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

State of New Mexico
Energy Minerals and Natural Resources

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

OIL CONS. DIV DIST. 3
JUL 20 2017

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	Contact: Steve Moskal
Address: 200 Energy Court, Farmington, NM 87401	Telephone No.: 505-326-9497
Facility Name: Mudge A 002	Facility Type: Natural gas well

Surface Owner: Federal	Mineral Owner: Federal	API No. 3004510948

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County: San Juan
A	10	31N	11W	660	North	660	East	

Latitude 36.918505° **Longitude** -107.972206°

NATURE OF RELEASE

Type of Release: Unknown - hydrocarbon	Volume of Release: unknown	Volume Recovered: none
Source of Release: Unknown – suspect earthen pit; 95 bbl BGT	Date and Hour of Occurrence: unknown	Date and Hour of Discovery: April 25, 2017
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom? Steve Moskal	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 the closure of a below grade tank sampling indicated what appears to be hydrocarbon impacts to the soil, likely associated with an earthen pit.

Describe Area Affected and Cleanup Action Taken.* BP partially remediated hydrocarbon impacted soils at the location via excavation. Due to the size and scope of work, BP elects to further delineate the impacts to determine future corrective action. Attached is the proposed delineation plan and excavation data packet.

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 Approved by Environmental Specialist:	
Printed Name: Steve Moskal		
Title: Field Environmental Coordinator	Approval Date: 8/9/2017	Expiration Date:
E-mail Address: steven.moskal@bp.com	Conditions of Approval:	Attached ☐
Date: July 18, 2017 Phone: 505-326-9497		

* Attach Additional Sheets If Necessary

nMF1714348687

OIL CONS. DIV DIST. 3

JUL 20 2017

BP Remediation Management Plan

To: Cory Smith & Vanessa Fields (NMOCD)
From: Steve Moskal (BP)
CC: Jeff Blagg (Blagg Engineering)
Date: 3/21/2017
Re: Mudge A 002 – Delineation Plan
API#30-045-10948 (A) S10, T31N, R11W

Dear Mr. Smith, Mrs. Fields,

The Mudge A 002 site is an active natural gas production pad within the San Juan Basin Gas Field in San Juan County, New Mexico. The site is located on land controlled by the Bureau of Land Management drilled by Delhi Oil Corporation in 1950. The ownership of the well has changed several times since it was drilled. The well pad is located in an area primarily used by oil and gas production but also for recreational and livestock grazing. Depth to groundwater is unknown at this time.

BACKGROUND

Discharge of natural gas liquids from production and process equipment into an earthen pit was highly likely and acceptable industry practice prior to the implementation of the pit rule. During closure of a below grade tank on April 25, 2017, soil impacts were identified. Remediation via soil shredding commenced on May 18, 2017, however due to soil conditions, soil shredding was not a viable remedial solution. The alternative of a dig and haul ensued. Due to the depth, size, nearby pipeline and biological restrictions, BP elected to terminate the excavation activities near the south and east edges of the pad. The excavated area was backfilled, with the western half of the excavated area meeting the NMOCD spill and release guidelines for closure. The east portion of the excavation remains to be delineated.

The remedial excavation measured approximately 58x44' with a total depth of 42' below wellhead surface. The overall excavation, required for proper sloping per engineered design, measured 100x85'. The outer extents of the excavation were limited by identified Brack's Cactus suitable habitat areas to the west, south and east, as well as an Enterprise pipeline, servicing wells operated by others, to the east. The attached data packet provides a field report, figures and laboratory data for reference.

DELINEATION PLAN

BP proposes to advance 5 soil boring to determine the vertical and lateral extents of the remaining contamination. Total depth is not known at this time, but is expected to be approximately 50' below ground surface. If vertical extent of the contamination is identified, a single boring will be advanced ten feet beyond the lower reaches of the identified impacts.

The borings will be advanced using a minimum 4" (ID) hollow stem auger or comparable tooling. In each boring, 2-inch PVC well screen will be placed in the lower portion of each soil boring, approximately 15 feet long, with an attached riser to just above the surface. Sand pack will be added to the boring annulus to 1' above the screened interval. Hydrated bentonite will be placed in the remainder of the boring to 1' bgs where cement will be used to seal the surface completion and install a well protector. The well protectors will be lockable. The wells will be permitted through the New Mexico Office of the State Engineer Aztec Office.

