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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: **SIMCOE LLC**	OGRID: **329736**	
Contact Name: **Steve Moskal**	Contact Telephone: **(505) 330-9179**	
Contact email: **smoskal@ikavenergy.com**	Incident # *(assigned by OCD)*: NCS1628649823	**Final**
Contact mailing address: **1199 Main Ste., Suite 101, Durango, CO 81301**		

Location of Release Source

Latitude: **36.879347°** Longitude: **-107.966223°**
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: **Mudge LS 007**	Site Type: **Natural Gas Production Wellpad**
Date Release Discovered: **November 17, 2013**	API# *(if applicable)*: **30-045-10431**

Unit Letter	Section	Township	Range	County
M	**23**	**31N**	**11W**	**San Juan**

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) **Unknown - Historic**	Volume Recovered (bbls) **0**
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls) **Unknown - Historic**	Volume Recovered (bbls) **0**
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:
During trenching for the installation of a flowline, hydrocarbon impacted soils were encountered. Impacts are suspected to be a historical drilling pit as contents appear to resemble drilling mud. The area was excavated to approximately 20 feet deep. Soil vapor extraction points were installed to further remediate due to the close proximity of pipelines and the depth of impacts exceeding 35 feet deep. A soil vapor extraction unit has been in operation since February of 2015. Closure Sampling was performed via drilling on February 12, 13 and 14, 2018. Attached is the documentation of remedial activities at this site. This submittal was originally submitted via hard copy to the NMOCD In August of 2018.

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Page 2

State of New Mexico
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.
☒ The impacted area has been secured to protect human health and the environment.
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: **Steve Moskal** Title: **Environmental Coordinator**

Signature: _____ Date: _____

email: **smoskal@ikavenergy.com** Telephone: **505-330-9179**

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
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Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: **Steve Moskal** Title: **Environmental Coordinator**

Signature: _____ Date: _____

email: **smoskal@ikavenergy.com** Telephone: **505-330-9179**

OCD Only

Received by: _____ Date: _____

Incident ID	
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Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: **Steve Moskal** Title: **Environmental Coordinator**

Signature: _____ Date: **3/26/2021**

email: **smoskal@ikavenergy.com** Telephone: **505-330-9179**

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

District I
1625 N. French Dr., Hobbs, NM 88240
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811 S. First St., Artesia, NM 88210
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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Subsequent Report ☒ Final Report

Name of Company: BP America Production Co.	Contact: Steve Moskal
Address: 380 Airport Road, Durango CO, 81303	Telephone No.: 505-330-9179
Facility Name: Mudge LS 007	Facility Type: Natural gas well

Surface Owner: Fee	Mineral Owner: Fee	API No. 30-045-10431

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County: San Juan
M	23	31N	11W	798	South	980	West	

Latitude 36.879347° **Longitude** -107.966223°

NATURE OF RELEASE

Type of Release: Hydrocarbon – Suspected Historical drilling pit	Volume of Release: unknown	Volume Recovered: none
Source of Release: Flowline	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: November 17, 2013
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.*

Describe Cause of Problem and Remedial Action Taken.*
During trenching for the installation of a flowline, hydrocarbon impacted soils were encountered. Impacts are suspected to be a historical drilling pit as contents appear to resemble drilling mud. The area was excavated to approximately 20 feet deep. Soil vapor extraction points were installed to further remediate due to the close proximity of pipelines and the depth of impacts exceeding 35 feet deep. A soil vapor extraction unit has been in operation since February of 2015. Closure Sampling was performed via drilling on February 12, 13 and 14, 2018. Attached is the documentation of remedial activities at this site

Describe Area Affected and Cleanup Action Taken.*
The vertical and lateral extents of the impacted soil were identified via a soil boring investigation. Soil vapor extraction points were installed and the system became operational in November 2015. The SVE system has demonstrated effective via monitoring and field sampling of the vacuum exhaust. Attached is a detailed report documenting all remedial activities at the site. BP requests no further action and site closure.

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:	OIL CONSERVATION DIVISION	
Printed Name: Steve Moskal	Approved by Environmental Specialist:	
Title: Field Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: steven.moskal@bp.com	Conditions of Approval:	Attached ☐
Date: August 9, 2018 Phone: 505-330-9179		

* Attach Additional Sheets If Necessary

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

August 11, 2018

Mr. Steve Moskal
BP America Production Company
380 Airport Road
Durango, Colorado

Re: Transmittal of Closure Documentation
Mudge LS 7
(M) Sec 23 – T31N – R11W
San Juan County, New Mexico

Dear Mr. Moskal:

At your request, Blagg Engineering, Inc. (BEI) has prepared documentation for closure of remedial activities at the BP operated Mudge LS 7. This site is located on private property approximately 5 miles north of Aztec, New Mexico. Hydrocarbon impacts to soil were discovered on June 26, 2014 while trenching for a pipeline installation. Remediation included excavation of accessible soils in July, 2014. Two high pressure pipelines, operated by third parties, restricted removal of all impacts via excavation. Therefore a soil vapor extraction (SVE) system was installed in October – November, 2014 and placed into full operation in February, 2015 in order to address soil impacts that could not be excavated.

Two interim phases of soil sampling were conducted to evaluate the effectiveness of the SVE system. The first sampling was conducted in July, 2015 by geoprobing two borings within the known impact area. The results of this sampling indicated that the SVE system was effectively remediating the soils but additional operation was necessary. A second geoprobe sample event was conducted in October, 2016 by boring four additional test holes. The results of this sampling showed that the SVE system was continuing to remediate impacts but that additional operation was still required.

In February, 2018 a comprehensive soil sampling program was conducted using a hollow stem auger drill rig to collect samples throughout and surrounding the prior impacted area. This sampling confirmed that the entire site was within NMOCD closure standards for total petroleum hydrocarbons (TPH), benzene-toluene-ethylbenzene-xylenes (BTEX) and for chlorides. Based on these results, BEI recommends closure of the site with no further action.

All remedial activities were overseen by the New Mexico Oil Conservation Division (NMOCD). Sampling and corrective actions were performed pursuant to NMOCD approved methods.

Questions or comments with respect to this transmittal may be directed to myself at (505)320-1183. BEI appreciates the opportunity to provide services to BP.

Respectfully,
Blagg Engineering, Inc.

Jeffrey C. Blagg, P.E.
President

Attachment: Closure Documentation

BP America
Mudge LS 7
(M) Sec 23 – T31N – R11W
San Juan County, New Mexico
API: 30-045-10431

Summary Record of Impact Remediation

June 26, 2014 Soils impacted with hydrocarbons were encountered while trenching for pipeline installation. No point source was evident but historical pipeline leaks were the suspected cause.

Site closure standard determined at 100 ppm TPH based on:

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

Site location shown on Figure 1

July 9, 2014 Initiate remediation via excavation.

July 11, 2014 Conduct closure sampling on remedial excavation (Figure 2 & Table 1)

July 14, 2014 Conduct closure sampling on remedial excavation (Figure 2 & Table 1)

July 15, 2014 Conduct closure sampling on remedial excavation (Figure 3 & Table 1)

July 29, 2014 Conduct closure sampling on remedial excavation (Figure 4 & Table 1)

August 1, 2014 Complete backfilling of remedial excavation.

October 28 – November 10, 2014 Install SVE soil borings (Figure 5 & Table 2)

February 11, 2015 Initial start-up of SVE System on Completed Extraction Points (Figure 6)

July 14, 2015 Conduct geoprobe soil sampling to evaluate SVE performance (Figure 7 & Table 3)

October 13, 2016 Conduct geoprobe soil sampling to evaluate SVE performance (Figure 8 & Table 4)

January 4, 2018 Take SVE System out of service

February 12 – 14, 2018 Conduct final soil boring investigation to confirm site closure (Figure 9 & Table 5)

Table 1
Remedial Excavation Closure Sampling Test Results
July 11 – 29, 2014

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
SW Base 3-pt @ 16’	07/11/2014	1.9	ND	ND	ND	150
SW Sidewall 3-pt @ (8’-14’)	07/11/2014	2.7	81	ND	ND	490
32’ N24W @ 14’	07/11/2014	76	110	ND	ND	99
55’ N10W @ 36’	07/14/2014	49.5	ND	ND	ND	170
Base 5-pt @ 14’	07/14/2014	--	20	ND	ND	110
West Wall 3-pt @ 6’-12’	07/14/2014	--	52	ND	ND	200
South Wall 3-pt @ 6’-12’	07/14/2014	--	13	ND	ND	120
East Wall 3-pt @ 6’-12’	07/14/2014	--	17	ND	ND	290
North Wall 3-pt @ 6’-12’	07/14/2014	--	ND	ND	ND	240
TH-A @ 25’	07/15/2014	--	118	0.73	ND	93
TH-B @ 30’	07/15/2014	--	ND	--	--	--
TH-C @ 30’	07/15/2014	--	ND	--	--	--
West Wall 3-pt @ 8’-14’	07/15/2014	--	17	ND	ND	390
East Wall 3-pt @ 8’-14’	07/15/2014	--	ND	ND	ND	160
NE Sidewall 5-pt @ 8’-19’	07/29/2014	0.2	ND	ND	ND	640
NW Corner @ 19’	07/29/2014	0.2	ND	ND	ND	95
West Sidewall 4-pt @ 9’-19’	07/29/2014	0.0	15	ND	ND	340
Site Closure Standard:			100	50	10	600

Table 2
SVE Boring Soil Sampling Test Results
October 28 – November 10, 2014

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
BH-1 @ 15’	10/28/2014	17.4	53.5	ND	ND	39.1
BH-1 @ 20’	10/28/2014	421	1,746	234	ND	251
BH-1 @ 25’	10/28/2014	30.0	101.5	2.0	ND	170
BH-1 @ 30’	10/28/2014	5.2	ND	ND	ND	257
BH-1 @ 35’	10/28/2014	1.5	ND	ND	ND	113
BH-2 @ 20’	10/28/2014	1.2	51.2	ND	ND	1,140
BH-2 @ 25’	10/28/2014	3.8	ND	ND	ND	432
BH-2 @ 35’	10/28/2014	0.2	ND	ND	ND	110
BH-3 @ 35’	10/28/2014	0.0	ND	ND	ND	272
BH-4 @ 15’	10/29/2014	1.2	45.7	ND	ND	ND
BH-4 @ 20’	10/29/2014	83	419	5.88	ND	645
BH-4 @ 25’	10/29/2014	60	316	ND	ND	303
BH-4 @ 30’	10/29/2014	1.0	39.1	ND	ND	54.1
BH-5 @ 20’	10/29/2014	0.0	13.7	ND	ND	672
BH-5 @ 35’	10/29/2014	0.0	42.0	0.35	ND	34.7
BH-6 @ 20’	10/30/2014	447	166.7	5.55	ND	20.5
BH-6 @ 25’	10/30/2014	389	2,820	180	0.10	115
BH-6 @ 30’	10/30/2014	410	101.9	1.77	N	153
Site Closure Standard:			100	50	10	600

Table 2
SVE Boring Soil Sampling Test Results
October 28 – November 10, 2014

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
BH-6 @ 35’	10/30/2014	196	33.4	0.23	ND	108
BH-6 @ 40’	10/30/2014	1.1	53.9	ND	ND	35.2
BH-7 @ 25’	10/30/2014	0.9	ND	ND	ND	56.8
BH-7 @ 30’	10/30/2014	0.2	ND	ND	ND	83
BH-7 @ 35’	10/30/2014	0.0	ND	ND	ND	ND
BH-7 @ 40’	10/30/2014	0.0	ND	ND	ND	40.6
BH-8 @ 25’	10/30/2014	312	89.1	1.86	ND	97.5
BH-8 @ 30’	10/30/2014	67	35.4	ND	ND	163
BH-8 @ 35’	10/30/2014	4.4	14.8	0.49	ND	157
BH-8 @ 40’	10/30/2014	0.0	35.8	ND	ND	80.4
BH-9 @ 20’	10/31/2014	0.3	16.1	ND	ND	115
BH-9 @ 25’	10/31/2014	142	486.1	1.96	ND	95.1
BH-9 @ 30’	10/31/2014	10.0	109.6	ND	ND	292
BH-9 @ 35’	10/31/2014	15.4	51.9	0.15	ND	404
BH-9 @ 40’	10/31/2014	3.1	ND	ND	ND	ND
BH-10 @ 25’	10/31/2014	169	165.5	ND	ND	149
BH-10 @ 30’	10/31/2014	121	30.1	ND	ND	181
BH-10 @ 35’	10/31/2014	3.6	ND	ND	ND	149
Site Closure Standard:			100	50	10	600

Table 2
SVE Boring Soil Sampling Test Results
October 28 – November 10, 2014

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
BH-10 @ 40’	10/31/2014	1.6	ND	ND	ND	32.4
BH-11 @ 20’	10/31/2014	101	13.7	0.78	ND	75
BH-11 @ 25’	10/31/2014	389	914	36.7	ND	245
BH-11 @ 30’	10/31/2014	322	403	11.1	ND	273
BH-11 @ 35’	10/31/2014	351	277.5	3.39	ND	124
BH-11 @ 40’	10/31/2014	5.1	ND	ND	ND	ND
BH-12 @ 20’	11/4/2014	0.0	ND	ND	ND	275
BH-12 @ 25’	11/4/2014	0.0	ND	ND	ND	263
BH-12 @ 30’	11/4/2014	0.0	ND	ND	ND	258
BH-12 @ 35’	11/4/2014	0.0	ND	ND	ND	117
BH-12 @ 40’	11/4/2014	0.0	10.5	ND	ND	176
BH-13 @ 10’	11/4/2014	0.0	ND	ND	ND	264
BH-13 @ 15’	11/4/2014	0.0	ND	ND	ND	133
BH-13 @ 20’	11/4/2014	0.0	ND	ND	ND	173
BH-13 @ 25’	11/4/2014	0.0	22.2	ND	ND	167
BH-13 @ 35’	11/4/2014	0.0	15.5	ND	ND	73.9
BH-14 @ 20’	11/4/2014	5.4	10.6	ND	ND	58.3
BH-14 @ 25’	11/4/2014	162	544	6.1	ND	216
Site Closure Standard:			100	50	10	600

Table 2
SVE Boring Soil Sampling Test Results
October 28 – November 10, 2014

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
BH-14 @ 30’	11/4/2014	33	92.8	ND	ND	188
BH-14 @ 35’	11/4/2014	2.5	ND	ND	ND	208
BH-14 @ 40’	11/4/2014	0.0	ND	ND	ND	34
BH-15 @ 10’	11/6/2014	0.0	13.5	ND	ND	306
BH-15 @ 20’	11/6/2014	0.0	ND	ND	ND	592
BH-15 @ 25’	11/6/2014	0.0	ND	ND	ND	93.1
BH-15 @ 30’	11/6/2014	0.0	ND	ND	ND	130
BH-15 @ 35’	11/6/2014	0.0	ND	ND	ND	226
BH-16 @ 15’	11/10/2014	0.0	12.9	ND	ND	ND
BH-16 @ 20’	11/10/2014	0.0	ND	ND	ND	10.9
BH-16 @ 25’	11/10/2014	0.0	ND	ND	ND	293
BH-16 @ 30’	11/10/2014	0.0	ND	ND	ND	173
BH-16 @ 35’	11/10/2014	0.0	ND	ND	ND	61
BH-16 @ 40’	11/10/2014	0.0	ND	ND	ND	20.6
Site Closure Standard:			100	50	10	600

Table 3
Geoprobe Boring Soil Sampling Test Results
July 14, 2015

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
GP-1 (23'-24')	7/14/2015	25.9	140	ND	ND	--
GP-1 (27'-28')	7/14/2015	11.9	131	ND	ND	--
GP-1 (31'-32')	7/14/2015	22.4	27	ND	ND	--
GP-1 (35'-36')	7/14/2015	39.3	81	ND	ND	--
GP-1A (19'-20')	7/14/2015	27.3	ND	ND	ND	--
GP-2 (19'-20')	7/14/2015	27.3	ND	ND	ND	--
GP-2 (23'-24')	7/14/2015	27.2	27	ND	ND	--
GP-2 (27'-28')	7/14/2015	31.4	97	ND	ND	--
GP-2 (31'-32')	7/14/2015	33.5	56	ND	ND	
GP-2 (35-36')	7/14/2015	36.5	14	ND	ND	
Site Closure Standard:			100	50	10	600

Table 4
Geoprobe Boring Soil Sampling Test Results
October 13, 2016

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
GP-3 (23'-24')	10/13/2016	162	31	--	--	--
GP-3 (27'-28')	10/13/2016	136	54	--	--	--
GP-4 (19'-20')	10/13/2016	311	ND	ND	ND	57
GP-4 (23'-24')	10/13/2016	518	220	ND	ND	500
GP-4 (31'-32')	10/13/2016	1.1	ND	ND	ND	230
GP-5 (19'-20')	10/13/2016	0.0	ND	ND	ND	180
GP-5 (35'-36')	10/13/2016	0.0	ND	ND	ND	ND
GP-6 (23'-24')	10/13/2016	0.0	ND	ND	ND	500
GP-6 (31'-32')	10/13/2016	0.0	ND	ND	ND	260
Site Closure Standard:			100	50	10	600

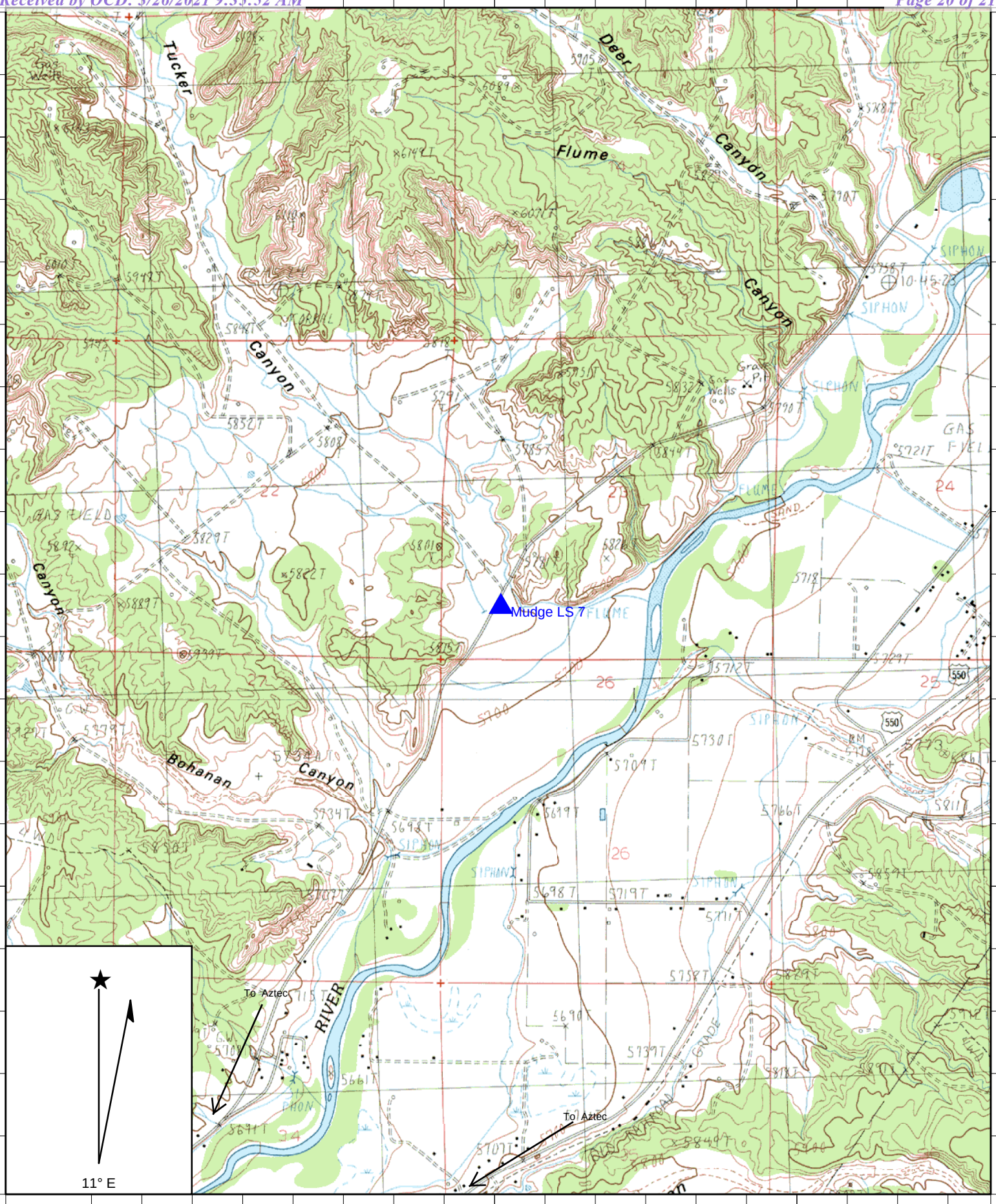
Table 5
Hollow Stem Auger Boring Soil Sampling Test Results
February 12 - 14, 2018

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
SB-1 (3-pt) 20'-30'	2/13/2018	0.1	ND	ND	ND	170
SB-1 (40'-41')	2/13/2018	0.1	ND	ND	ND	48
SB-2 (3-pt) 20'-30'	2/13/2018	0.3	ND	ND	ND	72
SB-2 (40'-41')	2/13/2018	0.1	ND	ND	ND	31
SB-3 (3-pt) 20'-30'	2/13/2018	0.3	ND	ND	ND	38
SB-3 (40'-41')	2/13/2018	0.3	ND	ND	ND	48
SB-4 (3-pt) 20'-30'	2/13/2018	0.2	ND	ND	ND	310
SB-4 (40'-41')	2/13/2018	0.2	ND	ND	ND	37
SB-5 (3-pt) 20'-30'	2/12/2018	0.4	ND	ND	ND	300
SB-5 (40'-41')	2/12/2018	0.0	ND	ND	ND	130
SB-6 (3-pt) 20'-30'	2/14/2018	1.1	9.4	ND	ND	210
SB-6 (40'-41')	2/14/2018	0.1	ND	ND	ND	80
SB-7 (3-pt) 20'-30'	2/12/2018	0.0	14	ND	ND	140
SB-7 (40'-41')	2/12/2018	0.0	ND	ND	ND	32
SB-8 (3-pt) 20'-30'	2/14/2018	1.2	ND	ND	ND	120
SB-8 (40'-41')	2/14/2018	0.4	ND	ND	ND	33
SB-9 (3-pt) 20'-30'	2/14/2018	11.1	ND	ND	ND	57
SB-9 (40'-41')	2/14/2018	0.0	ND	ND	ND	40
Site Closure Standard:			100	50	10	600

Table 5
Hollow Stem Auger Boring Soil Sampling Test Results
February 12 - 14, 2018

Sample ID	Date	Field OVM (ppm)	TPH Method 8015B (mg/Kg)	BTEX Method 8021 (mg/Kg)	Benzene Method 8021 (mg/Kg)	Chloride Method 300 (mg/Kg)
SB-10 (3-pt) 20'-30'	2/13/2018	0.2	ND	ND	ND	180
SB-10 (40'-41')	2/13/2018	0.0	ND	ND	ND	32
SB-11 (3-pt) 25'-35'	2/13/2018	11.2	68	ND	ND	120
SB-11 (40'-41')	2/13/2018	0.3	ND	ND	ND	64
SB-12 (3-pt) 20'-30'	2/13/2018	0.4	ND	ND	ND	270
SB-12 (40'-41')	2/13/2018	0.0	ND	ND	ND	43
SB-13 (3-pt) 20'-30'	2/13/2018	17.7	37	ND	ND	220
SB-13 (40'-41')	2/13/2018	0.4	ND	ND	ND	33
SB-14 (3-pt) 20'-30'	2/13/2018	1.2	ND	ND	ND	210
SB-14 (40'-41')	2/13/2018	0.2	ND	ND	ND	ND
SB-15 (3-pt) 20'-30'	2/12/2018	0.0	ND	ND	ND	210
SB-15 (40'-41')	2/12/2018	0.0	ND	ND	ND	33
Site Closure Standard:			100	50	10	600

Figures



Name: CEDAR HILL
Date: 8/9/2018
Scale: 1 inch equals 2000 feet

Caption: BP America
Mudge LS 7

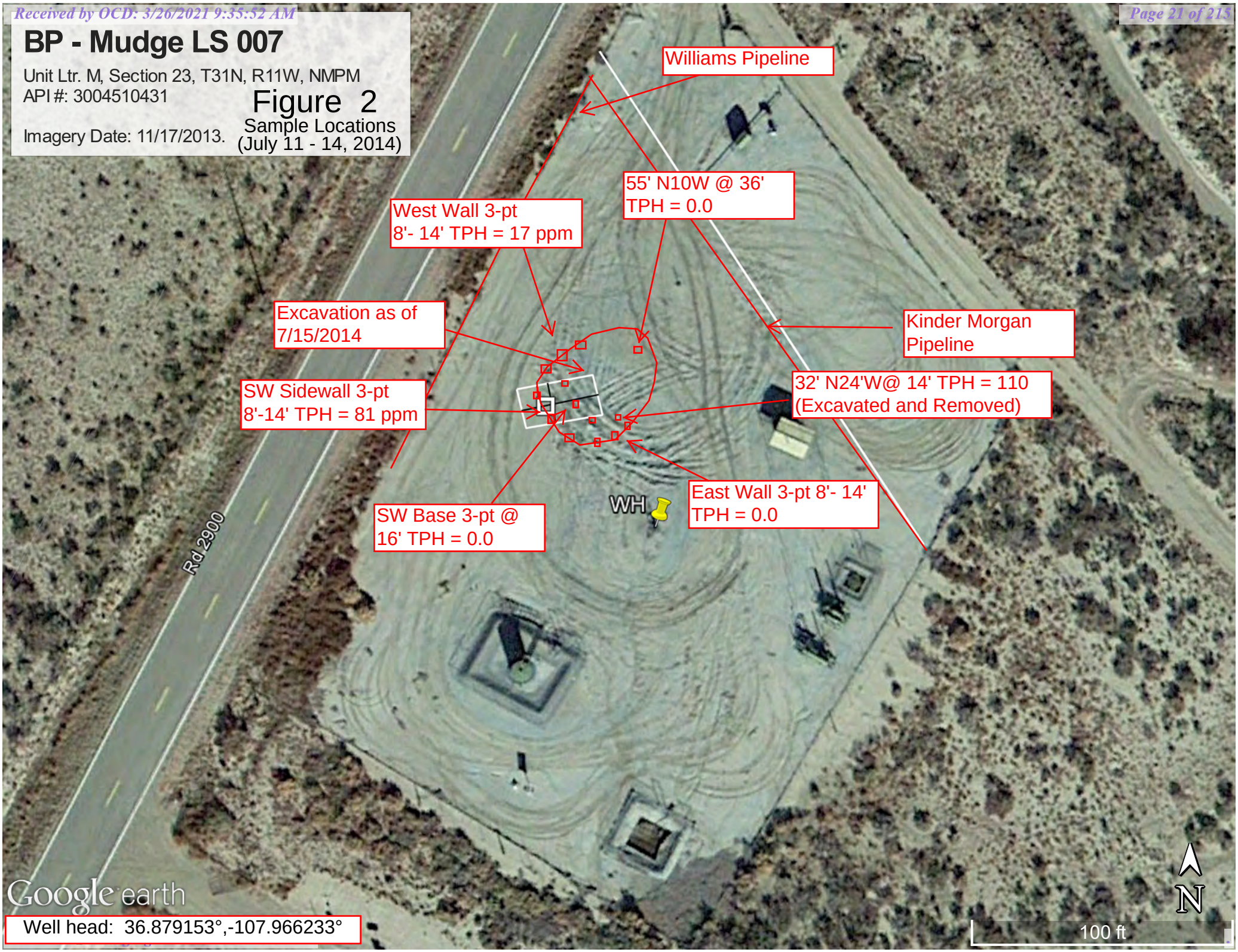
Figure 1
Site Location Map

BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Imagery Date: 11/17/2013.

