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **36117**	RunNo: **48595**
Prep Date: **1/19/2018**	Analysis Date: **1/22/2018**	SeqNo: **1563306** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.8	77.3	128			
Toluene	0.91	0.050	1.000	0	91.3	79.2	125			
Ethylbenzene	0.89	0.050	1.000	0	89.1	80.7	127			
Xylenes, Total	2.7	0.10	3.000	0	91.2	81.6	129			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	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
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1801A13 | RcptNo: 1

Received By: Andy Freeman 1/20/2018 9:25:00 AM

Completed By: Anne Thorne 1/22/2018 7:11:56 AM

Reviewed By: RA 1-22-18

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. 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)

15. 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: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

Chain-of-Custody Record

Client: BP America
Blagg Engineering
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 SAME DAY
Project Name: HARDIE LS 1A
Project #:
Project Manager: Steve Moskal
Sampler: Jeff Blagg
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.7°C

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

Analysis Request

Date	Time	Matrix	Sample Request ID	~~01/22/18~~ Container Type and # Mixed	Preservative Type	HEAL No. 1801A13	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)
1/19/2018	1112	SOIL	TSP-1	4oz x1	COOL	-001	X		X									X				
"	1117	"	TSP-2	"	"	-002	X		X									X				
"	1122	"	TSP-3	"	"	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
1/19/2018	1303	Jeff Blagg	Christa Watt	1/19/2018	1303
1/19/18	1816			1/20/18	0925

Remarks: Bill BP
Contact: Steve Moskal
VID: VHIXONEVRM
samples treated with H_2O_2.

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

February 21, 2018

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

RE: HARDIE LS 1A OrderNo.: 1802691

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/10/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1802691**
Date Reported: **2/21/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: HARDIE LS 1A
Lab ID: 1802691-001 **Matrix:** SOIL

Client Sample ID: TSP-VZ @ 0.5'-1.0'
Collection Date: 2/9/2018 10:15:00 AM
Received Date: 2/10/2018 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	30		mg/Kg	20	2/19/2018 9:39:58 AM	36580
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/14/2018 12:22:52 PM	36497
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/14/2018 12:22:52 PM	36497
Surr: DNOP	92.3	70-130		%Rec	1	2/14/2018 12:22:52 PM	36497
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/14/2018 10:59:37 AM	36507
Surr: BFB	96.8	15-316		%Rec	1	2/14/2018 10:59:37 AM	36507
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	2/14/2018 10:59:37 AM	36507
Toluene	ND	0.050		mg/Kg	1	2/14/2018 10:59:37 AM	36507
Ethylbenzene	ND	0.050		mg/Kg	1	2/14/2018 10:59:37 AM	36507
Xylenes, Total	ND	0.099		mg/Kg	1	2/14/2018 10:59:37 AM	36507
Surr: 4-Bromofluorobenzene	87.3	80-120		%Rec	1	2/14/2018 10:59:37 AM	36507

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802691**

21-Feb-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID	**MB-36580**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36580**	RunNo:	**49213**					
Prep Date:	**2/18/2018**	Analysis Date:	**2/18/2018**	SeqNo:	**1587706**	Units:	**mg/Kg**			

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

Sample ID	**LCS-36580**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36580**	RunNo:	**49213**					
Prep Date:	**2/18/2018**	Analysis Date:	**2/18/2018**	SeqNo:	**1587707**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802691**

21-Feb-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **LCS-36497**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **36497**	RunNo: **49120**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583411** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.8	70	130			
Surr: DNOP	4.3		5.000		86.9	70	130			

Sample ID **MB-36497**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **36497**	RunNo: **49120**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802691**

21-Feb-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36507**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **36507**	RunNo: **49135**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583903** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	920		1000		92.0	15	316			

Sample ID **LCS-36507**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **36507**	RunNo: **49135**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583904** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	110	75.9	131			
Surr: BFB	1100		1000		114	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802691**

21-Feb-18

Client: Blagg Engineering
Project: HARDIE LS 1A

Sample ID **MB-36507**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **36507**	RunNo: **49135**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583927** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		88.0	80	120			

Sample ID **LCS-36507**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **36507**	RunNo: **49135**
Prep Date: **2/13/2018**	Analysis Date: **2/14/2018**	SeqNo: **1583928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	1.000	0	82.8	77.3	128			
Toluene	0.90	0.050	1.000	0	89.6	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	96.5	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	95.5	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	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
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1802691 | RcptNo: 1

Received By: Sophia Campuzano 2/10/2018 9:00:00 AM

Completed By: Anne Thorne 2/13/2018 7:38:29 AM

Reviewed By: SRC 02/13/18

Labeled By DDS

Chain of Custody

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

Log In

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

Special Handling (if applicable)

15. 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: ____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			

Chain-of-Custody Record

Client: BLAGG ENGR. / BP AMERICA

Mailing Address: P.O. BOX 87
BLOOMFIELD, NM 87413

Phone #: (505) 632-1199

email or Fax#:

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

Accreditation:
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name:
HARDIE LS # 1A

Project #:

Project Manager:
STEVE MOSKAL

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No NV

Sample Temperature: 3.6 - 0.5(CF) = 3.1

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. 1802691	BTEX + ~~MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	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 (soil - 300.0 / water - 300.1)		Grab sample	# pt. composite sample
2/9/18	1015	SOIL	TSP - VZ @ 0.5' - 1.0'	4 oz. - 1	Cool	001	✓		✓									✓			5

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/9/18	1610			2/9/18	1610
Date:	Time:	Relinquished by:	Received by:	Date	Time
2/9/18	1751		Courier	02/10/18	0900

Remarks: BILL DIRECTLY TO BP USING THE CONTACT WITH CORRESPONDING & REFERENCE # WHEN APPLICABLE:

CONTACT: STEVE MOSKAL
VID: VHIXONEVRM

Reference # P - 875

possible 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.