During advancement of the well borings, soil samples will be collected for confirmation. A soil samples will be collected every 5' or more frequent if possible. The soil samples will be field screened using a

calibrated photoionization detector via an approved field headspace method. A minimum of two soil samples will be submitted for laboratory analysis, following handling and chain of custody protocols, for analysis of EPA Methods 8015 TPH (GRO, DRO and MRO), 8021 BTEX and 6010 chlorides. The soil samples with the highest PID from each boring along with the soil sample base of the boring or at the groundwater interface will be submitted for analysis. The upper 20 feet or so of soil is not impacted by the pit and will be thin spread on site. The contaminated soil will be collected and containerized for offsite disposal.

Once the well installation is complete and allowed to sit for a minimum of 24 hours, the wells will be monitored for water. If no water is present, the wells will then be rechecked in approximately 2 weeks. If water is present, the wells will be developed via a bailing and purging with a new, disposable bailer used in each well. The wells will be purged for a minimum of 3 well volumes and where field screening for temperature, conductivity and pH become stable for a minimum of three consecutive readings (within 10%) The purged water will be contained and disposed of in the nearby below grade tank.

The wells will then be allowed to sit for approximately 24 hours then purged of approximately three well volumes prior to sampling for EPA Method 8260 VOCs and General Water Chemistry via API General Chemistry methods (including pH, TDS, cations/anions), all following sample handling and chain of custody protocols.

Reporting

Once laboratory results are received for soil and groundwater samples, BP will furnish a report to the NMOCD detailing drilling activities, well construction, laboratory results and groundwater gradient data based on local survey information. All these activities will be performed by a third party contractor. The report will be delivered to the NMOCD within 60 days of the final laboratory report.

Regards,

Steve Moskal
BP America Production Co.

BP America
Mudge A 2
(A) Sec 10 – T31N – R11W
San Juan County, New Mexico
API: 30-045-10948

Summary Record of Impact Remediation

April 25, 2017 Soils impacted with hydrocarbons encountered during removal of a 95 barrel BGT. Initial laboratory analysis of a composite sample of soil collected immediately below the tank (6' below grade) tested total TPH at 3,794 mg/Kg.

Site Closure Standard Determined at 100 ppm TPH based on:

Depth to Groundwater based on BGT permit research < 50 feet (10 points)
Distance to water well > 1,000' based on BGT permit research (0 points)
Distance to dry wash < 200' based on site measurements (10 points)

Total Site Ranking: 20

May 18, 2017 Begin site remediation via excavation at 95 BGT center.

May 19, 2017 Conduct un-witnessed sampling of excavation base at 20' below original wellpad grade to ascertain residual impacts. Excavation size approximately 25' x 25' x 20' deep

May 24, 2017 Conduct witnessed sampling of north, west and southeast sidewalls for closure. Excavation approximately 20' deep.

May 30, 2017 Conduct witnessed sampling of east and south sidewalls for closure. Excavation approximately 25' deep.