Figure 2
Sample Locations
(July 11 - 14, 2014)



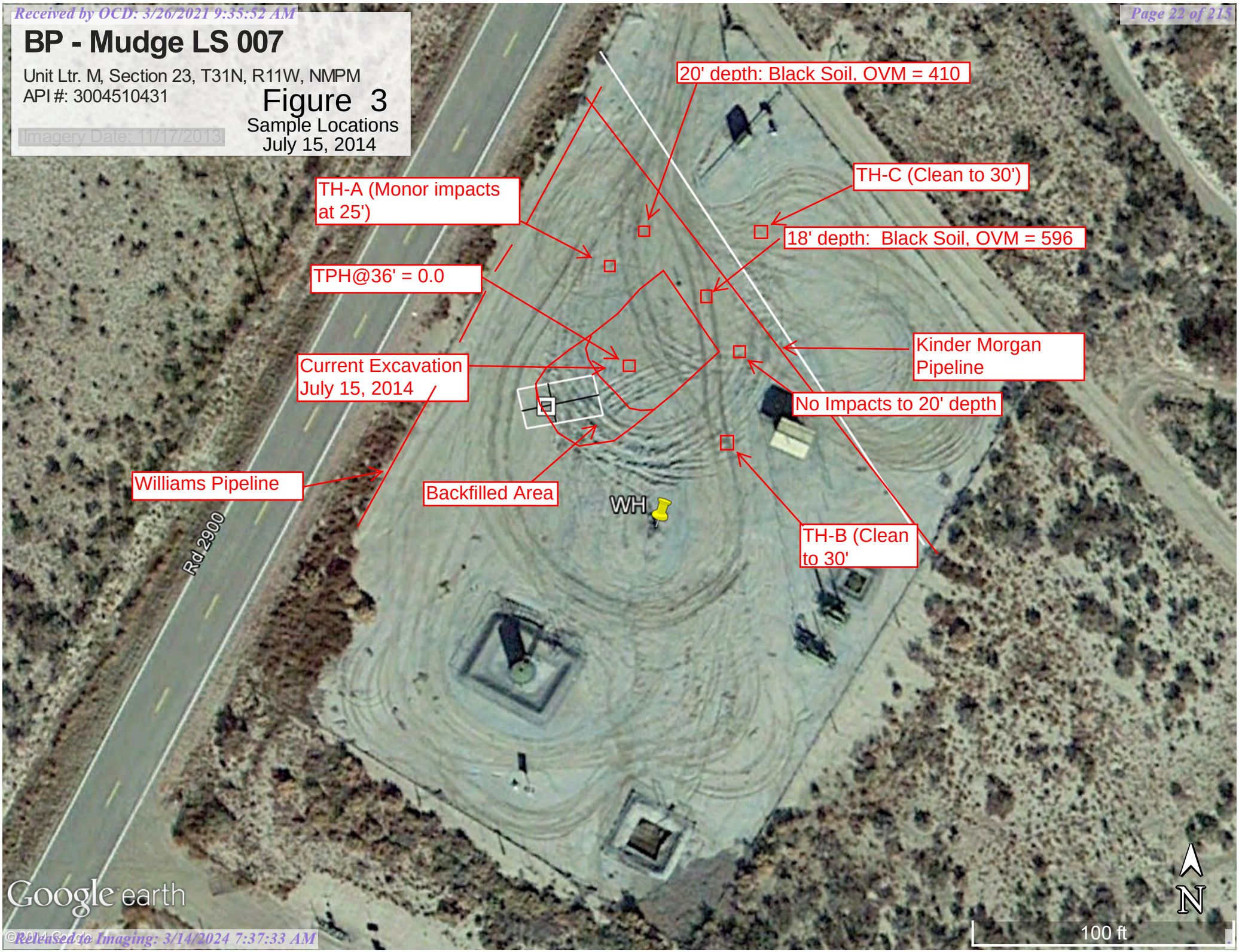
Well head: 36.879153°,-107.966233°

BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Imagery Date: 11/17/2013

Figure 3
Sample Locations
July 15, 2014

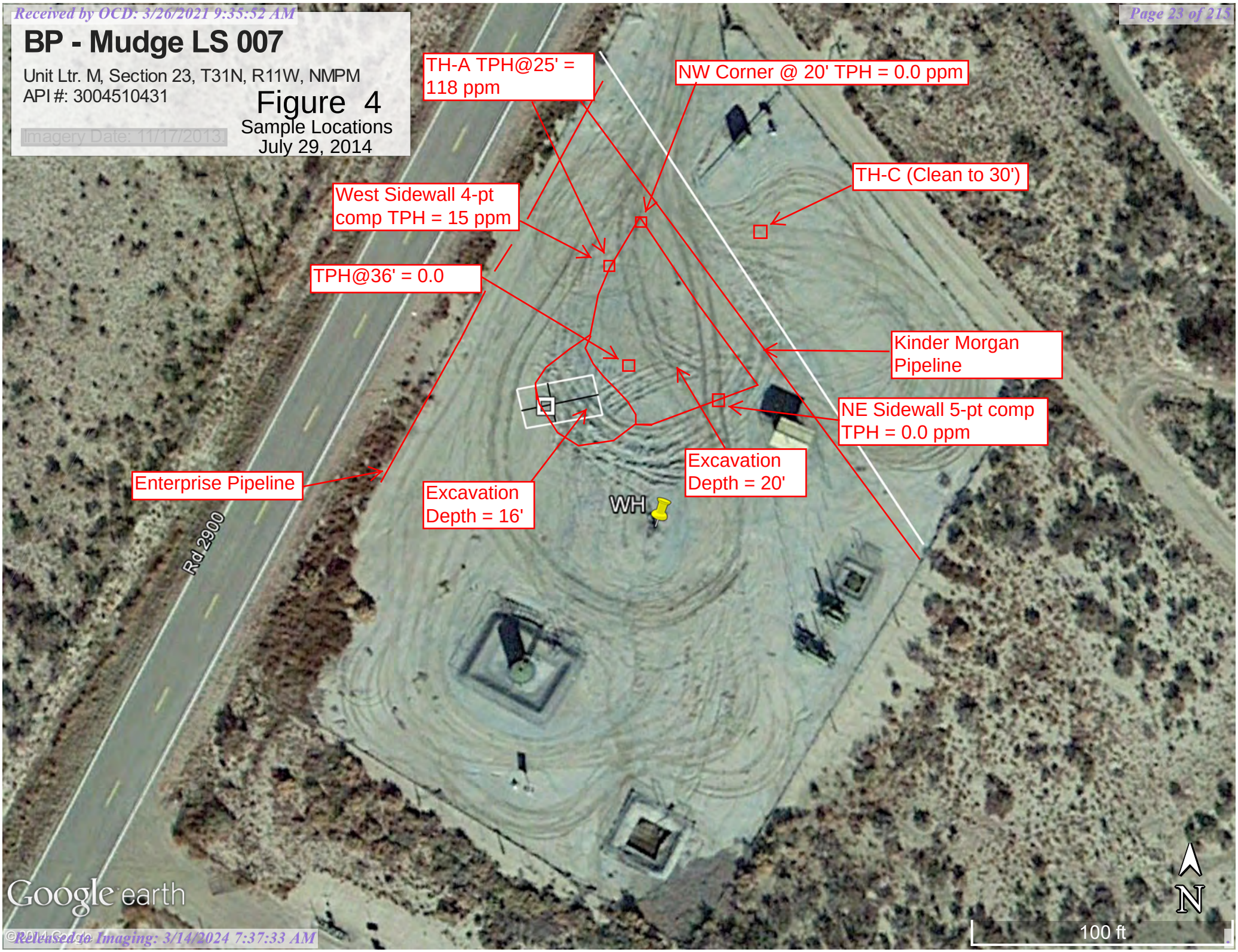


BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Imagery Date: 11/17/2013

Figure 4
Sample Locations
July 29, 2014



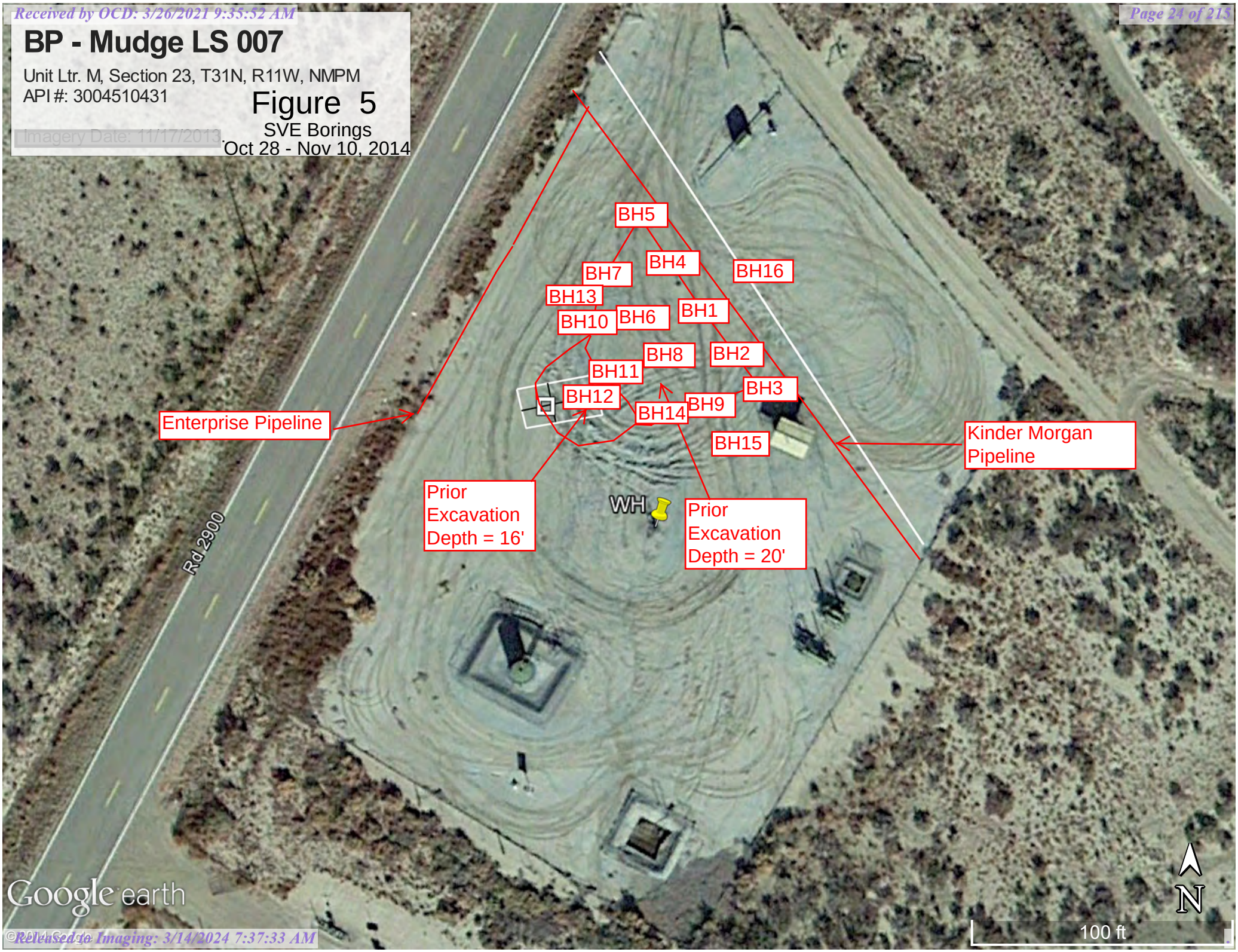
BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Figure 5

SVE Borings
Oct 28 - Nov 10, 2014

Imagery Date: 11/17/2013



BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Imagery Date: 11/17/2013

Figure 6

Final SVE Layout
Nov 11, 2014

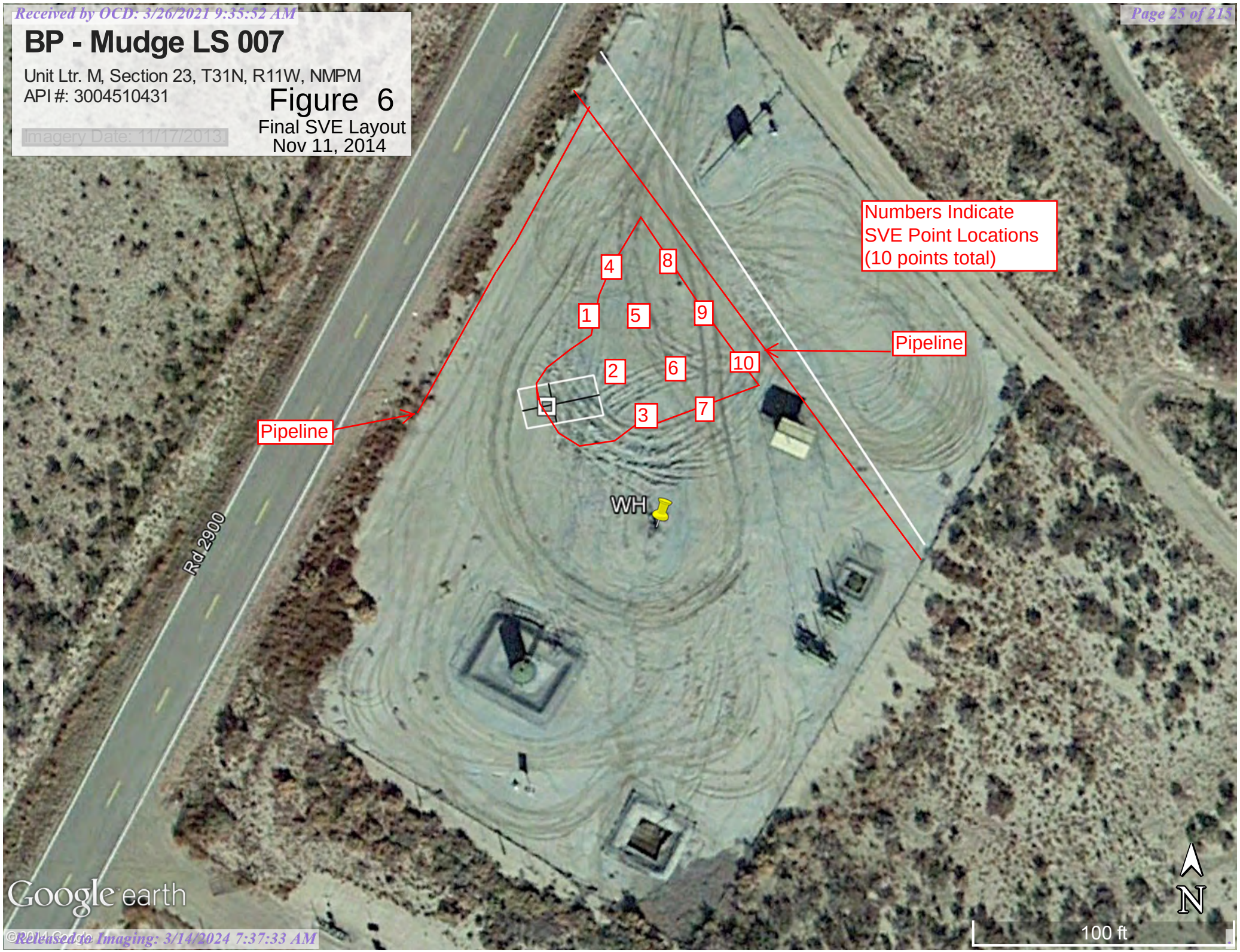


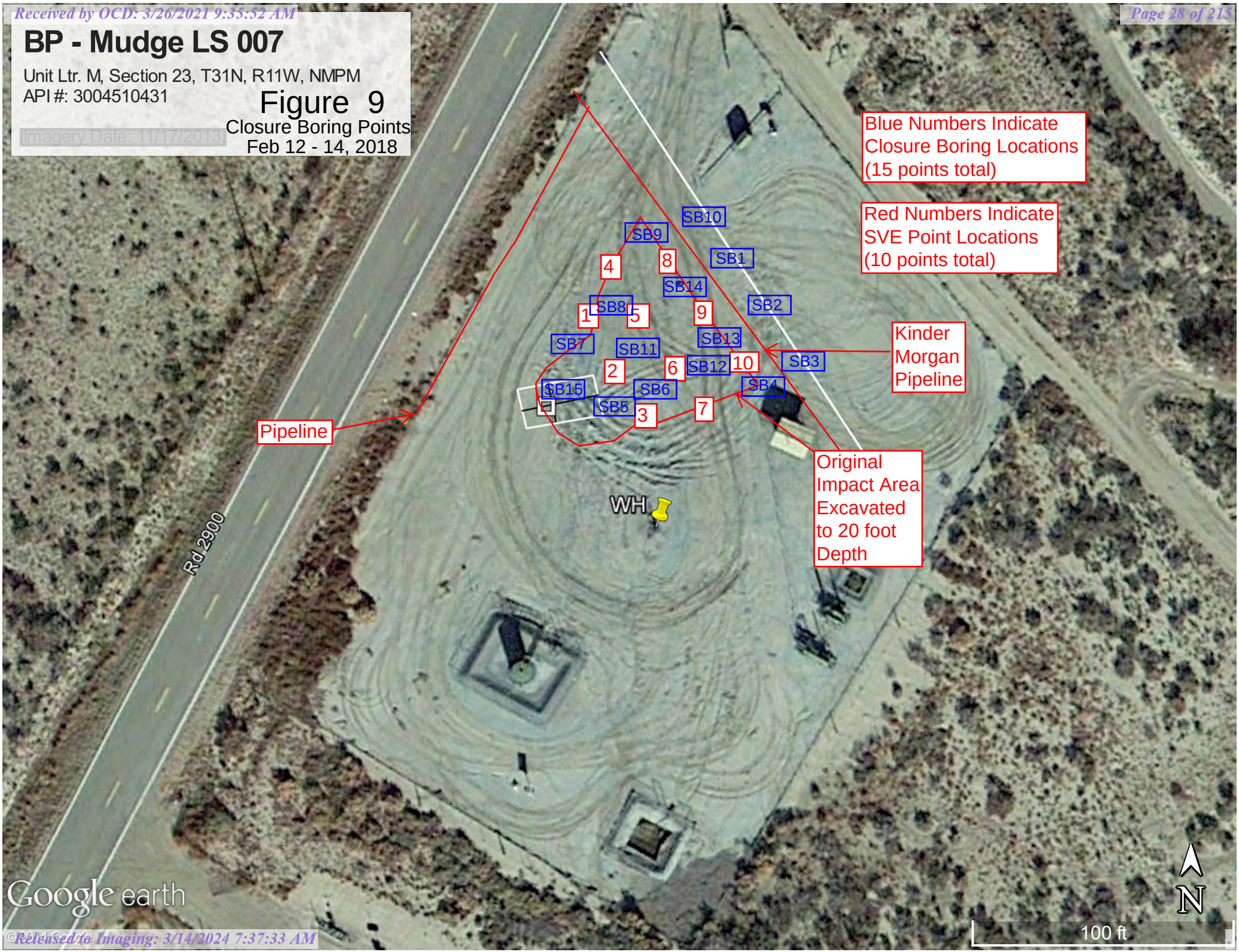
Figure 7
Geoprobe Points
July 14, 2015

BP - Mudge LS 007

Unit Ltr. M, Section 23, T31N, R11W, NMPM
API #: 3004510431

Figure 9
Closure Boring Points
Feb 12 - 14, 2018

Imagery Date: 11/17/2013



Boring Logs

Boring Logs
(SVE Installation)

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84½' N11°E

FIELD BORING LOG

BORING ID: BH-1

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/28/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-9

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	0920				START
	0930	SS	15	0.0	Silty Sand, Med Tan, No Odor.
10	0933	SS	12	0.2	Medium Sand, Tan, No Odor.
	0941	SS	15 DRO=53.6 GRO=0	17.4	Med. Sand, Tan, V. Minor Odor.
20	0946	SS	13 GRO=847 DRO=899	421	Silty Sand, Gray/Black, Strong HC Odor.
	0954	SS	11 GRO=51.6 DRO=49.9	30	Silty Sand, Tan. Minor HC Odor.
30	1000	SS	13 GRO=0 DRO=0	5.2	SAA, Very Minor HC Odor.
35'	1014	SS	15 GRO=0 DRO=0	1.5	Silty Sand, Gray, VV Minor HC

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76' N22°E

FIELD BORING LOG

BORING ID: BH-2

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/28/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-10

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1050				START
	1059	SS	10	0.0	DARK TAN Silty Sand - No HC ODOR
10	1103	SS	8	0.0	SAA
	1107	SS	10	0.0	MEDIUM SAND, TAN, V. Lite HC ODOR.
20	1113	SS	10 GRO=0 DRO=51.2	1.2	Silty SAND, TAN, V. Lite HC ODOR.
	1120	SS	9 GRO=0 DRO=0	3.8	MEDIUM SAND, TAN, " " " "
30	1128	SS	12	1.4	SAA
35'	1140	SS	15 GRO=0 DRO=0	0.2	Silty SAND, Dark TAN, No HC ODOR.