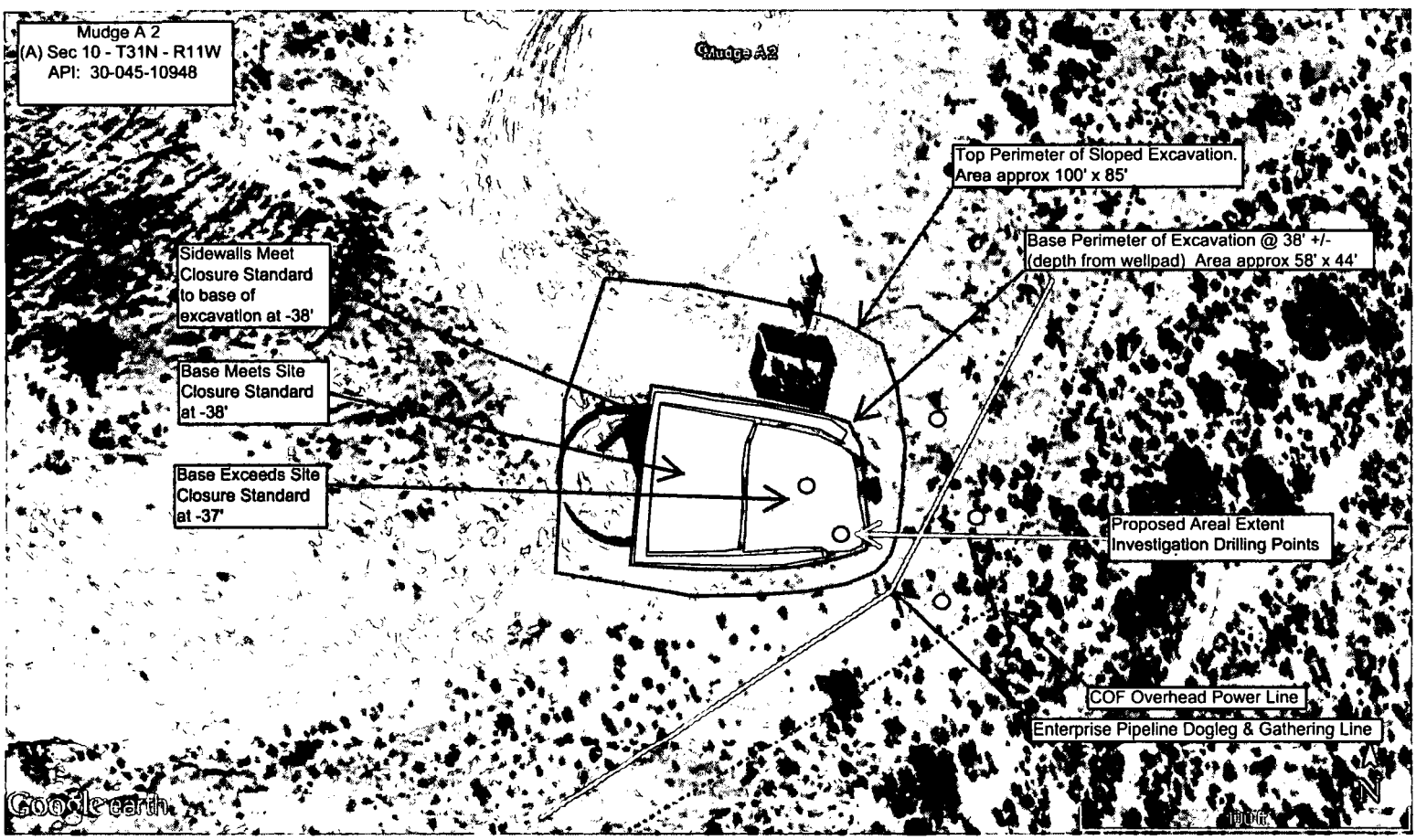
June 9, 2017 Conduct witnessed sampling of south and west sidewalls, west base for closure. Excavation approximately 38' deep.

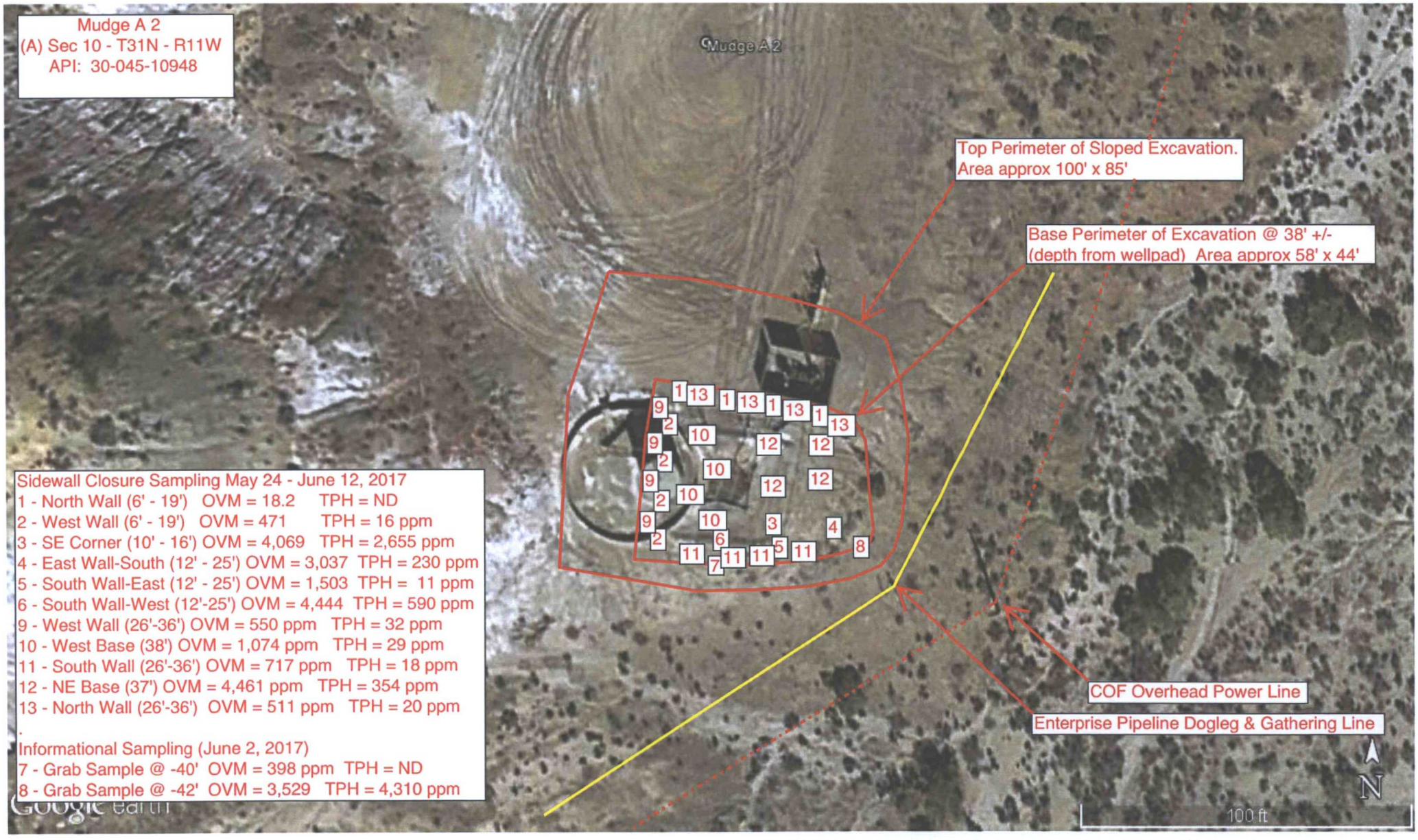
June 12, 2012 Conduct sampling of northeast base and north sidewall for closure. Final base of excavation approximately 58' x 44' x 38' deep (from original wellpad surface grade). Surface disturbance to accommodate sloped excavation approximately 100' x 85'.

Summary laboratory data from site sampling:

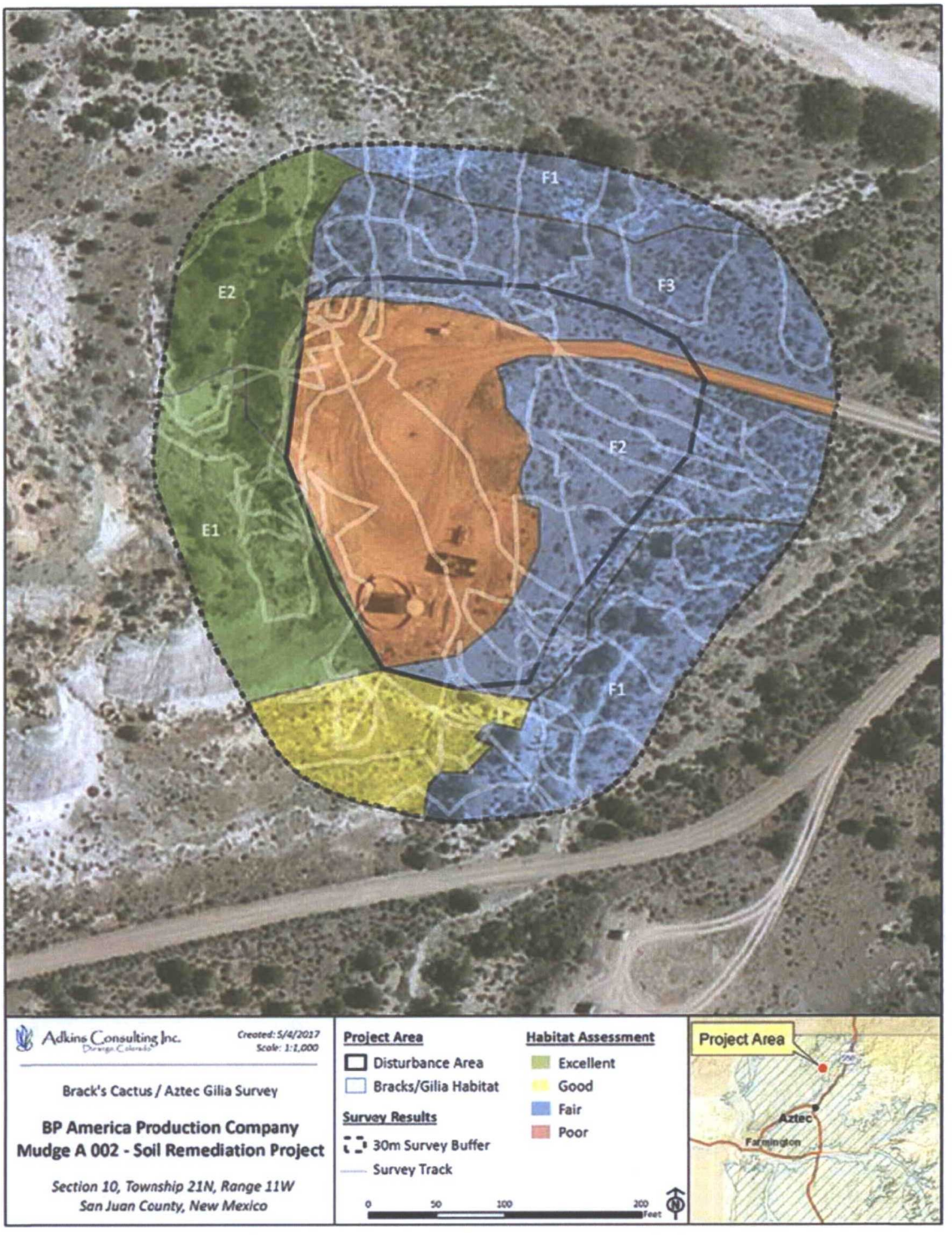
Sample ID	Date	TPH Total (mg/Kg)	BTEX Total (mg/Kg)	Benzene (mg/Kg)	Comments
1 – North Wall (8-pt. comp) (6'-19')	5/24/2017	ND	ND	ND	
2 – West Wall (8- pt. comp) (6'-19')	5/24/2017	ND	ND	ND	
3 – SE Corner (3-pt. comp) (10'-16')	5/24/2017	2,655	169.8	3.7	Impacted soils, subsequently excavated.
4 – East Wall, South (5-pt. comp)(12'-25')	5/30/2017	230	4.1	ND	Subsequently excavated.
5 – South Wall, East (5-pt. comp)(12'-25')	5/30/2017	11	ND	ND	
6 – South Wall, West (5-pt. comp)(12'-25')	5/30/2017	590	26.8	ND	Subsequently excavated.
7 – Grab Sample, South Extent, @-40'	6/2/2017	ND	ND	ND	
8 – Grab Sample, SE Extent, @-42'	6/5/2017	4,310	468	11	Informational Sample. Impacts remain in place.
9 – West Wall (5- pt. comp) (26'-36')	6/9/2017	32	0.26	0.043	
10 – West Base (5-pt. comp @ -38')	6/9/2017	29	0.53	0.041	
11 – South Wall (5-pt. comp) (26'-36')	6/9/2017	18	ND	ND	
12 – NE Base (5-pt. comp @ -37')	6/12/2017	354	19.95	0.19	
13 – North Wall (5-pt. comp) (26'-36')	6/12/2017	20	ND	ND	
NMOCD/BLM Closure Standard		100	50	10	

June 16, 2017 Complete backfilling of excavation.