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70' N32½°E

FIELD BORING LOG

BORING ID: BH-3

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/28/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1210				START
	1219	SS	11	0.0	TAN Silty SAND, No HC ODOR
10	1224	SS	9	0.0	MEDIUM SAND, TAN, NO HC ODOR
	1229	SS	10	0.0	SAA
20	1234	SS	11	0.0	DARK TAN Silty SAND, NO HC ODOR
	1241	SS	12	0.0	SAA
30	1249	SS	14	0.0	SAA
35'	1300	SS	11	0.0	SAA

GRO=0
DRO=0

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96' N7°E

FIELD BORING LOG

BORING ID: BH-4

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/29/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-8

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1245				START
	1300	SS	11	0.0	Lite tan silty SAND, No HC ODOR
10	1304	SS	10	0.7	Lite tan Medium Sand, No HC ODOR.
	1309	SS	9	1.2	SAA
			GR0=0.0 DRO=45.7		
20	1314	SS	12	83	TAN Silty SAND, Very FAINT HC ODOR
			GRO=221 DRO=198		
	1319	SS	12	60	SAA
			GRO=26.4 DRO=290		
30	1326	SS	12	1.0	TAN Medium SAND, No HC ODOR.
			GRO=0.0 DRO=39.1		
35	1337	SS	14	0.1	SAA

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106' DUE NORTH

FIELD BORING LOG

BORING ID: BH-5

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/29/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1419				START
	1425	SS	6	0.0	Lite TAN silty SAND, No HC ODOR.
10	1430	SS	7	0.0	SAA
	1435	SS	13	0.0	Lite TAN MEDIUM SAND, No HC ODOR
20	1441	SS	7	0.0	SAA
			GRO=13.7 DRO=0.0		
	1447	SS	14	0.0	SAA
30	1501	SS	20	0.0	SAA
35'	1515	SS	14	0.0	SAA
			GRO=12.7 DRO=30.2		

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81' N1°E

FIELD BORING LOG

BORING ID: BH-6

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/30/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-5

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	0850				START
	0906	SS	20	0.0	Silty SAND, V. Dense, BACKFILL
10	0912	SS	22	0.0	SAA
	0919	SS	7	3.8	SAA
20	0924	SS	11 GRO=93.7 DRO=73.0	447	Black Silty SAND, STRONG HC ODOR.
	0930	SS	14 GRO=1800 DRO=1020	389	Dark Gray Medium Sand, Strong HC ODOR
30	0938	SS	12	410	Medium Gray Silty Sand, Strong HC ODOR.
35'	1019	SS GRO=47.2 DRO=54.7 GRO=0.0 DRO=33.4	17	196	Lite Gray Silty Sand, moderate HC ODOR.
40'	1031	SS GRO= 0.0 DRO=53.9	15	1.1	SAA, No HC ODOR

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93'N5W

FIELD BORING LOG

BORING ID: BH-7

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/30/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-4

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1117				START
	1126	SS	22	0.0	Silty SAND, Dense, Backfill MATERIAL.
10	1132	SS	26	0.0	SAA
	1137	SS	7	0.0	SAA
20	1144	SS	6	0.0	SAA
	1150	SS	10	0.9	MEDIUM SAND, V. lite Gray, V.V. Minor HC ODOR
			GRO=0.0 DRO=0.0		
30	1157	SS	12	0.2	MEDIUM SAND, TAN, NO HC ODOR
35'	1207	SS	14	0.0	SAA
			GRO=0.0 DRO=0.0		
40'	1219	SS	11	0.0	SAA
			GRO=0.0 DRO=0.0		

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70' N 9° E

FIELD BORING LOG

BORING ID: BH-8

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/30/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-6

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1300				START
	1304	SS	30	0.0	TAN SILTY SAND - BACKFILL
10	1310	SS	26	0.0	SAA
	1315	SS	14	0.0	SAA
20	1320	SS	9	12	SAA
	1325	SS	10	312	DARK GREY MEDIUM SAND, STRONG HC ODOR.
			GRO=47.8 DRO=41.3		
30	1330	SS	7	67	MEDIUM GRAY MEDIUM SAND, LITTER HC ODOR
			GRO=0.0 DRO=35.4		
35'	1340	SS	9	4.4	LITE GRAY SILTY SAND, LITE HC ODOR.
46'	1349	SS	18	0.0	BROWN CLAY WITH MINOR GRAY STREAKS, NO HC ODOR
			GRO=14.8 DRO=0.0		
			GRO=0.0 DRO=35.8		

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60' N 20 E

FIELD BORING LOG

BORING ID: BH-9

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/31/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-7

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	START 0845				
	0850	SS	33	0.0	silty SAND - BACKFILL
10	0855	SS	20	0.0	SAA
	0900	SS	5	0.0	SAA
20	0905	SS	10	0.3	Silty SAND, TAN, NO HC ODOR
			GRO=16.1 DRO=0.0		
	0910	SS	13	142	Yellow Medium SAND, Lite HC ODOR.
			GRO=75.1 DRO=411		
30	0919	SS	10	10.0	TAN Medium SAND, V. lite HC ODOR
			GRO=21.6 DRO=88.0		
35'	0933	SS	19	15.4	Brown Silty/clayey sand, V lite HC ODOR.
			GRO=19.7 DRO=32.2		
40'	0942	SS	12	3.1	" " " " , NO HC ODOR.
			GRO=0.0 DRO=0.0		

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81' N12W

FIELD BORING LOG

BORING ID: BH-10

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 10/31/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-1

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1016				
	1024	SS	27	0.0	Silty Sand, Brown, BACKFILL
10	1029	SS	25	0.0	SAA
	1035	SS	10	0.0	SAA
20	1041	SS	5	0.0	SAA
	1047	SS	11	169	Lite Tan Medium Sand, V. lite HC ODOR
			GRO=26.5 DRO=139		
30	1054	SS	14	121	SAA GRO=0.0 DRO=30.1
35'	1105	SS	12	3.6	Lite Gray Silty Sand, Minor HC ODOR
			GRO=0.0 DRO=0.0		
40'	1115	SS	9	1.6	SAA
			GRO=0.0 DRO=0.0		

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67' N6½W

FIELD BORING LOG

BORING ID: BH-11

PROJECT: BP: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME 95
DATE START: 10/31/14 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-2

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1217				START
	1226	SS	28	0.0	SILTY SAND - BACKFILL
10	1231	SS	29	0.0	SAA
	1236	SS	17	0.1	SAA
20	1245	SS	11	101	Lite Brown w/Minor Gray Streaks, Silty SAND, LHP HC ODOR
			GRO=13.7 DRO=0.0		
	1252	SS	7	389	MEDIUM SAND, Gray, Moderate HC ODOR
			GRO=456 DRO=458		
30	1257	SS	9	322	SAA GRO=194 DRO=209
35'	1306	SS	16	351	Silty SAND, Gray, Moderate HC ODOR GRO=96.5 DRO=181
40'	1316	SS	22	5.1	Silty SAND, Gray, Minor HC ODOR. GRO=0.0 DRO=0.0

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63' N 19° W

FIELD BORING LOG

BORING ID: BH-12

PROJECT: BP: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 11/5/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	0837				START
	0846	SS	31	0.0	SILTY SAND - BACK FILL
10	0853	SS	17	0.0	SAA
	0858	SS	5	0.0	SAA
20	0904	SS	17 GRO=ND DRO=ND	0.0	SILTY SAND, TAN, NO HC ODOR OR STAIN
	0912	SS	11 GRO=ND DRO=ND	0.0	SAA
30	0920	SS	8 GRO=ND DRO=ND	0.0	SAA
	0934	SS	12 GRO=ND DRO=ND	0.0	MEDIUM SAND, TAN, NO HC ODOR OR STAIN
40	0943	SS	11 GRO=10.5 DRO=ND	0.0	SAA

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86' N 21 W

FIELD BORING LOG

BORING ID: BH-13

PROJECT: BP: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED:
DATE START: 11/5/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1013				START
	1020	SS	12	0.0	Silty SAND, DARK TAN, No HC Odor or Stain.
10	1026	SS	9 GRO=ND DRO=ND	0.0	SAA
	1031	SS	9 GRO=ND DRO=ND	0.0	MEDIUM Grained SAND, lite TAN, No HC odor or Stain
20	1037	SS	12 GRO=ND DRO=ND	0.0	SAA
	1044	SS	12 GRO=22.2 DRO=ND	0.0	SAA
30	1052	SS	15	0.0	Silty SAND, lite TAN, No HC ODOR or Stain.
	1104	SS	16 GRO=15.5 DRO=ND	0.0	MEDIUM Grained SAND, lite TAN, No HC odor/stain
40	1116	SS	14	0.0	SAA

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52' N2E

FIELD BORING LOG

BORING ID: BH-14

PROJECT: BP: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME 95
DATE START: 11/5/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Completed as SVE-3

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1232				START
	1239	SS	32	0.0	Silty SAND - BACKFILL
10	1249	SS	25	0.0	SAA
	1254	SS	26	0.0	SAA
20	1304	SS	8 GRO=10.6 DRO=ND	5.4	Dark TAN Silty SAND, Moderate HC ODOR
	1313	SS	6 GRO=129 DRO=415	162	SAA, Moderate HC ODOR
30	1320	SS	14 GRO=30.7 DRO=62.1	33	MEDIUM SAND, Tan w/ Gray Streaks, moderate HC ODOR
	1328	SS	16 GRO=ND DRO=ND	2.5	SAA, Lite HC ODOR
40	1340	SS	12	0.0	clayey Silt, Dark Brown, NO HC ODOR or Stain.

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45' N19E

FIELD BORING LOG

BORING ID: BH-15

PROJECT: BP: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 11/6/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1310				START
	1318	SS	21	0.0	DARK TAN Silty SAND, No HC ODOR OR STAIN
10	1323	SS	11	0.0	SAA
			GRO=13.5 DRO=ND		
	1328	SS	10	0.0	SAA
20	1332	SS	9	0.0	SAA
			GRO=ND DRO=ND		
	1337	SS	7	0.0	TAN MEDIUM SAND, No HC ODOR/STAIN
			GRO=ND DRO=ND		
30	1343	SS	11	0.0	SAA
			GRO=ND DRO=ND		
	1352	SS	16	0.0	TAN Silty SAND, No HC ODOR/STAIN
			GRO=ND DRO=ND		
40	1404	SS	10	0.0	DARK BROWN Silty clay, No HC ODOR/stain

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98' N22E

FIELD BORING LOG

BORING ID: BH-16

PROJECT: BP: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Kyvek
EQUIPMENT USED: CME-95
DATE START: 11/10/2014 DATE FINISH: _____ DRILLER: KP LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS: Note: Boring Abandoned with Bentonite

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	BLOW COUNTS	FIELD OVM	SAMPLE DESCRIPTION
	1009				START
	1017	SS	14	0.0	Silty SAND, lite Tan, No HC ODOR/stain
10	1022	SS	11	0.0	SAA
	1027	SS	9 GRO=12.9 DRO=ND	0.0	MEDIUM SAND, lite TAN, NO HC ODOR/stain.
20	1032	SS	9 GRO=ND DRO=ND	0.0	Silty SAND, Dark TAN, NO HC ODOR/STAIN
	1037	SS	6 GRO=ND DRO=ND	0.0	SAA
30	1042	SS	12 GRO=ND DRO=ND	0.0	SAA
	1050	SS	11 GRO=ND DRO=ND	0.0	SAA
40	1101	SS	16 GRO=ND DRO=ND	0.0	SAA

Boring Logs
(July 2015 Geoprobing)

BLAGG ENGINEERING, INC.
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(505) 632-1199

GP - 1

BORE / TEST HOLE REPORT

CLIENT:	BP AMERICA PRODUCTION CO.
LOCATION NAME:	MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR:	BLAGG ENGINEERING, INC. / KYVEK ENERGY SERVICES, INC.
EQUIPMENT USED:	GEOPROBE 200
BORING LOCATION:	66 FEET, N5.5W FROM WELL HEAD (NEAR BH-11).

BORING #.....	1
MW #.....	NA
PAGE #.....	1
DATE STARTED	07/14/15
DATE FINISHED	07/14/15
OPERATOR.....	KP
LOGGED BY.....	NJV

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
20			19 - 20	1145	8.1	ND	ND ND	DARK YELLOWISH ORANGE TO DARK YELLOWISH BROWN SAND TO SILTY SAND (BACKFILL MATERIAL), NON COHESIVE, SLIGHTLY MOIST, FIRM, (0.0 - 21.0 FT. BELOW GRADE).
24			23 - 24	0915	25.9	140	ND ND	
28			27 - 28	0920	11.9	131	ND ND	PALE YELLOWISH BROWN TO DARK YELLOWISH ORANGE SAND TO SILTY SAND, NON TO SLIGHTLY COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM TO SLIGHTLY STIFF (21.0 - 34.5 FT. BELOW GRADE).
32			31 - 32	0925	22.4	27	ND ND	
36			35 - 36	0948	39.3	81	ND ND	OLIVE TO LT. GRAY SILTY SAND TO SILTY CLAY, SLIGHTLY PLASTIC TO COHESIVE, MOIST TO WET, FIRM TO STIFF (34.5 - 36.0 FT. BELOW GRADE).

NOTES:

- SAND TO SILTY SAND.
- SILTY SAND TO SILTY CLAY.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 GP-1 2015-07-14.SKF | DATE: 07/22/15 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
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GP - 2

BORE / TEST HOLE REPORT

BORING #.....	2
MW #.....	NA
PAGE #.....	2
DATE STARTED	07/14/15
DATE FINISHED	07/14/15
OPERATOR.....	KP
LOGGED BY.....	NJV

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / KYVEK ENERGY SERVICES, INC.
EQUIPMENT USED: GEOPROBE 200
BORING LOCATION: 77.4 FEET, N0.5W FROM WELL HEAD (NEAR BH-6).

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)
20			19 - 20	1035	27.3	ND	ND ND
24			23 - 24	1040	27.2	27	ND ND
28			27 - 28	1045	31.4	97	ND ND
32			31 - 32	1050	33.5	56	ND ND
36			35 - 36	1055	26.5	14	ND ND

FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

DARK YELLOWISH ORANGE TO DARK YELLOWISH BROWN SAND TO SILTY SAND (BACKFILL MATERIAL), NON COHESIVE, SLIGHTLY MOIST, FIRM, (0.0 - 20.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, (20.0 - 22.0 FT. BELOW GRADE).

PALE YELLOWISH BROWN TO GRAYISH ORANGE SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM, (22.0 - 25.0 FT. BELOW GRADE).

DARK YELLOWISH BROWN SILTY SAND PHASING INTO OLIVE GRAY SAND, SLIGHTLY COHESIVE TO NON COHESIVE, SLIGHTLY MOIST TO MOIST, FIRM (25.0 - 36.0 FT. BELOW GRADE).

NOTES:
- SAND TO SILTY SAND.
- SILTY SAND TO SILTY CLAY.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 GP-2 2015-07-14.SKF | DATE: 07/22/15 | DWN BY: NJV

Boring Logs
(October 2016 Geoprobing)

BLAGG ENGINEERING, INC.
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FIELD BORING LOG

BORING ID: GP-3

PROJECT: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/2016 DATE FINISH: 10/13/2016 DRILLER: LT LOGGED BY: JCB
TOTAL DEPTH: 30 CASING TYPE & SIZE: — SLOT SIZE: —
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field OVM	SAMPLE DESCRIPTION
1'	0845	PVC SLEEVE		Silty SAND - BACKFILL
2'				
3'				
4'	0848		0.0	SAA
5'				
6'				
7'				
8'	0852		0.0	SAA
9'				
10				
11'				
12'	0901		0.0	SAA
13'				
14'				
15'				
16'	0907		0.0	SAA
17'				
18'				
19'				
20	0911		0.0	SAA
21'				
22'				
23'				
24'	0915		162	DARK BROWN SILTY SAND, cohesive, LITE MOISTURE TPH = 31 ppm
25'				
26'				
27'				
28'	0919		136	SAA TPH = 54 ppm
29'				
30				

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FIELD BORING LOG

BORING ID: GP-3

PROJECT: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/16 DATE FINISH: 10/13/16 DRILLER: LT LOGGED BY: JCB
TOTAL DEPTH: 36' CASING TYPE & SIZE: - SLOT SIZE: -
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field OVM	SAMPLE DESCRIPTION
1'				
32'	0925		34	SAA
3'				
4'				
5'				
36'	0930		41	OLIVE silty clay, V. FIRM, life Moisture
7'				
8'				
9'				
10				
11'				
12'				
13'				
14'				
15'				
16'				
17'				
18'				
19'				
20				
21'				
22'				
23'				
24'				
25'				
26'				
27'				
28'				
29'				
30				

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Page 1 of 1

FIELD BORING LOG

BORING ID: GP-4

PROJECT: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/16 DATE FINISH: 10/13/16 DRILLER: LT LOGGED BY: JCB
TOTAL DEPTH: 32' CASING TYPE & SIZE: — SLOT SIZE: —
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field OVM	SAMPLE DESCRIPTION
1'	0950	PVC sleeve		START Silty SAND, TAN, cohesive, little moisture
2'				
3'				
4'	10:00		0.0	SAA
5'				
6'				
7'				
8'	10:04		0.2	SAA
9'				
10				
11'				
12'	10:12		12.6	SAA
13'				
14'				
15'				
16'	10:16		27.5	SAA - Minor HC odor
17'				
18'				
19'				
20	10:20		311	SAA - lite Gray stain, moderate odor TPH = ND
21'				
22'				
23'				
24'	10:25		518	SAA - Increased odor TPH = 220 ppm
25'				
26'				
27'				
28'	10:28		26.1	Silty SAND, TAN, cohesive, V. minor odor
29'				
30				
31'				
32'	10:31		1.1	SAA - No odor. TPH = ND

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FIELD BORING LOG

BORING ID: GP-5

PROJECT: MUDGE LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/16 DATE FINISH: 10/13/16 DRILLER: LT LOGGED BY: JCB
TOTAL DEPTH: 36' CASING TYPE & SIZE: — SLOT SIZE: —
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field O/M	SAMPLE DESCRIPTION
1'	1205	PVC sleeve		START TAN SILTY SAND, lite moisture, NO HC odor
2'				
3'				
4'	1210		0.0	SAA
5'				
6'				
7'				
8'	12:13		0.0	SAA
9'				
10				
11'				
12'	12:17		0.0	SAA
13'				
14'				
15'				
16'	12:22		0.0	SAA
17'				
18'				
19'				
20	12:27		0.0	SAA TPH = ND
21'				
22'				
23'				
24'	13:05		0.0	SAA
25'				
26'				
27'				
28'	13:21		0.0	SAA
29'				
30				

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FIELD BORING LOG

BORING ID: GP - 5

PROJECT: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/2016 DATE FINISH: 10/13/2016 DRILLER: LT LOGGED BY: JB
TOTAL DEPTH: 36' CASING TYPE & SIZE: SLOT SIZE:
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field OVM	SAMPLE DESCRIPTION
31'				
32'	13:40		0.0	SAA
33'				
34'				
35'				
36'	13:47		0.0	Olive silty clay, cohesive, little moist TPH = ND
7'				
8'				
9'				
10				
11'				
12'				
13'				
14'				
15'				
16'				
17'				
18'				
19'				
20				
21'				
22'				
23'				
24'				
25'				
26'				
27'				
28'				
29'				
30				

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FIELD BORING LOG

BORING ID: GP-6

PROJECT: Mudge LS 7
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/13/2016 DATE FINISH: 10/13/2016 DRILLER: LT LOGGED BY: JB
TOTAL DEPTH: 32' CASING TYPE & SIZE: - SLOT SIZE: -
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	Field OVM	SAMPLE DESCRIPTION
1'	14:02	PVC Sleeve		START Silty SAND, TAN, NO HC ODOR or STAIN, Lite MOISTURE, Cohesive
2'				
3'				
4'	14:05			SAA
5'				
6'				
7'				
8'	14.07			SAA
9'				
10				
11'				
12'	14:11			SAA
13'				
14'				
15'				
16'	1418			SAA
17'				
18'				
19'				
20	1424			SAA
21'				
22'				
23'				
24'	14:28			SAA TPH = ND
25'				
26'				
27'				
28'				SAA
29'				
30				
31'				
32'	14:35			SAA TPH = ND

Boring Logs
Closure Sampling
(February 12 - 14, 2018)

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 1

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-1
MW #..... NA
PAGE #..... 1
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE TO DARK YELLOWISH BROWN SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1439	0.0			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) - RECOVERED 9 INCHES.
24						SB-1 3-pt. (20'-30')		
26			25 - 27	1444	0.1	ND	ND ND	SAA EXCEPT DARK YELLOWISH ORANGE MEDIUM GRAINED SAND, [26.0 - 40.0 FT. B.G.]; S.S. RECOVERED 20 INCHES.
30			30 - 32	1451	0.3			SAA; S.S. RECOVERED 20 INCHES.
36			35 - 37	1458	0.0			SAA; S.S. RECOVERED 20 INCHES.
40						SB-1 @	(40'-41')	
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	1505	0.1	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 16 INCHES.
44–60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-01 2018-02-13.SKF DATE: 07/24/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
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BLOOMFIELD, NM 87413
(505) 632-1199

SB - 2

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-2
MW #..... NA
PAGE #..... 2
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1335	0.3			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 18 INCHES.
24						SB-2 3-pt. (20'-30')		
25			25 - 27	1341	0.2	ND	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 18 INCHES [26.0 - 40.0 FT. B.G.].
30			30 - 32	1354	0.0			SAA; S.S. RECOVERED 12 INCHES.
35			35 - 37	1401	0.2			SAA; S.S. RECOVERED 12 INCHES.
40						SB-2 @ (40'-41')		
40			40 - 42	1408	0.1	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 19 INCHES.
42–60		BORING BACKFILLED WITH CUTTINGS						

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-02 2018-02-13.SKF DATE: 07/24/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 3

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-3
MW #..... NA
PAGE #..... 3
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2								
4								
6								
8								
10								DARK YELLOWISH ORANGE SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 40.0 FT. BELOW GRADE].
12								
14								
16								
18								
20			20 - 22	1242	0.2			SAME AS ABOVE (SAA) EXCEPT MEDIUM GRAINED SAND, SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) RECOVERED 11 INCHES.
22								
24						SB-3 3-pt. (20'-30')		
26			25 - 27	1247	0.3	ND	ND ND	SAA; S.S. RECOVERED 11 INCHES.
28								
30			30 - 32	1254	0.0			SAA EXCEPT SILTY SAND; S.S. RECOVERED 18 INCHES.
32								
34								
36			35 - 37	1301	0.2			SAA EXCEPT MEDIUM GRAINED SAND; S.S. RECOVERED 13 INCHES.
38								
40						SB-3 @	(40'-41')	
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	1308	0.3	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 20 INCHES.
44								
46								
48								
50								
52								
54								
56								
58								
60								

NOTES: - SAND &/OR SILTY SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit.
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-03 2018-02-13.SKF DATE: 07/28/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 4

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-4
MW #..... NA
PAGE #..... 4
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2 - 18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 40.0 FT. BELOW GRADE].
20			20 - 22	1056	0.0			SAME AS ABOVE (SAA) EXCEPT MEDIUM GRAINED SAND TO SILTY SAND, SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) RECOVERED 17 INCHES.
24						SB-4 3-pt. (20'-30')		
26			25 - 27	1102	0.2	ND	ND ND	SAA; S.S. RECOVERED 12 INCHES.
30			30 - 32	1108	0.3			SAA EXCEPT MEDIUM GRAINED SAND; S.S. RECOVERED 9 INCHES.
36			35 - 37	1114	0.1			SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 18 INCHES.
40						SB-4 @ (40'-41')		
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	1123	0.2	ND	ND ND	SAA; S.S. RECOVERED 20 INCHES.
50								
60								

NOTES: - SAND &/OR SILTY SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit.
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-04 2018-02-13.SKF DATE: 07/28/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 5

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-5
MW #..... NA
PAGE #..... 5
DATE STARTED 02/12/18
DATE FINISHED 02/12/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 40.0 FT. BELOW GRADE].
20			20 - 22	1445	0.0			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) - RECOVERED 16 INCHES.
24						SB-5 3-pt. (20'-30')		
26			25 - 27	1453	0.1	ND	ND ND	SAA; S.S. RECOVERED 10 INCHES.
30			30 - 32	1500	0.4			SAA; S.S. RECOVERED 12 INCHES.
36			35 - 37	1506	0.1			SAA; S.S. RECOVERED 18 INCHES.
40		BORING BACKFILLED WITH CUTTINGS				SB-5 @	(40'-41')	
42			40 - 42	1515	0.0	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 20 INCHES.
44–60								

NOTES: - SILTY SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-05 2018-02-12.SKF | DATE: 07/28/18 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 6

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-6
MW #..... NA
PAGE #..... 6
DATE STARTED 02/14/18
DATE FINISHED 02/14/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2								
4								
6								
8								
10								DARK YELLOWISH ORANGE SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY 0.0 - 40.0 FT. BELOW GRADE].
12								
14								
16								
18								
20			20 - 22	0845	1.1			SAME AS ABOVE (SAA) EXCEPT MEDIUM GRAINED SAND, SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) RECOVERED 10 INCHES.
22								
24						SB-6 3-pt. (20'-30')		
26			25 - 27	0851	1.0	9.4	ND ND	SAA; S.S. RECOVERED 12 INCHES.
28								
30			30 - 32	0857	0.6			SAA; S.S. RECOVERED 9 INCHES.
32								
34								
36			35 - 37	0902	0.4			SAA EXCEPT SILTY SAND; S.S. RECOVERED 20 INCHES.
38								
40						SB-6 @	(40'-41')	
42			40 - 42	0910	0.1	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 22 INCHES.
44		BORING BACKFILLED WITH CUTTINGS						
46								
48								
50								
52								
54								
56								
58								
60								

NOTES: - SAND &/OR SILTY SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit.
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-06 2018-02-14.SKF | DATE: 07/28/18 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 7

BORE / TEST HOLE REPORT

BORING #.....	SB-7
MW #.....	NA
PAGE #.....	7
DATE STARTED	02/12/18
DATE FINISHED	02/12/18
OPERATOR.....	KP
LOGGED BY.....	JCB

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 40.0 FT. BELOW GRADE].
20			20 - 22	1337	0.0			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) - RECOVERED 12 INCHES.
24						SB-7 3-pt. (20'-30')		
26			25 - 27	1343	0.0	14	ND ND	SAA; S.S. RECOVERED 10 INCHES.
30			30 - 32	1350	0.0			SAA; S.S. RECOVERED 18 INCHES.
36			35 - 37	1358	0.0			SAA; S.S. RECOVERED 14 INCHES.
40						SB-7 @	(40'-41')	
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	1405	0.0	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 18 INCHES.
50								
60								

NOTES: - SILTY SAND.

- **OVM** - Organic vapor meter or photoionization detector (PID).
- **TPH** - Total Petroleum Hydrocarbons per US EPA Method 8015B.
- **BTEX** - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
- **ND** - Not detected at the Reporting Limit
- **ppm** - Parts per million.
- **mg/Kg** - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-07 2018-02-12.SKF | DATE: 07/28/18 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 8

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-8
MW #..... NA
PAGE #..... 8
DATE STARTED 02/14/18
DATE FINISHED 02/14/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1032	0.2			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 7 INCHES.
24						SB-8 3-pt. (20'-30')		
25			25 - 27	1037	1.2	ND	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 20 INCHES [26.0 - 40.0 FT. B.G.].
30			30 - 32	1043	1.1			SAA; S.S. RECOVERED 12 INCHES.
35			35 - 37	1051	0.4			SAA; S.S. RECOVERED 20 INCHES.
40						SB-8 @ (40'-41')		
40			40 - 42	1058	0.4	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 18 INCHES.
42–60		BORING BACKFILLED WITH CUTTINGS						

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-08 2018-02-14.SKF DATE: 07/29/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 9

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-9
MW #..... NA
PAGE #..... 9
DATE STARTED 02/14/18
DATE FINISHED 02/14/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1140	11.1			SAME AS ABOVE (SAA) EXCEPT MINOR HYDROCARBON ODOR DETECTED; SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 18 INCHES.
24			25 - 27	1147	0.7	SB-9 3-pt. (20'-30') ND	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 20 INCHES [26.0 - 40.0 FT. B.G.].
30			30 - 32	1153	0.4			SAA; S.S. RECOVERED 18 INCHES.
34–36			35 - 37	1159	0.2			SAA; S.S. RECOVERED 11 INCHES.
40		BORING BACKFILLED WITH CUTTINGS	40 - 42	1205	0.0	SB-9 @ (40'-41') ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 12 INCHES.
42–60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-09 2018-02-14.SKF DATE: 07/29/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 10

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-10
MW #..... NA
PAGE #..... 10
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
0 - 20								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 20.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1531	0.0			DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 20 INCHES [20.0 - 40.0 FT. B.G.].
						SB-10 3-pt. (20'-30')		
			25 - 27	1535	0.2	ND	ND ND	SAA; S.S. RECOVERED 11 INCHES.
30			30 - 32	1541	0.2			SAA; S.S. RECOVERED 13 INCHES.
			35 - 37	1547				SAA; S.S. RECOVERED 14 INCHES.
						SB-10 @	(40'-41')	
40		BORING BACKFILLED WITH CUTTINGS	40 - 42	1554		ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 16 INCHES.
60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-10 2018-02-13.SKF DATE: 07/29/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 11

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-11
MW #..... NA
PAGE #..... 11
DATE STARTED 02/14/18
DATE FINISHED 02/14/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
						GROUND SURFACE
20	20 - 22	0937	0.2			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 11 INCHES.
26	25 - 27	0943	8.7			SAA; S.S. RECOVERED 18 INCHES.
30	30 - 32	0949	3.9	SB-11 3-pt. (25'-35') 68	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 12 INCHES [30.0 - 40.0 FT. B.G.].
36	35 - 37	0955	11.2			SAA EXCEPT VERY SLIGHT HYDROCARBON ODOR DETECTED; S.S. RECOVERED 20 INCHES.
40	40 - 42	1003	0.3	SB-11 @ (40'-41') ND	ND ND	SAA EXCEPT NO HYDROCARBON ODOR DETECTED & INCREASED MOISTURE; S.S. RECOVERED 20 INCHES.

DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 30.0 FT. BELOW GRADE (B.G.)].

BORING BACKFILLED WITH CUTTINGS

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-11 2018-02-14.SKF DATE: 07/29/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 12

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-12
MW #..... NA
PAGE #..... 12
DATE STARTED 02/14/18
DATE FINISHED 02/14/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	1302	0.4			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 12 INCHES.
24						SB-12 3-pt. (20'-30')		DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 16 INCHES [26.0 - 35.0 FT. B.G.].
26			25 - 27	1311	0.2	ND	ND ND	
30			30 - 32	1317	0.1			SAA; S.S. RECOVERED 20 INCHES.
36			35 - 37	1324	0.0			SAA EXCEPT SILTY SAND & INCREASED MOISTURE [35.0 - 40 FT. B.G.]; S.S. RECOVERED 22 INCHES.
40						SB-12 @ (40'-41')		
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	1333		ND	ND ND	SAA; S.S. RECOVERED 16 INCHES.
60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-12 2018-02-14.SKF DATE: 07/29/18 DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 13

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-13
MW #..... NA
PAGE #..... 13
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2 - 20		SILTY SAND						DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	0843	17.7			SAME AS ABOVE (SAA) EXCEPT 6 INCH ZONE WITH MINOR HYDROCARBON ODOR DETECTED; SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 20 INCHES.
24						SB-13 3-pt. (20'-30')		
26			25 - 27	0849	0.8	37	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 16 INCHES [26.0 - 36.0 FT. B.G.].
30			30 - 32	0856	0.3			SAA; S.S. RECOVERED 18 INCHES.
36			35 - 37	0905	0.3			SAA EXCEPT SILTY SAND [36.0 - 40 FT. B.G.]; S.S. RECOVERED 22 INCHES.
40						SB-13 @ (40'-41')		
42		BORING BACKFILLED WITH CUTTINGS	40 - 42	0912	0.4	ND	ND ND	SAA EXCEPT INCREASED MOISTURE; S.S. RECOVERED 18 INCHES.
60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-13 2018-02-13.SKF | DATE: 07/29/18 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 14

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-14
MW #..... NA
PAGE #..... 14
DATE STARTED 02/13/18
DATE FINISHED 02/13/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 26.0 FT. BELOW GRADE (B.G.)].
20			20 - 22	0955	1.2			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.); RECOVERED 17 INCHES.
24			25 - 27	1003	1.0	SB-14 3-pt. (20'-30') ND	ND ND	DARK YELLOWISH ORANGE SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, MEDIUM GRAINED, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY; S.S. RECOVERED 14 INCHES [26.0 - 36.0 FT. B.G.].
30			30 - 32	1009	0.8			SAA; S.S. RECOVERED 10 INCHES.
36			35 - 37	1016	0.4			SAA EXCEPT SAND TO SILTY SAND [36.0 - 40 FT. B.G.]; S.S. RECOVERED 16 INCHES.
40		BORING BACKFILLED WITH CUTTINGS	40 - 42	1022	0.2	SB-14 @ (40'-41') ND	ND ND	SAA EXCEPT INCREASED MOISTURE, VERY LIGHT GRAY COLOR; S.S. RECOVERED 17 INCHES.
42–60								

NOTES:
- SILTY SAND.
- SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-14 2018-02-13.SKF | DATE: 07/29/18 | DWN BY: NJV

BLAGG ENGINEERING, INC.
P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

SB - 15

BORE / TEST HOLE REPORT

CLIENT: BP AMERICA PRODUCTION CO.
LOCATION NAME: MUDGE LS # 7 API #: 3004510431 UNIT M, SEC. 23, T31N, R11W
CONTRACTOR: BLAGG ENGINEERING, INC. / GEOMAT
EQUIPMENT USED: CME-55
BORING LOCATION: FEET, FROM WELL HEAD

BORING #..... SB-15
MW #..... NA
PAGE #..... 15
DATE STARTED 02/12/18
DATE FINISHED 02/12/18
OPERATOR..... KP
LOGGED BY..... JCB

DEPTH (FT.)	INTERVAL	LITHOLOGY INTERVAL	SAMPLE INTERVAL (FT.)	SAMPLE TIME	FIELD OVM (ppm)	TPH (mg/Kg)	BENZENE & TOTAL BTEX (mg/Kg)	FIELD CLASSIFICATION AND REMARKS
								GROUND SURFACE
2–18								DARK YELLOWISH ORANGE SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON STAINING OBSERVED OR ODOR DETECTED PHYSICALLY [0.0 - 40.0 FT. BELOW GRADE].
20			20 - 22	1224	0.0			SAME AS ABOVE (SAA); SAMPLE COLLECTED VIA 24 INCH SPLIT SPOON (S.S.) - RECOVERED 12 INCHES.
24						SB-5 3-pt. (20'-30')		
26			25 - 27	1237	0.0	ND	ND ND	SAA; S.S. RECOVERED 12 INCHES.
30			30 - 32	1243	0.0			SAA; S.S. RECOVERED 15 INCHES.
36			35 - 37	1250	0.0			SAA; S.S. RECOVERED 15 INCHES.
40		BORING BACKFILLED WITH CUTTINGS				SB-5 @ (40'-41')		
42			40 - 42	1258	0.0	ND	ND ND	SAA EXCEPT MOISTURE INCREASED; S.S. RECOVERED 20 INCHES.
44–60								

NOTES: - SILTY SAND.

OVM - Organic vapor meter or photoionization detector (PID).
TPH - Total Petroleum Hydrocarbons per US EPA Method 8015B.
BTEX - Benzene, toluene, ethylbenzene, total xylenes per US EPA Method 8021B.
ND - Not detected at the Reporting Limit
ppm - Parts per million.
mg/Kg - Milligram per kilogram.

DRAWING: MUDGE LS 7 SB-15 2018-02-12.SKF | DATE: 07/29/18 | DWN BY: NJV

BP America - Mudge LS 7

Summary SVE System Monitoring Data

Date	SVE Pt.	Exhaust OVM (ppm)	Exhaust Vacuum (in)	Exhaust Rate (cfm)	System Operational at Time of Arrival?	H_2O Drained from drum?	H_2O Amt. Drained (Gal.)?	Comments
02/11/2015	5	1,249	51	NA	-	-	-	Initial startup on #5 only.
02/12/2015	5 & 6	1,379	44	NA	YES	NO	-	Connected to #6 with pvc tee and additional hose
02/13/2015	5 & 6	1,345	44	NA	YES	NO		
02/16/2015	5 & 6	1,016	44	NA	YES	YES	15.00	
02/17/2015	5 & 6	887	44	NA	YES	YES	6.00	
02/18/2015	5 & 6	769	42	NA	YES	YES	4.00	
02/19/2015	5 & 6	867	42	NA	YES	YES	2.00	
02/23/2015	5 & 6	-	-	NA	NO	YES	24.00	Restarted after draining water from drum
02/24/2015	5 & 6	499	42	NA	YES	YES	8.00	
02/26/2015	5 & 6	419	41	NA	YES	YES	15.00	
02/27/2015	5 & 6	394	42	NA	YES	YES	4.00	
03/02/2015	5 & 6	308	42	NA	YES	YES	24.00	
03/03/2015	5 & 6	315	42	NA	YES	YES	3.00	
03/06/2015	5 & 6	225	42	NA	YES	YES	16.00	
03/09/2015	5 & 6	265	43	NA	YES	YES	10.00	
03/10/2015	5 & 6	258	42	NA	YES	YES	3.00	
03/11/2015	5 & 6	320	40	NA	YES	YES	3.00	
03/12/2015	5 & 6	290	40	NA	YES	YES	3.00	
03/13/2015	5 & 6	265	39	NA	YES	YES	2.00	
03/16/2015	5 & 6	184	40	NA	YES	YES	10.00	
03/18/2015	5 & 6	149	39	NA	YES	YES	5.00	
03/19/2015	5 & 6	237	39	NA	YES	YES	3.00	
03/23/2015	5 & 6	142	40	NA	YES	YES	15.00	
03/30/2015	5 & 6	276	40	NA	YES	YES	24.00	
04/01/2015	5 & 6	198	40	NA	YES	YES	4.00	
04/06/2015	5 & 6	96	38	NA	YES	YES	20.00	Switched to #2 & #9
04/09/2015	2 & 9	-	-	NA	NO	NO		Unit not operational, broken rotor
05/18/2015	2 & 9	-	-	NA	YES	NO		Replacement SVE unit
05/20/2015	2 & 9	92	42	NA	YES	YES	3.00	
05/26/2015	2 & 9	48	44	NA	YES	YES	8.00	Switched to #5 & #6
06/04/2015	5 & 6	55	42	NA	YES	YES	7.00	
06/08/2015	5 & 6	57	40	NA	YES	YES	4.00	
06/15/2015	5 & 6	47	40	NA	YES	YES	3.00	
06/22/2015	5 & 6	38	40	NA	YES	YES	0.50	

BP America - Mudge LS 7

Summary SVE System Monitoring Data

Date	SVE Pt.	Exhaust OVM (ppm)	Exhaust Vacuum (in)	Exhaust Rate (cfm)	System Operational at Time of Arrival?	H_2O Drained from drum?	H_2O Amt. Drained (Gal.)?	Comments
06/29/2015	5 & 6	38	38	NA	YES	NO		Dry drum
07/06/2015	5 & 6	40	38	NA	YES	NO	-	Dry drum
07/13/2015	5 & 6	34	38	NA	YES	NO		Dry drum
07/20/2015	5 & 6	28	38	NA	YES	NO		Dry drum
07/27/2015	5 & 6	24	38	NA	YES	NO		Dry drum
08/05/2015	5 & 6	17	38	NA	YES	NO		Dry drum, switched to #2 & #9
08/12/2015	2 & 9	11	38	NA	YES	NO		Dry drum
08/19/2015	2 & 9	10	40	NA	YES	NO		Dry drum
08/24/2015	2 & 9	10	40	NA	YES	NO		Dry drum
08/24/2015	2 & 9	10	40	NA	YES	NO		Dry drum
09/08/2015	2 & 9	9	40	NA	YES	NO		Dry drum
09/17/2015	2 & 9	58	40	NA	YES	NO		Dry drum
09/22/2015	2 & 9	90	42	NA	YES	YES	2.00	Dry drum, switched to #1 & #4
09/23/2015	1 & 4	7	45	NA	YES	NO		Dry drum, switched to #8 & #10
09/24/2015	8 & 10	12	44	NA	YES	NO		Dry drum, switched to #3 & #7
09/25/2015	3 & 7	26	44	NA	YES	NO		Dry drum, switched to #5 & #6
09/28/2015	5 & 6	30	35	NA	YES	NO		Dry drum, switched to #2 & #9
09/29/2015	2 & 9	24	42	NA	YES	NO	0.00	Did not check water level in drum
10/08/2015	2 & 9	16	42	NA	YES	NO	0.00	Did not check water level in drum
10/15/2015	2 & 9	14	42	NA	YES	YES	20.00	
10/23/2015	2 & 9	27	42	NA	YES	YES	14.00	
10/28/2015	2 & 9	21	42	NA	YES	NO		Did not check water level in drum
11/06/2015	2 & 9	52	42	NA	NO	YES	29.00	Collected readings after restarting
11/13/2015	2 & 9	40	42	NA	NO	YES	29.00	Collected readings after restarting
11/17/2015	-	-	-	NA	YES	YES	20.00	
11/20/2015	2 & 9	25	42	NA	YES	YES	14.00	
11/24/2015	-	-	-	NA	YES	YES	19.00	
11/27/2015	2 & 9	25	42	NA	YES	YES	11.50	
12/01/2015	-	-	-	NA	YES	YES	21.00	
12/04/2015	2 & 9	23	43	NA	YES	YES	15.50	
12/08/2015	-	-	-	NA	YES	YES	18.00	
12/11/2015	2 & 9	21	42	NA	YES	YES	13.00	
12/15/2015	-	-	-	NA	YES	YES	22.00	
12/17/2015	-	-	-	NA	YES	NO	0.00	Visually inspected water level in drum only
12/18/2015	2 & 9	23	43	NA	YES	YES	20.00	
12/21/2015	-	-	-	NA	YES	YES	14.00	
12/24/2015	2 & 9	10	43	NA	YES	YES	16.50	

BP America - Mudge LS 7

Summary SVE System Monitoring Data

Date	SVE Pt.	Exhaust OVM (ppm)	Exhaust Vacuum (in)	Exhaust Rate (cfm)	System Operational at Time of Arrival?	H_2O Drained from drum?	H_2O Amt. Drained (Gal.)?	Comments
12/28/2015	-	-	-	NA	YES	YES	14.00	
12/31/2015	2 & 9	20	42	NA	YES	YES	16.50	
01/04/2016	-	-	-	NA	YES	YES	24.00	
01/07/2016	2 & 9	12	43	NA	YES	YES	16.50	
01/11/2016	-	-	-	NA	YES	YES	26.00	
01/14/2016	2 & 9	16	42	NA	YES	YES	22.00	
01/18/2016	-	-	-	NA	NO	YES	10.50	Collected readings after restarting
01/21/2016	2 & 9	12	43	NA	YES	YES	15.00	
01/25/2016	-	-	-	NA	YES	YES	23.00	
01/29/2016	2 & 9	8	44	NA	YES	YES	20.50	
02/02/2016	-	-	-	NA	YES	YES	17.00	
02/05/2016	2 & 9	18	44	NA	YES	YES	19.00	
02/09/2016	-	-	-	NA	YES	YES	19.00	
02/13/2016	2 & 9	10	44	NA	YES	YES	14.00	
02/19/2016	2 & 9	8	43	NA	YES	YES	5.00	
02/26/2016	2 & 9	5	42	NA	YES	YES	23.00	
03/03/2016	2 & 9	5	41	NA	YES	YES	15.50	
03/10/2016	2 & 9	8	42	NA	YES	YES	12.00	
03/17/2016	2 & 9	6	42	NA	YES	YES	15.50	
03/24/2016	2 & 9	4	41	NA	YES	YES	15.50	
03/31/2016	2 & 9	5	41	NA	YES	YES	17.00	
04/08/2016	2 & 9	3	40	NA	YES	YES	14.00	
04/15/2016	2 & 9	3	40	NA	YES	YES	6.50	
04/22/2016	2 & 9	3	40	NA	YES	YES	11.50	
04/29/2016	2 & 9	3	40	NA	YES	YES	6.50	
05/06/2016	2 & 9	3	40	NA	YES	YES	6.50	
05/14/2016	2 & 9	3	39	NA	YES	YES	5.00	Switched to #5 & #7
05/19/2016	5 & 7	0	34	NA	YES	YES	1.00	
05/26/2016	5 & 7	3	36	NA	YES	NO	0.00	Measured ~ 1.5" H_2O in drum
06/03/2016	5 & 7	3	34	NA	YES	NO	0.00	Measured ~ 0.5" H_2O in drum
06/16/2016	5 & 6	3	34	NA	YES	NO		Water in drum below drain port
06/30/2016	5 & 6	3	35	NA	YES	NO		Dry drum
07/21/2016	5 & 6	-	-	NA	NO	NO		Unit not operational, could not restart
08/19/2016	5 & 6	-	-	NA	NO	NO		Unit status unchanged

BP America - Mudge LS 7

Summary SVE System Monitoring Data

Date	SVE Pt.	Exhaust OVM (ppm)	Exhaust Vacuum (in)	Exhaust Rate (cfm)	System Operational at Time of Arrival?	H_2O Drained from drum?	H_2O Amt. Drained (Gal.)?	Comments
09/26/2016	5 & 6	-	-	NA	NO	NO	-	Unit status unchanged, tagged for repair, no date indicated
01/19/2017	5 & 6	108	36	NA	YES	NO	-	Unit repaired & restarted, did not check water level in drum
01/25/2017	5 & 6	30	38	NA	YES	YES	24.00	Could not restart
02/03/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
02/07/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
02/15/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
02/22/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
03/03/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
03/09/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
03/15/2017	5 & 6	42	36	NA	YES	NO	-	Unit repaired & restarted, did not check water level in drum
03/21/2017	5 & 6	-	-	NA	YES	YES	?	Drained H20, water level not measured
03/29/2017	5 & 6	31	34	NA	YES	YES	16.00	
04/13/2017	5 & 6	25	36	NA	YES	YES	27.00	
04/25/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
05/12/2017	5 & 6	-	-	NA	NO	NO	-	Unit not operational, could not restart
06/27/2017	5 & 6	20	36	NA	YES	NO	0.00	Water in drum below drain port
07/11/2017	5 & 6	17	38	NA	YES	NO	0.00	Dry drum
08/14/2017	5 & 6	25	35	NA	YES	NO	0.00	Dry drum
09/15/2017	5 & 6	14	35	NA	YES	NO	0.00	Water in drum below drain port
10/13/2017	5 & 6	11	36	NA	YES	YES	19.00	
10/27/2017	5 & 6	16	37	NA	YES	YES	25.50	
11/10/2017	5 & 6	17	38	NA	YES	YES	30.00	Auto shut-off float mechanism malfunction (water 2" above).
11/20/2017	5 & 6	35	34	NA	YES	YES	30.00	Auto shut-off float mechanism malfunction (water 2" above).
11/27/2017	5 & 6	18	38	NA	YES	YES	24.00	
12/04/2017	5 & 6	2	38	NA	YES	YES	20.50	
12/09/2017	5 & 6	12	38	NA	YES	YES	30.00	Auto shut-off float mechanism malfunction (water 2" above).
12/14/2017	5 & 6	10	39	NA	YES	YES	25.50	
12/19/2017	5 & 6	9	39	NA	YES	YES	25.50	
12/26/2017	5 & 6	-	36	NA	YES	YES	31.00	Auto shut-off float mechanism malfunction (water 2.5" above).
12/30/2017	5 & 6	37	39	NA	YES	YES	22.00	
01/04/2018	5 & 6	-	-	NA	YES	YES	24.00	Drained water drum only

Laboratory Reports

Laboratory Reports
Excavation Closure Sampling

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 16, 2014

Jeff Blagg

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

RE: MUDGE LS 7 OrderNo.: 1407565

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/12/2014 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 **1407565**
Date Reported: **7/16/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SW BASE 3-pt @ 16'
Project: MUDGE LS 7
Collection Date: 7/11/2014 8:50:00 AM
Lab ID: 1407565-001 **Matrix:** SOIL **Received Date:** 7/12/2014 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/14/2014 11:20:37 AM	14199
Surr: DNOP	80.3	57.9-140		%REC	1	7/14/2014 11:20:37 AM	14199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.3		mg/Kg	1	7/14/2014 11:20:32 AM	R19862
Surr: BFB	94.0	80-120		%REC	1	7/14/2014 11:20:32 AM	R19862
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.053		mg/Kg	1	7/14/2014 11:20:32 AM	R19862
Toluene	ND	0.053		mg/Kg	1	7/14/2014 11:20:32 AM	R19862
Ethylbenzene	ND	0.053		mg/Kg	1	7/14/2014 11:20:32 AM	R19862
Xylenes, Total	ND	0.11		mg/Kg	1	7/14/2014 11:20:32 AM	R19862
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	7/14/2014 11:20:32 AM	R19862
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	150	30		mg/Kg	20	7/14/2014 12:47:36 PM	14207