Mudge A 2
(A) Sec 10 - T31N - R11W
API: 30-045-10948
Mudge A2
Top Perimeter of Sloped Excavation.
Area approx 100' x 85'
Base Perimeter of Excavation @ 38' +/-
(depth from wellpad) Area approx 58' x 44'
Sidewalls Meet
Closure Standard
to base of
excavation at -38'
Base Meets Site
Closure Standard
at -38'
Base Exceeds Site
Closure Standard
at -37'
Proposed Areal Extent
Investigation Drilling Points
COF Overhead Power Line
Enterprise Pipeline Dogleg & Gathering Line
Google earth
N


Mudge A 2
(A) Sec 10 - T31N - R11W
API: 30-045-10948
Mudge A2
Top Perimeter of Sloped Excavation.
Area approx 100' x 85'
Base Perimeter of Excavation @ 38' +/-
(depth from wellpad) Area approx 58' x 44'
COF Overhead Power Line
Enterprise Pipeline Dogleg & Gathering Line
N
100 ft
Google Earth
Sidewall Closure Sampling May 24 - June 12, 2017
1 - North Wall (6' - 19') OVM = 18.2 TPH = ND
2 - West Wall (6' - 19') OVM = 471 TPH = 16 ppm
3 - SE Corner (10' - 16') OVM = 4,069 TPH = 2,655 ppm
4 - East Wall-South (12' - 25') OVM = 3,037 TPH = 230 ppm
5 - South Wall-East (12' - 25') OVM = 1,503 TPH = 11 ppm
6 - South Wall-West (12'-25') OVM = 4,444 TPH = 590 ppm
9 - West Wall (26'-36') OVM = 550 ppm TPH = 32 ppm
10 - West Base (38') OVM = 1,074 ppm TPH = 29 ppm
11 - South Wall (26'-36') OVM = 717 ppm TPH = 18 ppm
12 - NE Base (37') OVM = 4,461 ppm TPH = 354 ppm
13 - North Wall (26'-36') OVM = 511 ppm TPH = 20 ppm
Informational Sampling (June 2, 2017)
7 - Grab Sample @ -40' OVM = 398 ppm TPH = ND
8 - Grab Sample @ -42' OVM = 3,529 TPH = 4,310 ppm

Appendix A. Survey Map



CLIENT: BP

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

API #: 3004510948

TANK ID (if applicble): A

FIELD REPORT:

(circle one): BGT CONFIRMATION / RELEASE INVESTIGATION / OTHER:

PAGE #: 1 of 1

SITE INFORMATION:

SITE NAME: MUDGE A #2

DATE STARTED: 04/25/17

DATE FINISHED:

QUAD/UNIT: A SEC: 10 TWP: 31 N RNG: 11 W PM: NM CNTY: SJ ST: NM

1/4 -1/4/FOOTAGE: 660'N/660'E NE/NE LEASE TYPE: (FEDERAL) / STATE / FEE / INDIAN

LEASE #: SF078040 PROD. FORMATION: MV CONTRACTOR: STRIKE MBF - R. POWELL

ENVIRONMENTAL SPECIALIST(S): (NJV) / JCB

REFERENCE POINT:

WELL HEAD (W.H.) GPS COORD.: 36.91888 x 107.97202 GL ELEV.: 5,978'

1) 95 BGT (SW/DB) GPS COORD.: 36.918505 x 107.972206 DISTANCE/BEARING FROM W.H.: 127', 52.5E

2) GPS COORD.: DISTANCE/BEARING FROM W.H.:

3) GPS COORD.: DISTANCE/BEARING FROM W.H.:

4) GPS COORD.: DISTANCE/BEARING FROM W.H.:

SAMPLING DATA:

CHAIN OF CUSTODY RECORD(S) # OR LAB USED: HALL

	SAMPLE ID:	SAMPLE DATE:	SAMPLE TIME:	LAB ANALYSIS:	OVM READING (ppm)
1)	SPC-TB @ 6'(95)	04/25/17	1420	8015B/8021B/300.0(Cl)	1,564
2)	TH1 @ 13-14'(95)	04/25/17	1432	" / " / "	997
3)					
4)					
5)					

SOIL DESCRIPTION:

SOIL TYPE: SAND / SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHER

SOIL COLOR:

PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC

COHESION (ALL OTHERS): NON COHESIVE / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVE

DENSITY (COHESIVE CLAYS & SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD

CONSISTENCY (NON COHESIVE SOILS): LOOSE / FIRM / DENSE / VERY DENSE

HC ODOR DETECTED: YES / NO EXPLANATION - STRONG & APPARENT

MOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATED

SAMPLE TYPE: GRAB / COMPOSITE # OF PTS. 5

ANY AREAS DISPLAYING WETNESS: YES / NO EXPLANATION -

DISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION - DARK GRAY / BLACK / LIGHT GRAY STARTING @ 10' B.G.