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

Analytical Report
Lab Order **1407565**
Date Reported: **7/16/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SW Sidewall 3-pt @ 8'-14'
Project: MUDGE LS 7
Collection Date: 7/11/2014 9:09:00 AM
Lab ID: 1407565-002 **Matrix:** SOIL **Received Date:** 7/12/2014 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	81	10		mg/Kg	1	7/14/2014 11:51:36 AM	14199
Surr: DNOP	82.1	57.9-140		%REC	1	7/14/2014 11:51:36 AM	14199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.5		mg/Kg	1	7/14/2014 11:49:11 AM	R19862
Surr: BFB	95.0	80-120		%REC	1	7/14/2014 11:49:11 AM	R19862
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.055		mg/Kg	1	7/14/2014 11:49:11 AM	R19862
Toluene	ND	0.055		mg/Kg	1	7/14/2014 11:49:11 AM	R19862
Ethylbenzene	ND	0.055		mg/Kg	1	7/14/2014 11:49:11 AM	R19862
Xylenes, Total	ND	0.11		mg/Kg	1	7/14/2014 11:49:11 AM	R19862
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	7/14/2014 11:49:11 AM	R19862
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	490	30		mg/Kg	20	7/14/2014 1:00:00 PM	14207

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		

Analytical Report
Lab Order **1407565**
Date Reported: **7/16/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: 32' N 24 W @ 14'
Project: MUDGE LS 7
Collection Date: 7/11/2014 9:15:00 AM
Lab ID: 1407565-003 **Matrix:** SOIL **Received Date:** 7/12/2014 10:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	110	10		mg/Kg	1	7/14/2014 12:22:57 PM	14199
Surr: DNOP	83.4	57.9-140		%REC	1	7/14/2014 12:22:57 PM	14199
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2014 12:17:49 PM	R19862
Surr: BFB	122	80-120	S	%REC	1	7/14/2014 12:17:49 PM	R19862
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/14/2014 12:17:49 PM	R19862
Toluene	ND	0.049		mg/Kg	1	7/14/2014 12:17:49 PM	R19862
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2014 12:17:49 PM	R19862
Xylenes, Total	ND	0.098		mg/Kg	1	7/14/2014 12:17:49 PM	R19862
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	7/14/2014 12:17:49 PM	R19862
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	99	30		mg/Kg	20	7/14/2014 1:12:24 PM	14207

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#: **1407565**

16-Jul-14

Client: Blagg Engineering

Project: MUDGE LS 7

Sample ID	**MB-14207**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14207**	RunNo:	**19882**					
Prep Date:	**7/14/2014**	Analysis Date:	**7/14/2014**	SeqNo:	**577869**	Units:	**mg/Kg**			

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

Sample ID	**LCS-14207**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14207**	RunNo:	**19882**					
Prep Date:	**7/14/2014**	Analysis Date:	**7/14/2014**	SeqNo:	**577870**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

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#: **1407565**

16-Jul-14

Client: Blagg Engineering

Project: MUDGE LS 7

Sample ID	**MB-14199**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**
Client ID:	**PBS**	Batch ID:	**14199**	RunNo:	**19860**
Prep Date:	**7/14/2014**	Analysis Date:	**7/14/2014**	SeqNo:	**577270** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	7.4		10.00		74.4	57.9	140			

Sample ID	**LCS-14199**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**
Client ID:	**LCSS**	Batch ID:	**14199**	RunNo:	**19860**
Prep Date:	**7/14/2014**	Analysis Date:	**7/14/2014**	SeqNo:	**577271** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	103	68.6	130			
Surr: DNOP	3.8		5.000		75.1	57.9	140			

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#: **1407565**

16-Jul-14

Client: Blagg Engineering
Project: MUDGE LS 7

Sample ID	**MB-14192 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R19862**	RunNo:	**19862**					
Prep Date:		Analysis Date:	**7/14/2014**	SeqNo:	**577670**	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		93.5	80	120			

Sample ID	**LCS-14192 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R19862**	RunNo:	**19862**					
Prep Date:		Analysis Date:	**7/14/2014**	SeqNo:	**577671**	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	109	71.7	134			
Surr: BFB	1000		1000		103	80	120			

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#: **1407565**

16-Jul-14

Client: Blagg Engineering

Project: MUDGE LS 7

Sample ID	**MB-14192 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R19862**	RunNo:	**19862**					
Prep Date:		Analysis Date:	**7/14/2014**	SeqNo:	**577684**	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-14192 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R19862**	RunNo:	**19862**					
Prep Date:		Analysis Date:	**7/14/2014**	SeqNo:	**577685**	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	108	80	120			
Toluene	1.0	0.050	1.000	0	105	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

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

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: 1407565 | RcptNo: 1

Received by/date: AF 07/12/14

Logged By: Anne Thorne 7/12/2014 10:40:00 AM Anne Thorne

Completed By: Anne Thorne 7/14/2014 Anne Thorne

Reviewed By: 07/14/14

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	3.1	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)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ASAP Same DAY
☐ Standard ☒ Rush
Project Name: Mudge LS 7
Project #:
Project Manager: J. Blagg
Sampler: J. Blagg
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.1°C

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1407545	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)
7/11/14	0850	SOIL	SW Base 3-pt @ 16'	4 oz x1	Cool	-001	X		X									X				
"	0909	"	SW Sidewall 3-pt 8'-14'	"	"	-002	X		X									X				
"	0915	"	32' N24W @ 14'	"	"	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/11/14	1000	Jeffrey C. Blagg	Christine Walters	7/11/14	1000
7/11/14	1649	Chet Walters		7/12/14	10:40

Remarks: Bill Blagg

BP Contact: J. 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

July 18, 2014

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1407618

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/15/2014 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 **1407618**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering **Client Sample ID:** 55' N 10W @ 36'
Project: Mudge LS 7 **Collection Date:** 7/14/2014 10:20:00 AM
Lab ID: 1407618-001 **Matrix:** MEOH (SOIL) **Received Date:** 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/15/2014 11:17:49 AM	14218
Surr: DNOP	80.9	57.9-140		%REC	1	7/15/2014 11:17:49 AM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.4		mg/Kg	1	7/15/2014 12:54:27 PM	R19893
Surr: BFB	116	80-120		%REC	1	7/15/2014 12:54:27 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.034		mg/Kg	1	7/15/2014 12:54:27 PM	R19893
Toluene	ND	0.034		mg/Kg	1	7/15/2014 12:54:27 PM	R19893
Ethylbenzene	ND	0.034		mg/Kg	1	7/15/2014 12:54:27 PM	R19893
Xylenes, Total	ND	0.069		mg/Kg	1	7/15/2014 12:54:27 PM	R19893
Surr: 4-Bromofluorobenzene	99.3	80-120		%REC	1	7/15/2014 12:54:27 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	170	30		mg/Kg	20	7/15/2014 12:01:02 PM	14229

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#: **1407618**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14229**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14229**	RunNo:	**19915**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**578776**	Units:	**mg/Kg**			

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

Sample ID	**LCS-14229**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14229**	RunNo:	**19915**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**578777**	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
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#: **1407618**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14218**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14218**	RunNo:	**19870**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**577863**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	7.7		10.00		77.0	57.9	140			

Sample ID	**LCS-14218**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14218**	RunNo:	**19870**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**577864**	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	97.3	68.6	130			
Surr: DNOP	3.6		5.000		72.1	57.9	140			

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#: **1407618**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14213 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578416**	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	1000		1000		101	80	120			

Sample ID	**LCS-14213 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578417**	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	91.7	71.7	134			
Surr: BFB	1100		1000		113	80	120			

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#: **1407618**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14213 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578456**	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	1.2		1.000		117	80	120			

Sample ID	**LCS-14213 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578457**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.050	1.000	0	87.8	80	120			
Toluene	0.86	0.050	1.000	0	86.2	80	120			
Ethylbenzene	0.88	0.050	1.000	0	87.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	91.9	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

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

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: 1407618 RcptNo: 1

Received by/date: 07/15/14

Logged By: Lindsay Mangin 7/15/2014 7:50:00 AM

Completed By: Lindsay Mangin 7/15/2014 8:12:44 AM

Reviewed By: mg 07/15/14

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	1.9	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)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ASAP SAME DAY
☐ Standard ☒ Rush
Project Name: MUDGE LS 7
Project #:
Project Manager: J. BLAGG
Sampler: J. BLAGG
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.9

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + ~~MTBE + TMB~~'s (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / ~~MRO~~)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
7/14/14	1020	SOIL	55'N 10W @ 36'	4oz x1	COOL	1407618-001	X		X									X				

Date: 7/14/14 Time: 1610 Relinquished by: Jeff Blagg
Received by: Christie Walls Date: 7/14/14 Time: 1610
Date: 7/14/14 Time: 1910 Relinquished by: Christie Walls
Received by: [signature] Date: 07/15/14 Time: 0750

Remarks: BILL BLAGG

BP 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

July 18, 2014

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1407619

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/15/2014 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 **1407619**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: Base 5-pt @ 14'
Project: Mudge LS 7
Collection Date: 7/14/2014 3:25:00 PM
Lab ID: 1407619-001 **Matrix:** MEOH (SOIL) **Received Date:** 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	20	10		mg/Kg	1	7/15/2014 11:48:50 AM	14218
Surr: DNOP	81.6	57.9-140		%REC	1	7/15/2014 11:48:50 AM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	6.2		mg/Kg	1	7/15/2014 12:39:53 PM	R19893
Surr: BFB	98.8	80-120		%REC	1	7/15/2014 12:39:53 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.062		mg/Kg	1	7/15/2014 12:39:53 PM	R19893
Toluene	ND	0.062		mg/Kg	1	7/15/2014 12:39:53 PM	R19893
Ethylbenzene	ND	0.062		mg/Kg	1	7/15/2014 12:39:53 PM	R19893
Xylenes, Total	ND	0.12		mg/Kg	1	7/15/2014 12:39:53 PM	R19893
Surr: 4-Bromofluorobenzene	110	80-120		%REC	1	7/15/2014 12:39:53 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	110	30		mg/Kg	20	7/15/2014 12:38:16 PM	14229

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		

Analytical Report
Lab Order **1407619**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: West Wall 3-pt 6'-12'
Project: Mudge LS 7
Collection Date: 7/14/2014 3:27:00 PM
Lab ID: 1407619-002 **Matrix:** MEOH (SOIL) **Received Date:** 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	52	10		mg/Kg	1	7/15/2014 12:19:38 PM	14218
Surr: DNOP	83.7	57.9-140		%REC	1	7/15/2014 12:19:38 PM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/15/2014 1:10:06 PM	R19893
Surr: BFB	90.2	80-120		%REC	1	7/15/2014 1:10:06 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	7/15/2014 1:10:06 PM	R19893
Toluene	ND	0.047		mg/Kg	1	7/15/2014 1:10:06 PM	R19893
Ethylbenzene	ND	0.047		mg/Kg	1	7/15/2014 1:10:06 PM	R19893
Xylenes, Total	ND	0.094		mg/Kg	1	7/15/2014 1:10:06 PM	R19893
Surr: 4-Bromofluorobenzene	99.5	80-120		%REC	1	7/15/2014 1:10:06 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	200	30		mg/Kg	20	7/15/2014 1:15:29 PM	14229

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		

Analytical Report
Lab Order **1407619**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: South Wall 3-pt 6'-12'
Project: Mudge LS 7
Collection Date: 7/14/2014 3:28:00 PM
Lab ID: 1407619-003
Matrix: MEOH (SOIL)
Received Date: 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	13	10		mg/Kg	1	7/15/2014 12:50:25 PM	14218
Surr: DNOP	85.4	57.9-140		%REC	1	7/15/2014 12:50:25 PM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	7/15/2014 1:40:18 PM	R19893
Surr: BFB	102	80-120		%REC	1	7/15/2014 1:40:18 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.045		mg/Kg	1	7/15/2014 1:40:18 PM	R19893
Toluene	ND	0.045		mg/Kg	1	7/15/2014 1:40:18 PM	R19893
Ethylbenzene	ND	0.045		mg/Kg	1	7/15/2014 1:40:18 PM	R19893
Xylenes, Total	ND	0.091		mg/Kg	1	7/15/2014 1:40:18 PM	R19893
Surr: 4-Bromofluorobenzene	115	80-120		%REC	1	7/15/2014 1:40:18 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	120	30		mg/Kg	20	7/15/2014 1:27:53 PM	14229

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		

Analytical Report
Lab Order **1407619**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: East Wall 3-pt 6'-12'
Project: Mudge LS 7
Collection Date: 7/14/2014 3:29:00 PM
Lab ID: 1407619-004 **Matrix:** MEOH (SOIL) **Received Date:** 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	17	10		mg/Kg	1	7/15/2014 12:56:40 PM	14218
Surr: DNOP	90.7	57.9-140		%REC	1	7/15/2014 12:56:40 PM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.2		mg/Kg	1	7/15/2014 2:10:37 PM	R19893
Surr: BFB	106	80-120		%REC	1	7/15/2014 2:10:37 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.052		mg/Kg	1	7/15/2014 2:10:37 PM	R19893
Toluene	ND	0.052		mg/Kg	1	7/15/2014 2:10:37 PM	R19893
Ethylbenzene	ND	0.052		mg/Kg	1	7/15/2014 2:10:37 PM	R19893
Xylenes, Total	ND	0.10		mg/Kg	1	7/15/2014 2:10:37 PM	R19893
Surr: 4-Bromofluorobenzene	120	80-120	S	%REC	1	7/15/2014 2:10:37 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	290	30		mg/Kg	20	7/15/2014 1:40:17 PM	14229

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		

Analytical Report
Lab Order **1407619**
Date Reported: **7/18/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: North Wall 3-pt 6'-12'
Project: Mudge LS 7
Collection Date: 7/14/2014 3:31:00 PM
Lab ID: 1407619-005 **Matrix:** MEOH (SOIL) **Received Date:** 7/15/2014 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/15/2014 12:13:55 PM	14218
Surr: DNOP	86.4	57.9-140		%REC	1	7/15/2014 12:13:55 PM	14218
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.1		mg/Kg	1	7/15/2014 2:40:49 PM	R19893
Surr: BFB	101	80-120		%REC	1	7/15/2014 2:40:49 PM	R19893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.051		mg/Kg	1	7/15/2014 2:40:49 PM	R19893
Toluene	ND	0.051		mg/Kg	1	7/15/2014 2:40:49 PM	R19893
Ethylbenzene	ND	0.051		mg/Kg	1	7/15/2014 2:40:49 PM	R19893
Xylenes, Total	ND	0.10		mg/Kg	1	7/15/2014 2:40:49 PM	R19893
Surr: 4-Bromofluorobenzene	115	80-120		%REC	1	7/15/2014 2:40:49 PM	R19893
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	240	30		mg/Kg	20	7/15/2014 1:52:42 PM	14229

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#: **1407619**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14229**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14229**	RunNo:	**19915**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**578776**	Units:	**mg/Kg**			

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

Sample ID	**LCS-14229**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14229**	RunNo:	**19915**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**578777**	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
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#: **1407619**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14218**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14218**	RunNo:	**19870**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**577863**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	7.7		10.00		77.0	57.9	140			

Sample ID	**LCS-14218**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14218**	RunNo:	**19870**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/15/2014**	SeqNo:	**577864**	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	97.3	68.6	130			
Surr: DNOP	3.6		5.000		72.1	57.9	140			

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#: **1407619**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14213 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578416**	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	1000		1000		101	80	120			

Sample ID	**LCS-14213 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578417**	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	91.7	71.7	134			
Surr: BFB	1100		1000		113	80	120			

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#: **1407619**

18-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14213 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578456**	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	1.2		1.000		117	80	120			

Sample ID	**LCS-14213 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R19893**	RunNo:	**19893**					
Prep Date:		Analysis Date:	**7/15/2014**	SeqNo:	**578457**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.050	1.000	0	87.8	80	120			
Toluene	0.86	0.050	1.000	0	86.2	80	120			
Ethylbenzene	0.88	0.050	1.000	0	87.6	80	120			
Xylenes, Total	2.8	0.10	3.000	0	91.9	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	80	120			

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

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: 1407619 RcptNo: 1

Received by/date: 07/15/14

Logged By: Lindsay Mangin 7/15/2014 7:50:00 AM

Completed By: Lindsay Mangin 7/15/2014 8:17:27 AM

Reviewed By: 07/15/14

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			

Chain-of-Custody Record

Client: BLAGG ENGINEERING INC. / 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: ASAP SAME DAY
☐ Standard ☒ Rush ____
Project Name: MUDGE LS 7
Project #:
Project Manager: JEFF BLAGG
Sampler: JEFF BLAGG
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.9

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. 1407619	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)
7/14/14	1525	SOIL	BASE 5-pt @ 14'	4 oz x 1	COOL	-001	X		X									X	
"	1527	"	West Wall 3-pt 6'-12'	"	"	-002	X		X									X	
"	1528	"	South Wall 3-pt 6'-12'	"	"	-003	X		X									X	
"	1529	"	East Wall 3-pt 6'-12'	"	"	-004	X		X									X	
"	1531	"	North Wall 3-pt 6'-12'	"	"	-005	X		X									X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/14/14	1610	Jeff Blagg	Christine Walker	7/14/14	1610
7/14/14	1910	Christine Walker		07/15/14	0750

Remarks: BILL BP
PAYKEY: ZEVH01BGT2
BP 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

July 21, 2014

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1407706

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/16/2014 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 **1407706**
Date Reported: **7/21/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: TH-A 101' N8W@25'
Project: Mudge LS 7
Collection Date: 7/15/2014 9:45:00 AM
Lab ID: 1407706-001
Matrix: MEOH (SOIL)
Received Date: 7/16/2014 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst:	**BCN**
Diesel Range Organics (DRO)	67	10		mg/Kg	1	7/16/2014 1:49:46 PM	14245
Surr: DNOP	86.4	57.9-140		%REC	1	7/16/2014 1:49:46 PM	14245
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	51	21		mg/Kg	5	7/16/2014 2:08:42 PM	R19921
Surr: BFB	275	80-120	S	%REC	5	7/16/2014 2:08:42 PM	R19921
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.10		mg/Kg	5	7/16/2014 2:08:42 PM	R19921
Toluene	ND	0.21		mg/Kg	5	7/16/2014 2:08:42 PM	R19921
Ethylbenzene	ND	0.21		mg/Kg	5	7/16/2014 2:08:42 PM	R19921
Xylenes, Total	0.73	0.41		mg/Kg	5	7/16/2014 2:08:42 PM	R19921
Surr: 4-Bromofluorobenzene	140	80-120	S	%REC	5	7/16/2014 2:08:42 PM	R19921
EPA METHOD 300.0: ANIONS						Analyst:	**JRR**
Chloride	93	30		mg/Kg	20	7/16/2014 1:42:04 PM	14251

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		

Analytical Report
Lab Order **1407706**
Date Reported: **7/21/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering **Client Sample ID:** TH-B 41' N45E@30'
Project: Mudge LS 7 **Collection Date:** 7/15/2014 11:17:00 AM
Lab ID: 1407706-002 **Matrix:** MEOH (SOIL) **Received Date:** 7/16/2014 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/16/2014 2:20:44 PM	14245
Surr: DNOP	84.4	57.9-140		%REC	1	7/16/2014 2:20:44 PM	14245
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.0		mg/Kg	1	7/16/2014 11:37:38 AM	R19921
Surr: BFB	102	80-120		%REC	1	7/16/2014 11:37:38 AM	R19921

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

Analytical Report
Lab Order **1407706**
Date Reported: **7/21/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: TH-C 114' N17E@30'
Project: Mudge LS 7
Collection Date: 7/15/2014 12:08:00 PM
Lab ID: 1407706-003
Matrix: MEOH (SOIL)
Received Date: 7/16/2014 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/16/2014 2:51:44 PM	14245
Surr: DNOP	88.5	57.9-140		%REC	1	7/16/2014 2:51:44 PM	14245
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.5		mg/Kg	1	7/16/2014 12:07:47 PM	R19921
Surr: BFB	107	80-120		%REC	1	7/16/2014 12:07:47 PM	R19921

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

Analytical Report
Lab Order **1407706**
Date Reported: **7/21/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: West Wall 3-pt 8'-14'
Project: Mudge LS 7
Collection Date: 7/15/2014 11:30:00 AM
Lab ID: 1407706-004
Matrix: MEOH (SOIL)
Received Date: 7/16/2014 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	17	10		mg/Kg	1	7/16/2014 1:35:09 PM	14245
Surr: DNOP	103	57.9-140		%REC	1	7/16/2014 1:35:09 PM	14245
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/16/2014 1:08:19 PM	R19921
Surr: BFB	144	80-120	S	%REC	1	7/16/2014 1:08:19 PM	R19921
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2014 1:08:19 PM	R19921
Toluene	ND	0.049		mg/Kg	1	7/16/2014 1:08:19 PM	R19921
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2014 1:08:19 PM	R19921
Xylenes, Total	ND	0.099		mg/Kg	1	7/16/2014 1:08:19 PM	R19921
Surr: 4-Bromofluorobenzene	130	80-120	S	%REC	1	7/16/2014 1:08:19 PM	R19921
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	390	30		mg/Kg	20	7/16/2014 1:54:28 PM	14251

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		

Analytical Report
Lab Order **1407706**
Date Reported: **7/21/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: East Wall 3-pt 8'-14'
Project: Mudge LS 7
Collection Date: 7/15/2014 11:34:00 AM
Lab ID: 1407706-005 **Matrix:** MEOH (SOIL) **Received Date:** 7/16/2014 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/16/2014 1:56:22 PM	14245
Surr: DNOP	107	57.9-140		%REC	1	7/16/2014 1:56:22 PM	14245
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.4		mg/Kg	1	7/16/2014 1:38:33 PM	R19921
Surr: BFB	95.2	80-120		%REC	1	7/16/2014 1:38:33 PM	R19921
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.044		mg/Kg	1	7/16/2014 1:38:33 PM	R19921
Toluene	ND	0.044		mg/Kg	1	7/16/2014 1:38:33 PM	R19921
Ethylbenzene	ND	0.044		mg/Kg	1	7/16/2014 1:38:33 PM	R19921
Xylenes, Total	ND	0.088		mg/Kg	1	7/16/2014 1:38:33 PM	R19921
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	7/16/2014 1:38:33 PM	R19921
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	160	30		mg/Kg	20	7/16/2014 2:06:53 PM	14251

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#: **1407706**

21-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14251**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14251**	RunNo:	**19944**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/16/2014**	SeqNo:	**579600**	Units:	**mg/Kg**			

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

Sample ID	**LCS-14251**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14251**	RunNo:	**19944**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/16/2014**	SeqNo:	**579601**	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
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#: **1407706**

21-Jul-14

Client: Blagg Engineering
Project: Mudge LS 7

Sample ID	**MB-14245**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14245**	RunNo:	**19918**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/16/2014**	SeqNo:	**578836**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	9.2		10.00		91.5	57.9	140			

Sample ID	**LCS-14245**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14245**	RunNo:	**19918**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/16/2014**	SeqNo:	**578862**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	108	68.6	130			
Surr: DNOP	4.1		5.000		82.6	57.9	140			

Sample ID	**MB-14220**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14220**	RunNo:	**19942**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/18/2014**	SeqNo:	**580642**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.2	57.9	140			

Sample ID	**LCS-14220**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14220**	RunNo:	**19942**					
Prep Date:	**7/15/2014**	Analysis Date:	**7/18/2014**	SeqNo:	**580643**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.7	57.9	140			

Sample ID	**MB-14274**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14274**	RunNo:	**19943**					
Prep Date:	**7/17/2014**	Analysis Date:	**7/17/2014**	SeqNo:	**580659**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.7		10.00		76.8	57.9	140			

Sample ID	**LCS-14274**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14274**	RunNo:	**19943**					
Prep Date:	**7/17/2014**	Analysis Date:	**7/17/2014**	SeqNo:	**580660**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		77.7	57.9	140			

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#: **1407706**

21-Jul-14

Client: Blagg Engineering
Project: Mudge LS 7

Sample ID	**MB-14230 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R19921**	RunNo:	**19921**					
Prep Date:		Analysis Date:	**7/16/2014**	SeqNo:	**579280**	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	960		1000		95.7	80	120			

Sample ID	**LCS-14230 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R19921**	RunNo:	**19921**					
Prep Date:		Analysis Date:	**7/16/2014**	SeqNo:	**579286**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.1	71.7	134			
Surr: BFB	1000		1000		104	80	120			

Sample ID	**MB-14250 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R19948**	RunNo:	**19948**					
Prep Date:		Analysis Date:	**7/17/2014**	SeqNo:	**580277**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.9	80	120			

Sample ID	**LCS-14250 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R19948**	RunNo:	**19948**					
Prep Date:		Analysis Date:	**7/17/2014**	SeqNo:	**580278**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950		1000		95.1	80	120			

Sample ID	**MB-14250**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**14250**	RunNo:	**19948**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/17/2014**	SeqNo:	**580281**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.9	80	120			

Sample ID	**LCS-14250**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**14250**	RunNo:	**19948**					
Prep Date:	**7/16/2014**	Analysis Date:	**7/17/2014**	SeqNo:	**580282**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950		1000		95.1	80	120			

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#: **1407706**

21-Jul-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14230 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R19921**	RunNo:	**19921**					
Prep Date:		Analysis Date:	**7/16/2014**	SeqNo:	**579349**	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	**MB-14250 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R19948**	RunNo:	**19948**					
Prep Date:		Analysis Date:	**7/17/2014**	SeqNo:	**580348**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		100	80	120			

Sample ID	**LCS-14250 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R19948**	RunNo:	**19948**					
Prep Date:		Analysis Date:	**7/17/2014**	SeqNo:	**580349**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID	**LCS-14230 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R19921**	RunNo:	**19948**					
Prep Date:		Analysis Date:	**7/17/2014**	SeqNo:	**580359**	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	1.0	0.050	1.000	0	99.8	80	120			
Ethylbenzene	0.99	0.050	1.000	0	99.2	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

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

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: 1407706 | RcptNo: 1

Received by/date: CS 07/16/14

Logged By: **Celina Sessa** 7/16/2014 8:10:00 AM Celina Sessa

Completed By: **Celina Sessa** 7/16/2014 8:27:31 AM Celina Sessa

Reviewed By: AT 07/16/14

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

Chain-of-Custody Record

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)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: BY THURSDAY 7/17/2014
☐ Standard ☒ Rush
Project Name: MUDGE LS 7
Project #:
Project Manager: J. BLAGG
Sampler: J. BLAGG
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.4°

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
7/15/2014	0945	SOIL	TH-A 10'N8W@25'	4 oz x1	COOL	1407706-001	X		X									X				
"	1117	"	TH-B 41'N45E@30'	"	"	-002			X													
"	1208	"	TH-C 114'N17E@30'	"	"	-003			X													
"	1130	"	West Wall 3-pt 8'-14'	"	"	-004	X		X									X				
"	1134	"	East Wall 3-pt 8'-14'	"	"	-005	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/15/14	1540	Jeff Blagg	Christie Walker	7/15/14	1540
7/15/14	1800	Christie Walker	Celina Sena	07/16/14	0810

Remarks: BILL BLAGG

BP 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

August 01, 2014

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1407D64

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 3 sample(s) on 7/30/2014 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 **1407D64**
Date Reported: **8/1/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: NE Sidewall 5-pt 8'-19'
Project: Mudge LS 7
Collection Date: 7/29/2014 8:40:00 AM
Lab ID: 1407D64-001 **Matrix:** MEOH (SOIL) **Received Date:** 7/30/2014 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/30/2014 11:05:59 AM	14492
Surr: DNOP	85.1	57.9-140		%REC	1	7/30/2014 11:05:59 AM	14492
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.3		mg/Kg	1	7/30/2014 11:07:06 AM	R20250
Surr: BFB	82.8	80-120		%REC	1	7/30/2014 11:07:06 AM	R20250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.043		mg/Kg	1	7/30/2014 11:07:06 AM	R20250
Toluene	ND	0.043		mg/Kg	1	7/30/2014 11:07:06 AM	R20250
Ethylbenzene	ND	0.043		mg/Kg	1	7/30/2014 11:07:06 AM	R20250
Xylenes, Total	ND	0.086		mg/Kg	1	7/30/2014 11:07:06 AM	R20250
Surr: 4-Bromofluorobenzene	97.4	80-120		%REC	1	7/30/2014 11:07:06 AM	R20250
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	640	30		mg/Kg	20	7/30/2014 12:05:40 PM	14504

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		

Analytical Report
Lab Order **1407D64**
Date Reported: **8/1/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering **Client Sample ID:** NW Corner @ 19'
Project: Mudge LS 7 **Collection Date:** 7/29/2014 12:47:00 PM
Lab ID: 1407D64-002 **Matrix:** MEOH (SOIL) **Received Date:** 7/30/2014 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/30/2014 11:36:34 AM	14492
Surr: DNOP	97.3	57.9-140		%REC	1	7/30/2014 11:36:34 AM	14492
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/30/2014 11:37:17 AM	R20250
Surr: BFB	80.8	80-120		%REC	1	7/30/2014 11:37:17 AM	R20250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/30/2014 11:37:17 AM	R20250
Toluene	ND	0.048		mg/Kg	1	7/30/2014 11:37:17 AM	R20250
Ethylbenzene	ND	0.048		mg/Kg	1	7/30/2014 11:37:17 AM	R20250
Xylenes, Total	ND	0.095		mg/Kg	1	7/30/2014 11:37:17 AM	R20250
Surr: 4-Bromofluorobenzene	92.1	80-120		%REC	1	7/30/2014 11:37:17 AM	R20250
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	95	30		mg/Kg	20	7/30/2014 12:18:05 PM	14504

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		

Analytical Report
Lab Order **1407D64**
Date Reported: **8/1/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: W Sidewall 4-pt 9'-19'
Project: Mudge LS 7
Collection Date: 7/29/2014 2:20:00 PM
Lab ID: 1407D64-003 **Matrix:** MEOH (SOIL) **Received Date:** 7/30/2014 6:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	15	9.9		mg/Kg	1	7/30/2014 12:07:06 PM	14492
Surr: DNOP	97.3	57.9-140		%REC	1	7/30/2014 12:07:06 PM	14492
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/30/2014 12:07:22 PM	R20250
Surr: BFB	83.9	80-120		%REC	1	7/30/2014 12:07:22 PM	R20250
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/30/2014 12:07:22 PM	R20250
Toluene	ND	0.049		mg/Kg	1	7/30/2014 12:07:22 PM	R20250
Ethylbenzene	ND	0.049		mg/Kg	1	7/30/2014 12:07:22 PM	R20250
Xylenes, Total	ND	0.097		mg/Kg	1	7/30/2014 12:07:22 PM	R20250
Surr: 4-Bromofluorobenzene	97.0	80-120		%REC	1	7/30/2014 12:07:22 PM	R20250
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Chloride	340	30		mg/Kg	20	7/30/2014 12:30:30 PM	14504

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#: **1407D64**

01-Aug-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14504**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**14504**	RunNo:	**20271**					
Prep Date:	**7/30/2014**	Analysis Date:	**7/30/2014**	SeqNo:	**589099**	Units:	**mg/Kg**			

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

Sample ID	**LCS-14504**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**14504**	RunNo:	**20271**					
Prep Date:	**7/30/2014**	Analysis Date:	**7/30/2014**	SeqNo:	**589100**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

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#: **1407D64**

01-Aug-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14492**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**14492**	RunNo:	**20232**					
Prep Date:	**7/30/2014**	Analysis Date:	**7/30/2014**	SeqNo:	**588345**	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		102	57.9	140			

Sample ID	**LCS-14492**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**14492**	RunNo:	**20232**					
Prep Date:	**7/30/2014**	Analysis Date:	**7/30/2014**	SeqNo:	**588346**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.1	68.6	130			
Surr: DNOP	4.7		5.000		94.8	57.9	140			

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#: **1407D64**

01-Aug-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14473 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**R20250**	RunNo:	**20250**					
Prep Date:		Analysis Date:	**7/30/2014**	SeqNo:	**588721**	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	870		1000		87.0	80	120			

Sample ID	**LCS-14473 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**R20250**	RunNo:	**20250**					
Prep Date:		Analysis Date:	**7/30/2014**	SeqNo:	**588722**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.0	71.7	134			
Surr: BFB	980		1000		97.8	80	120			

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#: **1407D64**

01-Aug-14

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-14473 MK**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**R20250**	RunNo:	**20250**					
Prep Date:		Analysis Date:	**7/30/2014**	SeqNo:	**588740**	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	1.0		1.000		102	80	120			

Sample ID	**LCS-14473 MK**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**R20250**	RunNo:	**20250**					
Prep Date:		Analysis Date:	**7/30/2014**	SeqNo:	**588741**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.050	1.000	0	86.8	80	120			
Toluene	0.86	0.050	1.000	0	86.1	80	120			
Ethylbenzene	0.87	0.050	1.000	0	87.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.2	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Sample ID	**1407D64-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**NE Sidewall 5-pt 8'-**	Batch ID:	**R20250**	RunNo:	**20250**					
Prep Date:		Analysis Date:	**7/30/2014**	SeqNo:	**588744**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.043	0.8636	0	93.0	77.4	142	8.83	20	
Toluene	0.79	0.043	0.8636	0.01770	89.2	77	132	10.1	20	
Ethylbenzene	0.80	0.043	0.8636	0	93.0	77.6	134	9.39	20	
Xylenes, Total	2.6	0.086	2.591	0.04793	97.8	77.4	132	8.04	20	
Surr: 4-Bromofluorobenzene	0.87		0.8636		101	80	120	0	0	

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

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: 1407D64 RcptNo: 1

Received by/date: 07/30/14

Logged By: Lindsay Mangin 7/30/2014 6:45:00 AM

Completed By: Lindsay Mangin 7/30/2014 7:10:46 AM

Reviewed By: 07/30/14

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	2.4	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)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ASAP SAME DAY
☐ Standard ☒ Rush
Project Name: Mudge LS 7
Project #:
Project Manager: J. Blagg
Sampler: J. Blagg
On Ice: ☑ Yes ☐ No
Sample Temperature: 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 # (7/31/14 MeOH/Cl4)	Preservative Type	HEAL No. 1407D64	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)
7/29/14	0840	Soil	NE Sidewall 5-pt 8'-19'	4 oz x1	Cool	-001	X		X									X				
"	1247	"	NW Corner @ 19'	"	"	-002	X		X									X				
"	1420	"	W Sidewall 4-pt 9'-19'	"	"	-003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/29/2014	1507	Jeff Blagg	Christine Walker	7/29/2014	1507
7/29/14	1724	Christine Walker		07/30/14	0815

Remarks: Bill Blagg
BP 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.

Laboratory Reports
(2015 and 2016 Geoprobing)

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 20, 2015

Jeff Blagg

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

RE: Mudge LS #7 OrderNo.: 1507615

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 10 sample(s) on 7/15/2015 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 **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-1 23'-24'
Project: Mudge LS #7
Collection Date: 7/14/2015 9:15:00 AM
Lab ID: 1507615-001 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	100	9.8		mg/Kg	1	7/16/2015 9:54:02 AM	20275
Surr: DNOP	130	57.9-140		%REC	1	7/16/2015 9:54:02 AM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	40	4.8		mg/Kg	1	7/17/2015 5:39:38 PM	20268
Surr: BFB	431	75.4-113	S	%REC	1	7/17/2015 5:39:38 PM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/16/2015 10:29:20 AM	20268
Toluene	ND	0.048		mg/Kg	1	7/16/2015 10:29:20 AM	20268
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2015 10:29:20 AM	20268
Xylenes, Total	ND	0.097		mg/Kg	1	7/16/2015 10:29:20 AM	20268
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	7/16/2015 10:29:20 AM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-1 27'-28'
Project: Mudge LS #7
Collection Date: 7/14/2015 9:20:00 AM
Lab ID: 1507615-002 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	83	9.9		mg/Kg	1	7/16/2015 10:58:06 AM	20275
Surr: DNOP	119	57.9-140		%REC	1	7/16/2015 10:58:06 AM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	48	5.0		mg/Kg	1	7/17/2015 6:08:22 PM	20268
Surr: BFB	485	75.4-113	S	%REC	1	7/17/2015 6:08:22 PM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	7/16/2015 12:24:27 PM	20268
Toluene	ND	0.050		mg/Kg	1	7/16/2015 12:24:27 PM	20268
Ethylbenzene	ND	0.050		mg/Kg	1	7/16/2015 12:24:27 PM	20268
Xylenes, Total	ND	0.10		mg/Kg	1	7/16/2015 12:24:27 PM	20268
Surr: 4-Bromofluorobenzene	115	80-120		%REC	1	7/16/2015 12:24:27 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-1 31'-32'
Project: Mudge LS #7
Collection Date: 7/14/2015 9:25:00 AM
Lab ID: 1507615-003 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	27	9.8		mg/Kg	1	7/16/2015 11:19:36 AM	20275
Surr: DNOP	125	57.9-140		%REC	1	7/16/2015 11:19:36 AM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/17/2015 10:55:38 PM	20268
Surr: BFB	116	75.4-113	S	%REC	1	7/17/2015 10:55:38 PM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 2:19:32 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 2:19:32 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 2:19:32 PM	20268
Xylenes, Total	ND	0.098		mg/Kg	1	7/16/2015 2:19:32 PM	20268
Surr: 4-Bromofluorobenzene	98.1	80-120		%REC	1	7/16/2015 2:19:32 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-1 35'-36'
Project: Mudge LS #7
Collection Date: 7/14/2015 9:48:00 AM
Lab ID: 1507615-004 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	66	9.7		mg/Kg	1	7/16/2015 11:41:01 AM	20275
Surr: DNOP	105	57.9-140		%REC	1	7/16/2015 11:41:01 AM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	15	4.9		mg/Kg	1	7/17/2015 11:24:15 PM	20268
Surr: BFB	284	75.4-113	S	%REC	1	7/17/2015 11:24:15 PM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 2:48:16 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 2:48:16 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 2:48:16 PM	20268
Xylenes, Total	ND	0.098		mg/Kg	1	7/16/2015 2:48:16 PM	20268
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	7/16/2015 2:48:16 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-2 19'-20'
Project: Mudge LS #7
Collection Date: 7/14/2015 10:35:00 AM
Lab ID: 1507615-005 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/16/2015 12:02:28 PM	20275
Surr: DNOP	103	57.9-140		%REC	1	7/16/2015 12:02:28 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/17/2015 11:53:00 PM	20268
Surr: BFB	102	75.4-113		%REC	1	7/17/2015 11:53:00 PM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 3:16:58 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 3:16:58 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 3:16:58 PM	20268
Xylenes, Total	ND	0.098		mg/Kg	1	7/16/2015 3:16:58 PM	20268
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	7/16/2015 3:16:58 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-2 23'-24'
Project: Mudge LS #7
Collection Date: 7/14/2015 10:40:00 AM
Lab ID: 1507615-006 **Matrix:** SOIL **Received Date:** 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	27	10		mg/Kg	1	7/16/2015 12:23:48 PM	20275
Surr: DNOP	112	57.9-140		%REC	1	7/16/2015 12:23:48 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/18/2015 12:21:45 AM	20268
Surr: BFB	93.9	75.4-113		%REC	1	7/18/2015 12:21:45 AM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 3:45:49 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 3:45:49 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 3:45:49 PM	20268
Xylenes, Total	ND	0.098		mg/Kg	1	7/16/2015 3:45:49 PM	20268
Surr: 4-Bromofluorobenzene	97.0	80-120		%REC	1	7/16/2015 3:45:49 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-2 27'-28'
Project: Mudge LS #7
Collection Date: 7/14/2015 10:45:00 AM
Lab ID: 1507615-007
Matrix: SOIL
Received Date: 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	97	9.5		mg/Kg	1	7/16/2015 12:45:17 PM	20275
Surr: DNOP	116	57.9-140		%REC	1	7/16/2015 12:45:17 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/18/2015 12:50:30 AM	20268
Surr: BFB	93.7	75.4-113		%REC	1	7/18/2015 12:50:30 AM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	7/16/2015 4:14:35 PM	20268
Toluene	ND	0.047		mg/Kg	1	7/16/2015 4:14:35 PM	20268
Ethylbenzene	ND	0.047		mg/Kg	1	7/16/2015 4:14:35 PM	20268
Xylenes, Total	ND	0.095		mg/Kg	1	7/16/2015 4:14:35 PM	20268
Surr: 4-Bromofluorobenzene	95.9	80-120		%REC	1	7/16/2015 4:14:35 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-2 31'-32'
Project: Mudge LS #7
Collection Date: 7/14/2015 10:50:00 AM
Lab ID: 1507615-008
Matrix: SOIL
Received Date: 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	56	10		mg/Kg	1	7/16/2015 1:06:43 PM	20275
Surr: DNOP	121	57.9-140		%REC	1	7/16/2015 1:06:43 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/18/2015 1:19:13 AM	20268
Surr: BFB	91.2	75.4-113		%REC	1	7/18/2015 1:19:13 AM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 4:43:26 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 4:43:26 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 4:43:26 PM	20268
Xylenes, Total	ND	0.097		mg/Kg	1	7/16/2015 4:43:26 PM	20268
Surr: 4-Bromofluorobenzene	95.4	80-120		%REC	1	7/16/2015 4:43:26 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-2 35'-36'
Project: Mudge LS #7
Collection Date: 7/14/2015 10:55:00 AM
Lab ID: 1507615-009
Matrix: SOIL
Received Date: 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	14	9.8		mg/Kg	1	7/16/2015 1:28:10 PM	20275
Surr: DNOP	105	57.9-140		%REC	1	7/16/2015 1:28:10 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/18/2015 1:47:54 AM	20268
Surr: BFB	94.2	75.4-113		%REC	1	7/18/2015 1:47:54 AM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/16/2015 5:12:13 PM	20268
Toluene	ND	0.048		mg/Kg	1	7/16/2015 5:12:13 PM	20268
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2015 5:12:13 PM	20268
Xylenes, Total	ND	0.096		mg/Kg	1	7/16/2015 5:12:13 PM	20268
Surr: 4-Bromofluorobenzene	96.1	80-120		%REC	1	7/16/2015 5:12:13 PM	20268

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		

Analytical Report
Lab Order **1507615**
Date Reported: **7/20/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-1A 19'-20'
Project: Mudge LS #7
Collection Date: 7/14/2015 11:45:00 AM
Lab ID: 1507615-010
Matrix: SOIL
Received Date: 7/15/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/16/2015 1:49:28 PM	20275
Surr: DNOP	109	57.9-140		%REC	1	7/16/2015 1:49:28 PM	20275
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/18/2015 2:16:38 AM	20268
Surr: BFB	92.4	75.4-113		%REC	1	7/18/2015 2:16:38 AM	20268
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/16/2015 5:40:58 PM	20268
Toluene	ND	0.049		mg/Kg	1	7/16/2015 5:40:58 PM	20268
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2015 5:40:58 PM	20268
Xylenes, Total	ND	0.099		mg/Kg	1	7/16/2015 5:40:58 PM	20268
Surr: 4-Bromofluorobenzene	98.4	80-120		%REC	1	7/16/2015 5:40:58 PM	20268

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#: **1507615**

20-Jul-15

Client: Blagg Engineering

Project: Mudge LS #7

Sample ID	**MB-20275**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**20275**	RunNo:	**27541**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/16/2015**	SeqNo:	**826968**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	11		10.00		113	57.9	140			

Sample ID	**LCS-20275**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**20275**	RunNo:	**27541**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/16/2015**	SeqNo:	**826969**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	10	50.00	0	124	57.4	139			
Surr: DNOP	5.6		5.000		113	57.9	140			

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#: **1507615**

20-Jul-15

Client: Blagg Engineering
Project: Mudge LS #7

Sample ID	**MB-20268**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**20268**	RunNo:	**27583**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/17/2015**	SeqNo:	**828147**	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	950		1000		94.8	75.4	113			

Sample ID	**LCS-20268**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**20268**	RunNo:	**27583**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/17/2015**	SeqNo:	**828148**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	114	64	130			
Surr: BFB	1100		1000		114	75.4	113			S

Sample ID	**MB-20287**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**20287**	RunNo:	**27583**					
Prep Date:	**7/16/2015**	Analysis Date:	**7/18/2015**	SeqNo:	**828161**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		91.5	75.4	113			

Sample ID	**LCS-20287**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**20287**	RunNo:	**27583**					
Prep Date:	**7/16/2015**	Analysis Date:	**7/18/2015**	SeqNo:	**828162**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		101	75.4	113			

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#: **1507615**

20-Jul-15

Client: Blagg Engineering
Project: Mudge LS #7

Sample ID	**MB-20268**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**20268**	RunNo:	**27554**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/16/2015**	SeqNo:	**827291**	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	0.98		1.000		97.7	80	120			

Sample ID	**LCS-20268**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**20268**	RunNo:	**27554**					
Prep Date:	**7/15/2015**	Analysis Date:	**7/16/2015**	SeqNo:	**827292**	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	76.6	128			
Toluene	1.0	0.050	1.000	0	99.7	75	124			
Ethylbenzene	1.0	0.050	1.000	0	103	79.5	126			
Xylenes, Total	3.1	0.10	3.000	0	104	78.8	124			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID	**MB-20287**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**20287**	RunNo:	**27583**					
Prep Date:	**7/16/2015**	Analysis Date:	**7/18/2015**	SeqNo:	**828197**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		98.7	80	120			

Sample ID	**LCS-20287**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**20287**	RunNo:	**27583**					
Prep Date:	**7/16/2015**	Analysis Date:	**7/18/2015**	SeqNo:	**828198**	Units:	**%REC**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		105	80	120			

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

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: 1507615 | RcptNo: 1

Received by/date: 07/15/15

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

Completed By: Lindsay Mangin 7/15/2015 8:37:41 AM

Reviewed By: CS 07/15/15

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 ☐	
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	1.1	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: MUDGE LS #7

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.1

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. 1507d15	BTEX + ~~MTBE + TMBs~~ (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)	Total Dissolved Solids	Iron, Ferrous (filtered)	Nitrate N / Nitrite N			Grab sample	5 pt. composite sample	Air Bubbles (Y or N)
7/14/15	0915	SOIL	GP-1 23'-24'	4oz - 1	Cool	-001	✓		✓													
7/14/15	0920	SOIL	GP-1 27'-28'	4oz - 1	Cool	-002	✓		✓													
7/14/15	0925	SOIL	GP-1 31'-32'	4oz - 1	Cool	-003	✓		✓													
7/14/15	0948	SOIL	GP-1 35'-36'	4oz - 1	Cool	-004	✓		✓													
7/14/15	1035	SOIL	GP-2 19'-20'	4oz - 1	Cool	-005	✓		✓													
7/14/15	1040	SOIL	GP-2 23'-24'	4oz - 1	Cool	-006	✓		✓													
7/14/15	1045	SOIL	GP-2 27'-28'	4oz - 1	Cool	-007	✓		✓													
7/14/15	1050	SOIL	GP-2 31'-32'	4oz - 1	Cool	-008	✓		✓													
7/14/15	1055	SOIL	GP-2 35'-36'	4oz - 1	Cool	-009	✓		✓													
7/14/15	1145	SOIL	GP-1A 19'-20'	4oz - 1	Cool	-010	✓		✓													

Analysis Request

Remarks: GRO & DRO ONLY - 80158.

BILL DIRECTLY TO BP:
Jeff Peace, 200 Energy Court, Farmington, NM 87401

Paykey: ZEVH01REME

Date:	Time:	Relinquished by:	Received by:	Date	Time
7/14/15	1400			07/15/15	0700
Date:	Time:	Relinquished by:	Received by:	Date	Time

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 19, 2016

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1610689

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/14/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 **1610689**
Date Reported: **10/19/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP3 @ 23'-24'
Project: Mudge LS 7
Collection Date: 10/13/2016 9:15:00 AM
Lab ID: 1610689-001
Matrix: SOIL
Received Date: 10/14/2016 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	31	10		mg/Kg	1	10/17/2016 7:27:11 PM	28076
Surr: DNOP	94.6	70-130		%Rec	1	10/17/2016 7:27:11 PM	28076
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2016 3:41:49 PM	28072
Surr: BFB	153	68.3-144	S	%Rec	1	10/18/2016 3:41:49 PM	28072

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

Qualifiers:

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

Analytical Report
Lab Order **1610689**
Date Reported: **10/19/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP3 @ 27'-28'
Project: Mudge LS 7
Collection Date: 10/13/2016 9:19:00 AM
Lab ID: 1610689-002 **Matrix:** SOIL **Received Date:** 10/14/2016 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	45	9.4		mg/Kg	1	10/17/2016 7:48:43 PM	28076
Surr: DNOP	93.0	70-130		%Rec	1	10/17/2016 7:48:43 PM	28076
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.0	4.8		mg/Kg	1	10/18/2016 4:54:03 PM	28072
Surr: BFB	168	68.3-144	S	%Rec	1	10/18/2016 4:54:03 PM	28072

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610689**

19-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**LCS-28085**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**28085**		RunNo:	**37982**				
Prep Date:	**10/17/2016**	Analysis Date:	**10/17/2016**		SeqNo:	**1183862**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.5	70	130			

Sample ID	**MB-28085**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**28085**		RunNo:	**37982**				
Prep Date:	**10/17/2016**	Analysis Date:	**10/17/2016**		SeqNo:	**1183863**	Units:	**%Rec**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		89.5	70	130			

Sample ID	**MB-28076**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**28076**		RunNo:	**37981**				
Prep Date:	**10/14/2016**	Analysis Date:	**10/17/2016**		SeqNo:	**1184449**	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	8.6		10.00		85.7	70	130			

Sample ID	**LCS-28076**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**28076**		RunNo:	**38007**				
Prep Date:	**10/14/2016**	Analysis Date:	**10/18/2016**		SeqNo:	**1184792**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.2	62.6	124			
Surr: DNOP	4.4		5.000		88.8	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610689**

19-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-28072**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**28072**	RunNo:	**38021**					
Prep Date:	**10/14/2016**	Analysis Date:	**10/18/2016**	SeqNo:	**1185981**	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		84.1	68.3	144			

Sample ID	**LCS-28072**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**28072**	RunNo:	**38021**					
Prep Date:	**10/14/2016**	Analysis Date:	**10/18/2016**	SeqNo:	**1185995**	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	106	74.6	123			
Surr: BFB	930		1000		92.8	68.3	144			

Qualifiers:

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

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: 1610689 RcptNo: 1

Received by/date: 10/14/16

Logged By: Ashley Gallegos 10/14/2016 7:15:00 AM

Completed By: Ashley Gallegos 10/14/2016 9:13:14 AM

Reviewed By: 10/14/16

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			

Chain-of-Custody Record

Client: BLAGG ENGR. / 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)

Accreditation
☐ NELAP ☐ Other ______

☐ EDD (Type) ______

Turn-Around Time:
☒ Standard ☐ Rush ______

Project Name: MUDGE LS #7

Project #:

Project Manager: JEFF BLAGG

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.8

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. 1610089	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)				GRAB SAMPLE	Air Bubbles (Y or N)
10/13/16	0915	SOIL	GP3 @ 23'-24'	4oz.-1	COOL	-001			✓												✓	
10/13/16	0919	SOIL	GP3 @ 27'-28'	4oz.-1	COOL	-002			✓												✓	

Date	Time	Relinquished by	Received by	Date	Time
10/13/16	1518	[signature]	[signature]	10/13/16	1518
10/13/16	2040	[signature]	[signature]	10/14/16	0715

Remarks: TPH (GRO & DRO ONLY).
BILL DIRECTLY TO BP CONTACT: STEVE MOSKAL + JOHN RITCHIE
PAYKEY: VORIKLWJA1 ~~VDRINKJLOA1~~ gw

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 28, 2016

Jeff Blagg

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

RE: Mudge LS 7 OrderNo.: 1610842

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 7 sample(s) on 10/18/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-4 @ 19'-20'
Project: Mudge LS 7
Collection Date: 10/13/2016 10:20:00 AM
Lab ID: 1610842-001 **Matrix:** SOIL **Received Date:** 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	57	30		mg/Kg	20	10/26/2016 7:28:24 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/20/2016 9:37:18 AM	28168
Surr: DNOP	85.2	70-130		%Rec	1	10/20/2016 9:37:18 AM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2016 11:14:39 AM	28132
Surr: BFB	84.5	68.3-144		%Rec	1	10/19/2016 11:14:39 AM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	10/19/2016 11:14:39 AM	28132
Toluene	ND	0.049		mg/Kg	1	10/19/2016 11:14:39 AM	28132
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2016 11:14:39 AM	28132
Xylenes, Total	ND	0.098		mg/Kg	1	10/19/2016 11:14:39 AM	28132
Surr: 4-Bromofluorobenzene	98.0	80-120		%Rec	1	10/19/2016 11:14:39 AM	28132

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

Qualifiers:

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-4 @ 23'-24'
Project: Mudge LS 7
Collection Date: 10/13/2016 10:25:00 AM
Lab ID: 1610842-002 **Matrix:** SOIL **Received Date:** 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	500	30		mg/Kg	20	10/26/2016 8:05:39 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	220	10		mg/Kg	1	10/20/2016 9:58:39 AM	28168
Surr: DNOP	86.2	70-130		%Rec	1	10/20/2016 9:58:39 AM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	23	D	mg/Kg	5	10/19/2016 12:27:42 PM	28132
Surr: BFB	97.7	68.3-144	D	%Rec	5	10/19/2016 12:27:42 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.12	D	mg/Kg	5	10/19/2016 12:27:42 PM	28132
Toluene	ND	0.23	D	mg/Kg	5	10/19/2016 12:27:42 PM	28132
Ethylbenzene	ND	0.23	D	mg/Kg	5	10/19/2016 12:27:42 PM	28132
Xylenes, Total	ND	0.47	D	mg/Kg	5	10/19/2016 12:27:42 PM	28132
Surr: 4-Bromofluorobenzene	100	80-120	D	%Rec	5	10/19/2016 12:27:42 PM	28132

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

Qualifiers:

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge LS 7
Lab ID: 1610842-003 **Matrix:** SOIL

Client Sample ID: GP-4 @ 31'-32'
Collection Date: 10/13/2016 10:31:00 AM
Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	230	30		mg/Kg	20	10/26/2016 8:18:03 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	10/20/2016 10:20:15 AM	28168
Surr: DNOP	88.9	70-130		%Rec	1	10/20/2016 10:20:15 AM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2016 1:40:18 PM	28132
Surr: BFB	87.8	68.3-144		%Rec	1	10/19/2016 1:40:18 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/19/2016 1:40:18 PM	28132
Toluene	ND	0.049		mg/Kg	1	10/19/2016 1:40:18 PM	28132
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2016 1:40:18 PM	28132
Xylenes, Total	ND	0.098		mg/Kg	1	10/19/2016 1:40:18 PM	28132
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	10/19/2016 1:40:18 PM	28132

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

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-5 @ 19'-20'
Project: Mudge LS 7
Collection Date: 10/13/2016 12:27:00 PM
Lab ID: 1610842-004 **Matrix:** SOIL **Received Date:** 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	180	30		mg/Kg	20	10/26/2016 8:30:28 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/20/2016 10:41:50 AM	28168
Surr: DNOP	87.2	70-130		%Rec	1	10/20/2016 10:41:50 AM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/19/2016 2:04:29 PM	28132
Surr: BFB	89.5	68.3-144		%Rec	1	10/19/2016 2:04:29 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/19/2016 2:04:29 PM	28132
Toluene	ND	0.047		mg/Kg	1	10/19/2016 2:04:29 PM	28132
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2016 2:04:29 PM	28132
Xylenes, Total	ND	0.095		mg/Kg	1	10/19/2016 2:04:29 PM	28132
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	10/19/2016 2:04:29 PM	28132

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

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-5 @ 35'-36'
Project: Mudge LS 7
Collection Date: 10/13/2016 1:47:00 PM
Lab ID: 1610842-005 **Matrix:** SOIL **Received Date:** 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	10/26/2016 9:07:43 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/20/2016 1:56:07 PM	28168
Surr: DNOP	84.1	70-130		%Rec	1	10/20/2016 1:56:07 PM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/19/2016 2:28:39 PM	28132
Surr: BFB	85.2	68.3-144		%Rec	1	10/19/2016 2:28:39 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	10/19/2016 2:28:39 PM	28132
Toluene	ND	0.046		mg/Kg	1	10/19/2016 2:28:39 PM	28132
Ethylbenzene	ND	0.046		mg/Kg	1	10/19/2016 2:28:39 PM	28132
Xylenes, Total	ND	0.092		mg/Kg	1	10/19/2016 2:28:39 PM	28132
Surr: 4-Bromofluorobenzene	98.6	80-120		%Rec	1	10/19/2016 2:28:39 PM	28132

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

Qualifiers:

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: GP-6 @ 23'-24'
Project: Mudge LS 7
Collection Date: 10/13/2016 2:28:00 PM
Lab ID: 1610842-006 **Matrix:** SOIL **Received Date:** 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	500	30		mg/Kg	20	10/26/2016 9:20:07 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/20/2016 2:17:58 PM	28168
Surr: DNOP	83.9	70-130		%Rec	1	10/20/2016 2:17:58 PM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2016 2:53:06 PM	28132
Surr: BFB	84.9	68.3-144		%Rec	1	10/19/2016 2:53:06 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/19/2016 2:53:06 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 2:53:06 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 2:53:06 PM	28132
Xylenes, Total	ND	0.095		mg/Kg	1	10/19/2016 2:53:06 PM	28132
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	10/19/2016 2:53:06 PM	28132

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

Qualifiers:

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

Analytical Report
Lab Order **1610842**
Date Reported: **10/28/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge LS 7
Lab ID: 1610842-007 **Matrix:** SOIL

Client Sample ID: GP-6 @ 31'-32'
Collection Date: 10/13/2016 2:35:00 PM
Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	260	30		mg/Kg	20	10/26/2016 9:32:32 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/20/2016 2:39:34 PM	28168
Surr: DNOP	80.6	70-130		%Rec	1	10/20/2016 2:39:34 PM	28168
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2016 3:17:36 PM	28132
Surr: BFB	87.9	68.3-144		%Rec	1	10/19/2016 3:17:36 PM	28132
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	10/19/2016 3:17:36 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 3:17:36 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 3:17:36 PM	28132
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2016 3:17:36 PM	28132
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	10/19/2016 3:17:36 PM	28132

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610842**

28-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-28282**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**28282**	RunNo:	**38270**					
Prep Date:	**10/25/2016**	Analysis Date:	**10/26/2016**	SeqNo:	**1194409**	Units:	**mg/Kg**			

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

Sample ID	**LCS-28282**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**28282**	RunNo:	**38270**					
Prep Date:	**10/25/2016**	Analysis Date:	**10/26/2016**	SeqNo:	**1194410**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610842**

28-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-28168**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**28168**	RunNo:	**38067**					
Prep Date:	**10/19/2016**	Analysis Date:	**10/20/2016**	SeqNo:	**1187499**	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	8.7		10.00		86.6	70	130			

Sample ID	**LCS-28168**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**28168**	RunNo:	**38067**					
Prep Date:	**10/19/2016**	Analysis Date:	**10/20/2016**	SeqNo:	**1188812**	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	62.6	124			
Surr: DNOP	4.3		5.000		86.8	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610842**

28-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-28132**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**28132**	RunNo:	**38052**					
Prep Date:	**10/18/2016**	Analysis Date:	**10/19/2016**	SeqNo:	**1186959**	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	910		1000		91.1	68.3	144			

Sample ID	**LCS-28132**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**28132**	RunNo:	**38052**					
Prep Date:	**10/18/2016**	Analysis Date:	**10/19/2016**	SeqNo:	**1186960**	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	107	74.6	123			
Surr: BFB	950		1000		94.9	68.3	144			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610842**

28-Oct-16

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-28132**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**28132**	RunNo:	**38052**					
Prep Date:	**10/18/2016**	Analysis Date:	**10/19/2016**	SeqNo:	**1187007**	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		106	80	120			

Sample ID	**LCS-28132**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**28132**	RunNo:	**38052**					
Prep Date:	**10/18/2016**	Analysis Date:	**10/19/2016**	SeqNo:	**1187008**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.1	75.2	115			
Toluene	0.85	0.050	1.000	0	85.1	80.7	112			
Ethylbenzene	0.86	0.050	1.000	0	85.8	78.9	117			
Xylenes, Total	2.7	0.10	3.000	0	90.1	79.2	115			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1610842 RcptNo: 1

Received by/date: AT 10/18/16

Logged By: Anne Thorne 10/18/2016 8:00:00 AM Anne Thorne

Completed By: Anne Thorne 10/18/2016 Anne Thorne

Reviewed By: JC 10/18/16

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	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: Mudge LS 7

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. 1606842	BTEX (8021)		TPH 8015B (GRO / DRO)								Chloride		
							Analysis Request												
10/13/2016	10:20	Soil	GP-4 @ 19' - 20'	4oz x 1	Cool	001	x		x								x		
10/13/2016	10:25	Soil	GP-4 @ 23' - 24'	4oz x 1	Cool	002	x		x								x		
10/13/2016	10:31	Soil	GP-4 @ 31' - 32'	4oz x 1	Cool	003	x		x								x		
10/13/2016	12:27	Soil	GP-5 @ 19' - 20'	4oz x 1	Cool	004	x		x								x		
10/13/2016	13:47	Soil	GP-5 @ 35' - 36'	4oz x 1	Cool	005	x		x								x		
10/13/2016	14:28	Soil	GP-6 @ 23' - 24'	4oz x 1	Cool	006	x		x								x		
10/13/2016	14:35	Soil	GP-6 @ 31' - 32'	4oz x 1	Cool	007	x		x								x		

Date	Time	Relinquished by	Received by	Date	Time
10/17/2016	1136			10/17/16	1136
10/17/16	1840			10/18/16	0800

Remarks: Bill BP
Contact: John Ritchie
VID: VDRINKWJA1
WBS Element: L1-00136-E:MUDGELS7

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.

Laboratory Reports
Final Closure Boring Sampling

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 27, 2018

Steve Moskal

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

RE: Mudge LS 7 OrderNo.: 1802805

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 20 sample(s) on 2/14/2018 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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-15 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/12/2018 12:43:00 PM
Lab ID: 1802805-001 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	210	30		mg/Kg	20	2/20/2018 1:24:51 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/16/2018 1:09:52 PM	36549
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/16/2018 1:09:52 PM	36549
Surr: DNOP	116	70-130		%Rec	1	2/16/2018 1:09:52 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/15/2018 7:26:57 PM	36533
Surr: BFB	83.7	15-316		%Rec	1	2/15/2018 7:26:57 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/15/2018 7:26:57 PM	36533
Toluene	ND	0.049		mg/Kg	1	2/15/2018 7:26:57 PM	36533
Ethylbenzene	ND	0.049		mg/Kg	1	2/15/2018 7:26:57 PM	36533
Xylenes, Total	ND	0.097		mg/Kg	1	2/15/2018 7:26:57 PM	36533
Surr: 4-Bromofluorobenzene	90.0	80-120		%Rec	1	2/15/2018 7:26:57 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-15 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/12/2018 12:58:00 PM
Lab ID: 1802805-002 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	33	30		mg/Kg	20	2/20/2018 1:37:15 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 2:15:40 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 2:15:40 PM	36549
Surr: DNOP	103	70-130		%Rec	1	2/16/2018 2:15:40 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/15/2018 7:50:25 PM	36533
Surr: BFB	92.1	15-316		%Rec	1	2/15/2018 7:50:25 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	2/15/2018 7:50:25 PM	36533
Toluene	ND	0.047		mg/Kg	1	2/15/2018 7:50:25 PM	36533
Ethylbenzene	ND	0.047		mg/Kg	1	2/15/2018 7:50:25 PM	36533
Xylenes, Total	ND	0.095		mg/Kg	1	2/15/2018 7:50:25 PM	36533
Surr: 4-Bromofluorobenzene	91.1	80-120		%Rec	1	2/15/2018 7:50:25 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-5 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/12/2018 3:00:00 PM
Lab ID: 1802805-003 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	300	30		mg/Kg	20	2/20/2018 1:49:40 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 2:37:45 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 2:37:45 PM	36549
Surr: DNOP	108	70-130		%Rec	1	2/16/2018 2:37:45 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/15/2018 8:13:46 PM	36533
Surr: BFB	87.6	15-316		%Rec	1	2/15/2018 8:13:46 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/15/2018 8:13:46 PM	36533
Toluene	ND	0.048		mg/Kg	1	2/15/2018 8:13:46 PM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/15/2018 8:13:46 PM	36533
Xylenes, Total	ND	0.096		mg/Kg	1	2/15/2018 8:13:46 PM	36533
Surr: 4-Bromofluorobenzene	87.5	80-120		%Rec	1	2/15/2018 8:13:46 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-5 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/12/2018 3:15:00 PM
Lab ID: 1802805-004 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	130	30		mg/Kg	20	2/20/2018 2:02:04 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/16/2018 2:59:50 PM	36549
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 2:59:50 PM	36549
Surr: DNOP	104	70-130		%Rec	1	2/16/2018 2:59:50 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/15/2018 8:37:15 PM	36533
Surr: BFB	91.1	15-316		%Rec	1	2/15/2018 8:37:15 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	2/15/2018 8:37:15 PM	36533
Toluene	ND	0.050		mg/Kg	1	2/15/2018 8:37:15 PM	36533
Ethylbenzene	ND	0.050		mg/Kg	1	2/15/2018 8:37:15 PM	36533
Xylenes, Total	ND	0.10		mg/Kg	1	2/15/2018 8:37:15 PM	36533
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	2/15/2018 8:37:15 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-7 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/12/2018 1:50:00 PM
Lab ID: 1802805-005 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	140	30		mg/Kg	20	2/20/2018 2:14:29 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	14	9.3		mg/Kg	1	2/16/2018 3:21:46 PM	36549
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2018 3:21:46 PM	36549
Surr: DNOP	117	70-130		%Rec	1	2/16/2018 3:21:46 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/15/2018 9:00:33 PM	36533
Surr: BFB	91.1	15-316		%Rec	1	2/15/2018 9:00:33 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	2/15/2018 9:00:33 PM	36533
Toluene	ND	0.050		mg/Kg	1	2/15/2018 9:00:33 PM	36533
Ethylbenzene	ND	0.050		mg/Kg	1	2/15/2018 9:00:33 PM	36533
Xylenes, Total	ND	0.099		mg/Kg	1	2/15/2018 9:00:33 PM	36533
Surr: 4-Bromofluorobenzene	89.5	80-120		%Rec	1	2/15/2018 9:00:33 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-7 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/12/2018 2:05:00 PM
Lab ID: 1802805-006 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	32	30		mg/Kg	20	2/20/2018 2:26:53 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/16/2018 3:43:41 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 3:43:41 PM	36549
Surr: DNOP	104	70-130		%Rec	1	2/16/2018 3:43:41 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/15/2018 9:23:57 PM	36533
Surr: BFB	88.6	15-316		%Rec	1	2/15/2018 9:23:57 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/15/2018 9:23:57 PM	36533
Toluene	ND	0.047		mg/Kg	1	2/15/2018 9:23:57 PM	36533
Ethylbenzene	ND	0.047		mg/Kg	1	2/15/2018 9:23:57 PM	36533
Xylenes, Total	ND	0.095		mg/Kg	1	2/15/2018 9:23:57 PM	36533
Surr: 4-Bromofluorobenzene	92.1	80-120		%Rec	1	2/15/2018 9:23:57 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-13 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 8:56:00 AM
Lab ID: 1802805-007 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	220	30		mg/Kg	20	2/20/2018 2:39:18 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	37	9.8		mg/Kg	1	2/16/2018 4:05:48 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 4:05:48 PM	36549
Surr: DNOP	105	70-130		%Rec	1	2/16/2018 4:05:48 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	23	D	mg/Kg	5	2/15/2018 9:47:12 PM	36533
Surr: BFB	102	15-316	D	%Rec	5	2/15/2018 9:47:12 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.12	D	mg/Kg	5	2/15/2018 9:47:12 PM	36533
Toluene	ND	0.23	D	mg/Kg	5	2/15/2018 9:47:12 PM	36533
Ethylbenzene	ND	0.23	D	mg/Kg	5	2/15/2018 9:47:12 PM	36533
Xylenes, Total	ND	0.46	D	mg/Kg	5	2/15/2018 9:47:12 PM	36533
Surr: 4-Bromofluorobenzene	92.4	80-120	D	%Rec	5	2/15/2018 9:47:12 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-13 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 9:12:00 AM
Lab ID: 1802805-008 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	33	30		mg/Kg	20	2/20/2018 2:51:43 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/16/2018 4:27:44 PM	36549
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2018 4:27:44 PM	36549
Surr: DNOP	98.1	70-130		%Rec	1	2/16/2018 4:27:44 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/15/2018 10:10:35 PM	36533
Surr: BFB	91.6	15-316		%Rec	1	2/15/2018 10:10:35 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	2/15/2018 10:10:35 PM	36533
Toluene	ND	0.046		mg/Kg	1	2/15/2018 10:10:35 PM	36533
Ethylbenzene	ND	0.046		mg/Kg	1	2/15/2018 10:10:35 PM	36533
Xylenes, Total	ND	0.093		mg/Kg	1	2/15/2018 10:10:35 PM	36533
Surr: 4-Bromofluorobenzene	91.4	80-120		%Rec	1	2/15/2018 10:10:35 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-14 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 10:09:00 AM
Lab ID: 1802805-009 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	210	30		mg/Kg	20	2/20/2018 3:28:58 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/16/2018 4:49:58 PM	36549
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 4:49:58 PM	36549
Surr: DNOP	118	70-130		%Rec	1	2/16/2018 4:49:58 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/15/2018 10:33:56 PM	36533
Surr: BFB	90.7	15-316		%Rec	1	2/15/2018 10:33:56 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	2/15/2018 10:33:56 PM	36533
Toluene	ND	0.047		mg/Kg	1	2/15/2018 10:33:56 PM	36533
Ethylbenzene	ND	0.047		mg/Kg	1	2/15/2018 10:33:56 PM	36533
Xylenes, Total	ND	0.093		mg/Kg	1	2/15/2018 10:33:56 PM	36533
Surr: 4-Bromofluorobenzene	89.0	80-120		%Rec	1	2/15/2018 10:33:56 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-14 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 10:22:00 AM
Lab ID: 1802805-010 **Matrix:** SOIL **Received Date:** 2/14/2018 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	2/20/2018 3:41:22 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 5:11:52 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 5:11:52 PM	36549
Surr: DNOP	103	70-130		%Rec	1	2/16/2018 5:11:52 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/15/2018 10:57:20 PM	36533
Surr: BFB	89.9	15-316		%Rec	1	2/15/2018 10:57:20 PM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	2/15/2018 10:57:20 PM	36533
Toluene	ND	0.047		mg/Kg	1	2/15/2018 10:57:20 PM	36533
Ethylbenzene	ND	0.047		mg/Kg	1	2/15/2018 10:57:20 PM	36533
Xylenes, Total	ND	0.095		mg/Kg	1	2/15/2018 10:57:20 PM	36533
Surr: 4-Bromofluorobenzene	88.8	80-120		%Rec	1	2/15/2018 10:57:20 PM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-4 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 11:08:00 AM
Lab ID: 1802805-011 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	310	30		mg/Kg	20	2/20/2018 3:53:47 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/16/2018 5:33:50 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 5:33:50 PM	36549
Surr: DNOP	94.7	70-130		%Rec	1	2/16/2018 5:33:50 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/16/2018 12:30:40 AM	36533
Surr: BFB	90.2	15-316		%Rec	1	2/16/2018 12:30:40 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	2/16/2018 12:30:40 AM	36533
Toluene	ND	0.050		mg/Kg	1	2/16/2018 12:30:40 AM	36533
Ethylbenzene	ND	0.050		mg/Kg	1	2/16/2018 12:30:40 AM	36533
Xylenes, Total	ND	0.10		mg/Kg	1	2/16/2018 12:30:40 AM	36533
Surr: 4-Bromofluorobenzene	92.4	80-120		%Rec	1	2/16/2018 12:30:40 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-4 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 11:23:00 AM
Lab ID: 1802805-012
Matrix: SOIL
Received Date: 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	37	30		mg/Kg	20	2/20/2018 4:06:12 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/16/2018 5:55:42 PM	36549
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 5:55:42 PM	36549
Surr: DNOP	98.9	70-130		%Rec	1	2/16/2018 5:55:42 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 12:53:59 AM	36533
Surr: BFB	88.0	15-316		%Rec	1	2/16/2018 12:53:59 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	2/16/2018 12:53:59 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 12:53:59 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 12:53:59 AM	36533
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2018 12:53:59 AM	36533
Surr: 4-Bromofluorobenzene	90.1	80-120		%Rec	1	2/16/2018 12:53:59 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-3 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 12:54:00 PM
Lab ID: 1802805-013 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	38	30		mg/Kg	20	2/20/2018 4:18:36 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/16/2018 6:17:39 PM	36549
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 6:17:39 PM	36549
Surr: DNOP	95.9	70-130		%Rec	1	2/16/2018 6:17:39 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 1:17:19 AM	36533
Surr: BFB	92.2	15-316		%Rec	1	2/16/2018 1:17:19 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 1:17:19 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 1:17:19 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 1:17:19 AM	36533
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2018 1:17:19 AM	36533
Surr: 4-Bromofluorobenzene	91.9	80-120		%Rec	1	2/16/2018 1:17:19 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-3 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 1:08:00 PM
Lab ID: 1802805-014 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CJS**
Chloride	48	30		mg/Kg	20	2/20/2018 4:31:01 PM	36615
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/16/2018 6:39:37 PM	36549
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2018 6:39:37 PM	36549
Surr: DNOP	98.9	70-130		%Rec	1	2/16/2018 6:39:37 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 1:40:41 AM	36533
Surr: BFB	89.0	15-316		%Rec	1	2/16/2018 1:40:41 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 1:40:41 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 1:40:41 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 1:40:41 AM	36533
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2018 1:40:41 AM	36533
Surr: 4-Bromofluorobenzene	92.5	80-120		%Rec	1	2/16/2018 1:40:41 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-2 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 1:54:00 PM
Lab ID: 1802805-015 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	72	30		mg/Kg	20	2/21/2018 10:55:07 AM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	2/16/2018 7:01:38 PM	36549
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 7:01:38 PM	36549
Surr: DNOP	106	70-130		%Rec	1	2/16/2018 7:01:38 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 2:03:58 AM	36533
Surr: BFB	90.6	15-316		%Rec	1	2/16/2018 2:03:58 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	2/16/2018 2:03:58 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 2:03:58 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 2:03:58 AM	36533
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2018 2:03:58 AM	36533
Surr: 4-Bromofluorobenzene	92.5	80-120		%Rec	1	2/16/2018 2:03:58 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-2 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 2:08:00 PM
Lab ID: 1802805-016 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	31	30		mg/Kg	20	2/21/2018 11:32:21 AM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 7:23:23 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 7:23:23 PM	36549
Surr: DNOP	99.5	70-130		%Rec	1	2/16/2018 7:23:23 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/16/2018 2:27:19 AM	36533
Surr: BFB	91.7	15-316		%Rec	1	2/16/2018 2:27:19 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	2/16/2018 2:27:19 AM	36533
Toluene	ND	0.046		mg/Kg	1	2/16/2018 2:27:19 AM	36533
Ethylbenzene	ND	0.046		mg/Kg	1	2/16/2018 2:27:19 AM	36533
Xylenes, Total	ND	0.092		mg/Kg	1	2/16/2018 2:27:19 AM	36533
Surr: 4-Bromofluorobenzene	93.6	80-120		%Rec	1	2/16/2018 2:27:19 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-1 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 2:51:00 PM
Lab ID: 1802805-017 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	170	30		mg/Kg	20	2/21/2018 11:44:45 AM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/16/2018 7:45:11 PM	36549
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 7:45:11 PM	36549
Surr: DNOP	110	70-130		%Rec	1	2/16/2018 7:45:11 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 2:50:41 AM	36533
Surr: BFB	90.8	15-316		%Rec	1	2/16/2018 2:50:41 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 2:50:41 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 2:50:41 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 2:50:41 AM	36533
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2018 2:50:41 AM	36533
Surr: 4-Bromofluorobenzene	91.9	80-120		%Rec	1	2/16/2018 2:50:41 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-1 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 3:05:00 PM
Lab ID: 1802805-018 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	48	30		mg/Kg	20	2/21/2018 11:57:10 AM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 8:06:51 PM	36549
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 8:06:51 PM	36549
Surr: DNOP	100	70-130		%Rec	1	2/16/2018 8:06:51 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 3:14:03 AM	36533
Surr: BFB	91.2	15-316		%Rec	1	2/16/2018 3:14:03 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 3:14:03 AM	36533
Toluene	ND	0.048		mg/Kg	1	2/16/2018 3:14:03 AM	36533
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 3:14:03 AM	36533
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2018 3:14:03 AM	36533
Surr: 4-Bromofluorobenzene	91.6	80-120		%Rec	1	2/16/2018 3:14:03 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-10 3-pt (20'-30')
Project: Mudge LS 7
Collection Date: 2/13/2018 3:41:00 PM
Lab ID: 1802805-019 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	180	30		mg/Kg	20	2/21/2018 12:09:35 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/16/2018 8:28:48 PM	36549
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 8:28:48 PM	36549
Surr: DNOP	103	70-130		%Rec	1	2/16/2018 8:28:48 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/16/2018 3:37:23 AM	36533
Surr: BFB	88.9	15-316		%Rec	1	2/16/2018 3:37:23 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	2/16/2018 3:37:23 AM	36533
Toluene	ND	0.049		mg/Kg	1	2/16/2018 3:37:23 AM	36533
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2018 3:37:23 AM	36533
Xylenes, Total	ND	0.098		mg/Kg	1	2/16/2018 3:37:23 AM	36533
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	2/16/2018 3:37:23 AM	36533

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 **1802805**
Date Reported: **2/27/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-10 @ (40'-41')
Project: Mudge LS 7
Collection Date: 2/13/2018 3:54:00 PM
Lab ID: 1802805-020 **Matrix:** SOIL **Received Date:** 2/14/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	32	30		mg/Kg	20	2/21/2018 12:46:50 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/16/2018 8:50:23 PM	36549
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2018 8:50:23 PM	36549
Surr: DNOP	103	70-130		%Rec	1	2/16/2018 8:50:23 PM	36549
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/16/2018 4:00:44 AM	36533
Surr: BFB	88.0	15-316		%Rec	1	2/16/2018 4:00:44 AM	36533
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 4:00:44 AM	36533
Toluene	ND	0.049		mg/Kg	1	2/16/2018 4:00:44 AM	36533
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2018 4:00:44 AM	36533
Xylenes, Total	ND	0.098		mg/Kg	1	2/16/2018 4:00:44 AM	36533
Surr: 4-Bromofluorobenzene	91.2	80-120		%Rec	1	2/16/2018 4:00:44 AM	36533

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#: **1802805**

27-Feb-18

Client: Blagg Engineering
Project: Mudge LS 7

Sample ID	**MB-36615**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36615**	RunNo:	**49244**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/20/2018**	SeqNo:	**1589864**	Units:	**mg/Kg**			

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

Sample ID	**LCS-36615**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36615**	RunNo:	**49244**					
Prep Date:	**2/20/2018**	Analysis Date:	**2/20/2018**	SeqNo:	**1589865**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.2	90	110			

Sample ID	**MB-36641**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36641**	RunNo:	**49283**					
Prep Date:	**2/21/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1591746**	Units:	**mg/Kg**			

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

Sample ID	**LCS-36641**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36641**	RunNo:	**49283**					
Prep Date:	**2/21/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1591747**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	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#: **1802805**

27-Feb-18

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID **1802805-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SB-15 3-pt (20'-30')** Batch ID: **36549** RunNo: **49187**
Prep Date: **2/15/2018** Analysis Date: **2/16/2018** SeqNo: **1586496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	9.7	48.50	2.934	102	55.8	125			
Surr: DNOP	5.2		4.850		108	70	130			

Sample ID **1802805-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SB-15 3-pt (20'-30')** Batch ID: **36549** RunNo: **49187**
Prep Date: **2/15/2018** Analysis Date: **2/16/2018** SeqNo: **1586497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.8	49.21	2.934	91.8	55.8	125	8.86	20	
Surr: DNOP	4.8		4.921		96.9	70	130	0	0	

Sample ID **LCS-36549** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **36549** RunNo: **49187**
Prep Date: **2/15/2018** Analysis Date: **2/16/2018** SeqNo: **1586500** 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	4.7		5.000		93.4	70	130			

Sample ID **MB-36549** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **36549** RunNo: **49187**
Prep Date: **2/15/2018** Analysis Date: **2/16/2018** SeqNo: **1586501** 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	9.9		10.00		99.3	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#: **1802805**

27-Feb-18

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-36533**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585384**	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		92.2	15	316			

Sample ID	**LCS-36533**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585385**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	5.0	25.00	0	119	75.9	131			
Surr: BFB	970		1000		96.7	15	316			

Sample ID	**1802805-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**SB-15 3-pt (20'-30')**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585387**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	4.7	23.52	0	127	77.8	128			
Surr: BFB	980		940.7		105	15	316			

Sample ID	**1802805-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**SB-15 3-pt (20'-30')**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585388**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	30	4.9	24.39	0	124	77.8	128	1.79	20	
Surr: BFB	1000		975.6		104	15	316	0	0	

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#: **1802805**

27-Feb-18

Client: Blagg Engineering

Project: Mudge LS 7

Sample ID	**MB-36533**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585416**	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	0.92		1.000		91.6	80	120			

Sample ID	**LCS-36533**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585417**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	105	77.3	128			
Toluene	1.0	0.050	1.000	0	104	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	102	80.7	127			
Xylenes, Total	3.1	0.10	3.000	0	104	81.6	129			
Surr: 4-Bromofluorobenzene	0.93		1.000		93.1	80	120			

Sample ID	**1802805-002AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**SB-15 @ (40'-41')**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585420**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9416	0	117	80.9	132			
Toluene	1.1	0.047	0.9416	0	117	79.8	136			
Ethylbenzene	1.1	0.047	0.9416	0	117	79.4	140			
Xylenes, Total	3.4	0.094	2.825	0	119	78.5	142			
Surr: 4-Bromofluorobenzene	0.86		0.9416		91.1	80	120			

Sample ID	**1802805-002AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**SB-15 @ (40'-41')**	Batch ID:	**36533**	RunNo:	**49154**					
Prep Date:	**2/14/2018**	Analysis Date:	**2/15/2018**	SeqNo:	**1585421**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.023	0.9285	0	109	80.9	132	8.31	20	
Toluene	1.0	0.046	0.9285	0	109	79.8	136	8.68	20	
Ethylbenzene	1.0	0.046	0.9285	0	108	79.4	140	9.40	20	
Xylenes, Total	3.1	0.093	2.786	0	111	78.5	142	8.91	20	
Surr: 4-Bromofluorobenzene	0.85		0.9285		91.1	80	120	0	0	

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: 1802805 RcptNo: 1

Received By: Anne Thorne 2/14/2018 7:00:00 AM

Completed By: Dennis Suazo 2/14/2018 8:58:55 AM

Reviewed By: DMO 2/14/18

Labeled By MNV 2/14/18

Chain of Custody

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

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	1.0	Good	Not Present			

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: MUDGE LS 7

Project #:

Project Manager: STEVE MOSKAL

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. 1802805	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)
2/12/2018	1243	SOIL	SB-15, 3-pt (20'-30')	4 oz x 1	COOL	001	X		X									X				
	1258		SB-15 @ (40'-41')			002																
	1500		SB-5, 3-pt (20'-30')			003																
	1515		SB-5 @ (40'-41')			004																
	1350		SB-7, 3-pt (20'-30')			005																
	1405		SB-7 @ (40'-41')			006																
2/13/2018	0856		SB-13, 3-pt (20'-30')			007																
	0912		SB-13 @ (40'-41')			008																
	1009		SB-14, 3-pt (20'-30')			009																
	1022		SB-14 @ (40'-41')			010																
	1108		SB-4, 3-pt (20'-30')			011																
	1123		SB-4, @ (40'-41')			012																

Date: 2/13/2018 Time: 1623 Relinquished by: Jeff Blagg Received by: [signature] Date: 2/13/2018 Time: 1623

Date: 2/13/18 Time: 1824 Relinquished by: Mustafa Walter Received by: [signature] Date: 02/14/18 Time: 0700

Remarks: Bill BP
CONTACT: STEVE MOSKAL
WBS: L1-001CV-E: MUDGE LS 7
PO: 4300901769

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.

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: MUDGE LS 7
Project #:
Project Manager: STEVE MOSKAL
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. 1802805	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)
2/13/2018	1254	SOIL	SB-3, 3-pt (20'-30')	4 oz x 1	COOL	013	X		X									X				
	1308		SB-3 (40'-41')			014																
	1354		SB-2, 3-pt (20'-30')			015																
	1408		SB-2 (40'-41')			016																
	1451		SB-1, 3-pt (20'-30')			017																
	1505		SB-1 (40'-41')			018																
	1541		SB-10, 3-pt (20'-30')			019																
	1554		SB-10 (40'-41')			020																

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/13/2018	1623	Jeff Blagg	Chris Walls	2/13/2018	1623
2/13/18	1824	Chris Walls		02114118	0700

Remarks: BILL BP
CONTACT: STEVE MOSKAL
WBS: L1-001CV-E:MUDGELS7
PO: 4300901769

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 22, 2018

Steve Moskal

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

RE: MUDGE LS 7 OrderNo.: 1802866

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 10 sample(s) on 2/15/2018 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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-6, 3-pt (20'-30')
Project: MUDGE LS 7
Collection Date: 2/14/2018 8:57:00 AM
Lab ID: 1802866-001 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	210	30		mg/Kg	20	2/21/2018 12:59:15 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	9.4	9.4		mg/Kg	1	2/16/2018 5:02:22 PM	36556
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 5:02:22 PM	36556
Surr: DNOP	99.6	70-130		%Rec	1	2/16/2018 5:02:22 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 3:52:54 PM	36546
Surr: BFB	96.8	15-316		%Rec	1	2/16/2018 3:52:54 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	2/16/2018 3:52:54 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 3:52:54 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 3:52:54 PM	36546
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2018 3:52:54 PM	36546
Surr: 4-Bromofluorobenzene	85.2	80-120		%Rec	1	2/16/2018 3:52:54 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-6 (40'-41')
Project: MUDGE LS 7
Collection Date: 2/14/2018 9:10:00 AM
Lab ID: 1802866-002 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	80	30		mg/Kg	20	2/21/2018 1:11:40 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 5:26:35 PM	36556
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 5:26:35 PM	36556
Surr: DNOP	97.3	70-130		%Rec	1	2/16/2018 5:26:35 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 5:49:39 PM	36546
Surr: BFB	79.6	15-316		%Rec	1	2/16/2018 5:49:39 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	2/16/2018 5:49:39 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 5:49:39 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 5:49:39 PM	36546
Xylenes, Total	ND	0.093		mg/Kg	1	2/16/2018 5:49:39 PM	36546
Surr: 4-Bromofluorobenzene	81.8	80-120		%Rec	1	2/16/2018 5:49:39 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-11 (25'-35') 3-pt
Project: MUDGE LS 7
Collection Date: 2/14/2018 9:55:00 AM
Lab ID: 1802866-003 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	120	30		mg/Kg	20	2/21/2018 1:24:04 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	68	9.6		mg/Kg	1	2/16/2018 5:50:47 PM	36556
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 5:50:47 PM	36556
Surr: DNOP	92.6	70-130		%Rec	1	2/16/2018 5:50:47 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 6:13:01 PM	36546
Surr: BFB	88.0	15-316		%Rec	1	2/16/2018 6:13:01 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 6:13:01 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 6:13:01 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 6:13:01 PM	36546
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2018 6:13:01 PM	36546
Surr: 4-Bromofluorobenzene	85.2	80-120		%Rec	1	2/16/2018 6:13:01 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-11 (40'-41')
Project: MUDGE LS 7
Collection Date: 2/14/2018 10:03:00 AM
Lab ID: 1802866-004 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	64	30		mg/Kg	20	2/21/2018 1:36:28 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 6:14:53 PM	36556
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 6:14:53 PM	36556
Surr: DNOP	96.5	70-130		%Rec	1	2/16/2018 6:14:53 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 6:36:26 PM	36546
Surr: BFB	80.8	15-316		%Rec	1	2/16/2018 6:36:26 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 6:36:26 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 6:36:26 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 6:36:26 PM	36546
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2018 6:36:26 PM	36546
Surr: 4-Bromofluorobenzene	84.0	80-120		%Rec	1	2/16/2018 6:36:26 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-8, 3-PT (20'-30')
Project: MUDGE LS 7
Collection Date: 2/14/2018 10:43:00 AM
Lab ID: 1802866-005 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	120	30		mg/Kg	20	2/21/2018 1:48:52 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/16/2018 6:39:03 PM	36556
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2018 6:39:03 PM	36556
Surr: DNOP	99.6	70-130		%Rec	1	2/16/2018 6:39:03 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 6:59:44 PM	36546
Surr: BFB	84.8	15-316		%Rec	1	2/16/2018 6:59:44 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	2/16/2018 6:59:44 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 6:59:44 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 6:59:44 PM	36546
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2018 6:59:44 PM	36546
Surr: 4-Bromofluorobenzene	84.8	80-120		%Rec	1	2/16/2018 6:59:44 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-8 (40'-41')
Project: MUDGE LS 7
Collection Date: 2/14/2018 10:58:00 AM
Lab ID: 1802866-006 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	33	30		mg/Kg	20	2/21/2018 2:01:16 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/16/2018 7:03:01 PM	36556
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 7:03:01 PM	36556
Surr: DNOP	99.5	70-130		%Rec	1	2/16/2018 7:03:01 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/16/2018 7:23:08 PM	36546
Surr: BFB	82.4	15-316		%Rec	1	2/16/2018 7:23:08 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.025		mg/Kg	1	2/16/2018 7:23:08 PM	36546
Toluene	ND	0.049		mg/Kg	1	2/16/2018 7:23:08 PM	36546
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2018 7:23:08 PM	36546
Xylenes, Total	ND	0.099		mg/Kg	1	2/16/2018 7:23:08 PM	36546
Surr: 4-Bromofluorobenzene	83.7	80-120		%Rec	1	2/16/2018 7:23:08 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-9, 3-pt (20'-30')
Project: MUDGE LS 7
Collection Date: 2/14/2018 11:53:00 AM
Lab ID: 1802866-007 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	57	30		mg/Kg	20	2/21/2018 2:38:29 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2018 7:27:02 PM	36556
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2018 7:27:02 PM	36556
Surr: DNOP	96.4	70-130		%Rec	1	2/16/2018 7:27:02 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/16/2018 7:46:30 PM	36546
Surr: BFB	83.6	15-316		%Rec	1	2/16/2018 7:46:30 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.023		mg/Kg	1	2/16/2018 7:46:30 PM	36546
Toluene	ND	0.046		mg/Kg	1	2/16/2018 7:46:30 PM	36546
Ethylbenzene	ND	0.046		mg/Kg	1	2/16/2018 7:46:30 PM	36546
Xylenes, Total	ND	0.092		mg/Kg	1	2/16/2018 7:46:30 PM	36546
Surr: 4-Bromofluorobenzene	82.9	80-120		%Rec	1	2/16/2018 7:46:30 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-9 (40'-41')
Project: MUDGE LS 7
Collection Date: 2/14/2018 12:05:00 PM
Lab ID: 1802866-008 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	40	30		mg/Kg	20	2/21/2018 3:15:42 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/16/2018 7:51:01 PM	36556
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/16/2018 7:51:01 PM	36556
Surr: DNOP	98.2	70-130		%Rec	1	2/16/2018 7:51:01 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 8:09:53 PM	36546
Surr: BFB	85.4	15-316		%Rec	1	2/16/2018 8:09:53 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 8:09:53 PM	36546
Toluene	ND	0.048		mg/Kg	1	2/16/2018 8:09:53 PM	36546
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 8:09:53 PM	36546
Xylenes, Total	ND	0.097		mg/Kg	1	2/16/2018 8:09:53 PM	36546
Surr: 4-Bromofluorobenzene	84.5	80-120		%Rec	1	2/16/2018 8:09:53 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-12, 3-pt (20'-30')
Project: MUDGE LS 7
Collection Date: 2/14/2018 1:17:00 PM
Lab ID: 1802866-009 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	30		mg/Kg	20	2/21/2018 3:28:06 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/16/2018 8:15:09 PM	36556
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 8:15:09 PM	36556
Surr: DNOP	106	70-130		%Rec	1	2/16/2018 8:15:09 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2018 8:33:15 PM	36546
Surr: BFB	82.3	15-316		%Rec	1	2/16/2018 8:33:15 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	2/16/2018 8:33:15 PM	36546
Toluene	ND	0.047		mg/Kg	1	2/16/2018 8:33:15 PM	36546
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2018 8:33:15 PM	36546
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2018 8:33:15 PM	36546
Surr: 4-Bromofluorobenzene	84.1	80-120		%Rec	1	2/16/2018 8:33:15 PM	36546

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 **1802866**
Date Reported: **2/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Client Sample ID: SB-12 (40'-41')
Project: MUDGE LS 7
Collection Date: 2/14/2018 1:33:00 PM
Lab ID: 1802866-010 **Matrix:** SOIL **Received Date:** 2/15/2018 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	43	30		mg/Kg	20	2/21/2018 3:40:30 PM	36641
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/16/2018 8:39:08 PM	36556
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2018 8:39:08 PM	36556
Surr: DNOP	98.5	70-130		%Rec	1	2/16/2018 8:39:08 PM	36556
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2018 8:56:34 PM	36546
Surr: BFB	81.7	15-316		%Rec	1	2/16/2018 8:56:34 PM	36546
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2018 8:56:34 PM	36546
Toluene	ND	0.048		mg/Kg	1	2/16/2018 8:56:34 PM	36546
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2018 8:56:34 PM	36546
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2018 8:56:34 PM	36546
Surr: 4-Bromofluorobenzene	85.0	80-120		%Rec	1	2/16/2018 8:56:34 PM	36546

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

Qualifiers:

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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
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ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1802866**

22-Feb-18

Client: Blagg Engineering
Project: MUDGE LS 7

Sample ID	**MB-36641**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36641**	RunNo:	**49283**					
Prep Date:	**2/21/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1591746**	Units:	**mg/Kg**			

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

Sample ID	**LCS-36641**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36641**	RunNo:	**49283**					
Prep Date:	**2/21/2018**	Analysis Date:	**2/21/2018**	SeqNo:	**1591747**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	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#: **1802866**

22-Feb-18

Client: Blagg Engineering
Project: MUDGE LS 7

Sample ID	**LCS-36556**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**
Client ID:	**LCSS**	Batch ID:	**36556**	RunNo:	**49188**
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586400** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.6	70	130			
Surr: DNOP	4.6		5.000		91.9	70	130			

Sample ID	**MB-36556**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range Organics**
Client ID:	**PBS**	Batch ID:	**36556**	RunNo:	**49188**
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586401** 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	9.4		10.00		93.8	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#: **1802866**

22-Feb-18

Client: Blagg Engineering
Project: MUDGE LS 7

Sample ID	**MB-36546**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**36546**	RunNo:	**49180**					
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586854**	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	870		1000		87.0	15	316			

Sample ID	**LCS-36546**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**36546**	RunNo:	**49180**					
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586855**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	111	75.9	131			
Surr: BFB	980		1000		98.3	15	316			

Qualifiers:

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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#: **1802866**

22-Feb-18

Client: Blagg Engineering
Project: MUDGE LS 7

Sample ID	**MB-36546**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**36546**	RunNo:	**49180**					
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586876**	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	0.91		1.000		90.7	80	120			

Sample ID	**LCS-36546**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**36546**	RunNo:	**49180**					
Prep Date:	**2/15/2018**	Analysis Date:	**2/16/2018**	SeqNo:	**1586877**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	77.3	128			
Toluene	1.1	0.050	1.000	0	106	79.2	125			
Ethylbenzene	1.0	0.050	1.000	0	103	80.7	127			
Xylenes, Total	3.2	0.10	3.000	0	107	81.6	129			
Surr: 4-Bromofluorobenzene	0.90		1.000		90.0	80	120			

Qualifiers:

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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
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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: 1802866 RcptNo: 1

Received By: Anne Thorne 2/15/2018 7:00:00 AM

Completed By: Anne Thorne 2/15/2018 9:06:34 AM

Reviewed By: BRE 02/15/18

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 ☐	
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	1.0	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: MUDGE LS 7

Project #:

Project Manager: STEVE MOSKAL

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.	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)
2/14/2018	0857	SOIL	SB-6, 3-pt (20'-30')	4 oz x 1	COOL	001	X		X									X				
	0910		SB-6 (40'-41')			002																
	0955		SB-11 (25'-35') 3-pt			003																
	1003		SB-11 (40'-41')			004																
	1043		SB-8, 3-pt (20'-30')			005																
	1058		SB-8 (40'-41')			006																
	1153		SB-9, 3-pt (20'-30')			007																
	1205		SB-9 (40'-41')			008																
	1317		SB-12, 3-pt (20'-30')			009																
	1333		SB-12 (40'-41')			010																

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/14/18	1403	Jeff Blagg		2/14/2018	1403
2/14/18	1904	Christa Waldo		02/15/18	0700

Remarks: Bill BP
CONTACT: STEVE MOSKAL
WBS: L1-001CV-E:MUDGELS7
PO: 4300901769

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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 22115

CONDITIONS

Operator: SIMCOE LLC 1199 Main Ave., Suite 101 Durango, CO 81301	OGRID: 329736
	Action Number: 22115
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Remediation closure report via SVE is approved. Release resolved.	3/14/2024