SITE OBSERVATIONS:

LOST INTEGRITY OF EQUIPMENT: YES / NO EXPLANATION - UNDETERMINED

APPARENT EVIDENCE OF A RELEASE OBSERVED AND/OR OCCURRED (YES) / NO EXPLANATION: DISCOLORED SOILS & STRONG APPARENT HC ODOR

EQUIPMENT SET OVER RECLAIMED AREA: YES / NO EXPLANATION -

OTHER: NMOCD OR BLM REPS. NOT PRESENT TO WITNESS CONFIRMATION SAMPLING. TEST HOLE ADVANCED @ BGT CENTER (TH1). MAX. DEPTH WITH EXTENDAHOE REACHED 14' B.G.

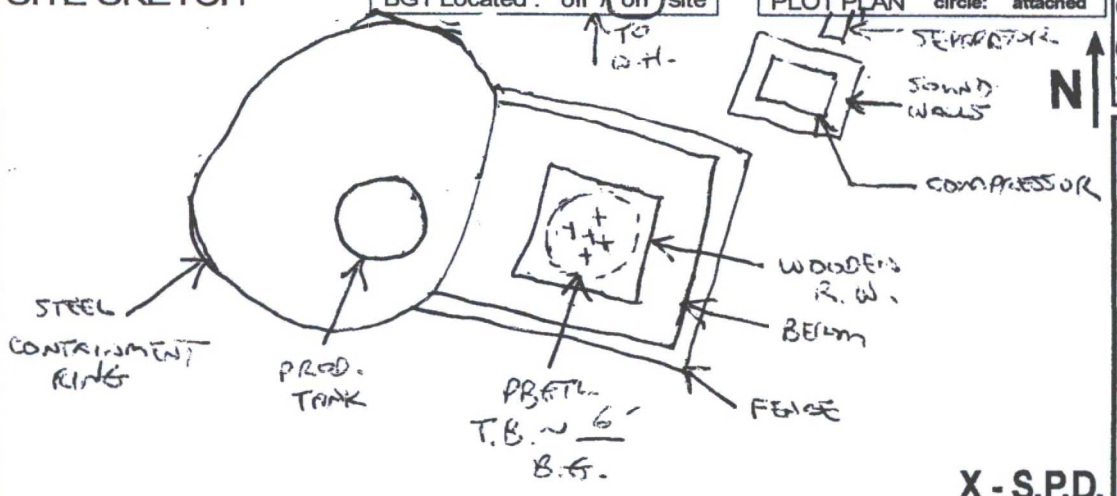
SOIL IMPACT DIMENSION ESTIMATION: ____ ft. X ____ ft. X ____ ft. IMPACTED SOIL ESTIMATION (Cubic Yards): ____

DEPTH TO GROUNDWATER: <50' NEAREST WATER SOURCE: >1,000' NEAREST SURFACE WATER: <200' NMOCD TPH CLOSURE STD: 100 ppm

SITE SKETCH

BGT Located: off / (on) site

PLOT PLAN circle: attached



OVM CALIB. READ. = 100.0 ppm RF = 0.52

OVM CALIB. GAS = 100 ppm

TIME: 2:35 am/(pm) DATE: 04/25/17

MISCELL. NOTES

WO:

REF. #: P-786

VID: VHIXONEVBZ

PJ #:

Permit date(s): 01/27/17

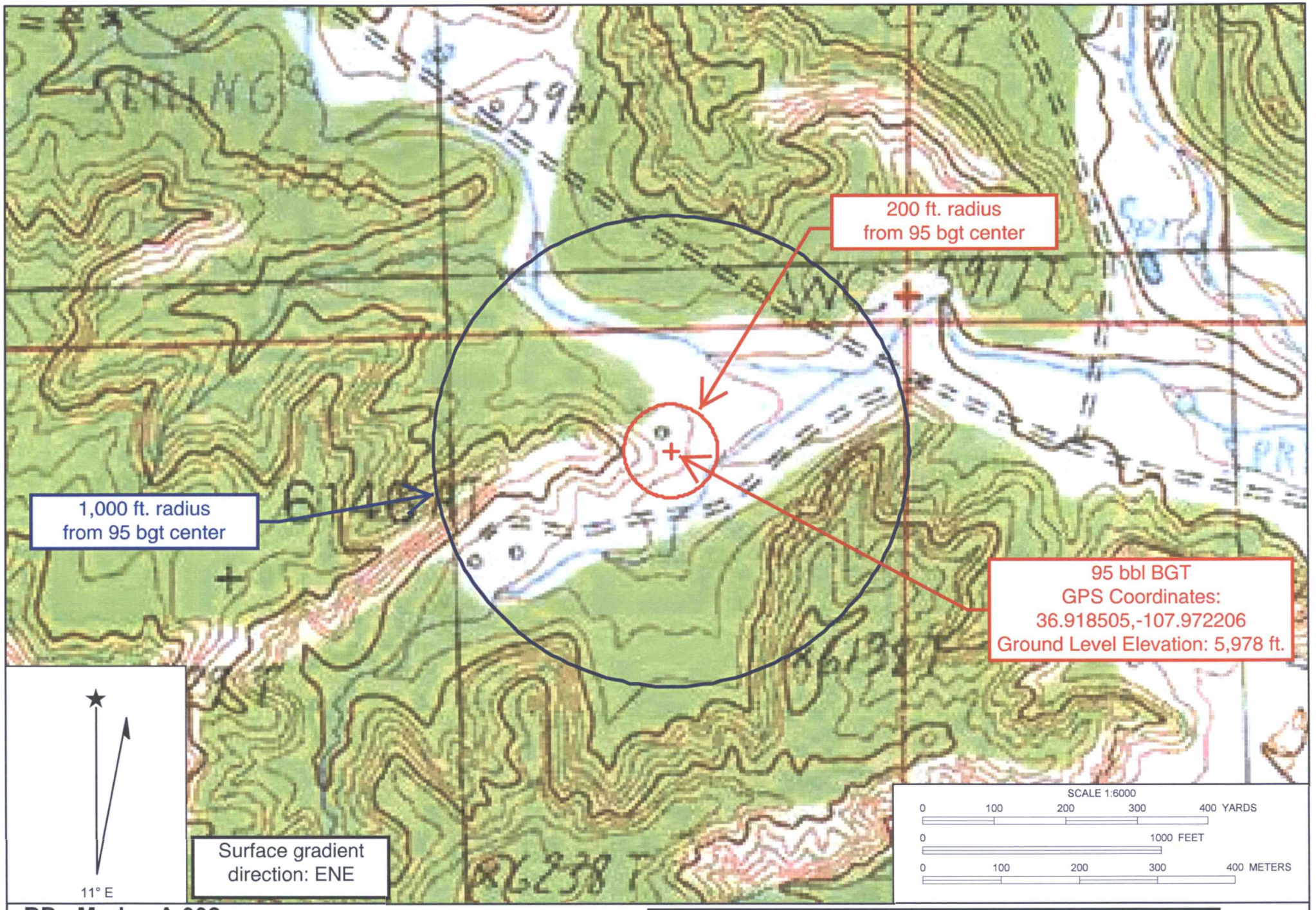
OCD Appr. date(s): 02/08/17

Tank ID	OVM = Organic Vapor Meter ppm = parts per million
A	BGT Sidewalls Visible: Y (N)
	BGT Sidewalls Visible: Y / N
	BGT Sidewalls Visible: Y / N

Magnetic declination: 10° E

NOTES: BGT = BELOW-GRADE TANK; E.D. = EXCAVATION DEPRESSION; B.G. = BELOW GRADE; B = BELOW; T.H. = TEST HOLE; ~ = APPROX.; W.H. = WELL HEAD; T.B. = TANK BOTTOM; PBGTL = PREVIOUS BELOW-GRADE TANK LOCATION; SPD = SAMPLE POINT DESIGNATION; R.W. = RETAINING WALL; NA - NOT APPLICABLE OR NOT AVAILABLE; SW - SINGLE WALL; DW - DOUBLE WALL; SB - SINGLE BOTTOM; DB - DOUBLE BOTTOM.

NOTES: GOOGLE EARTH IMAGERY DATE: 3/15/2015, ONSITE: 04/25/17



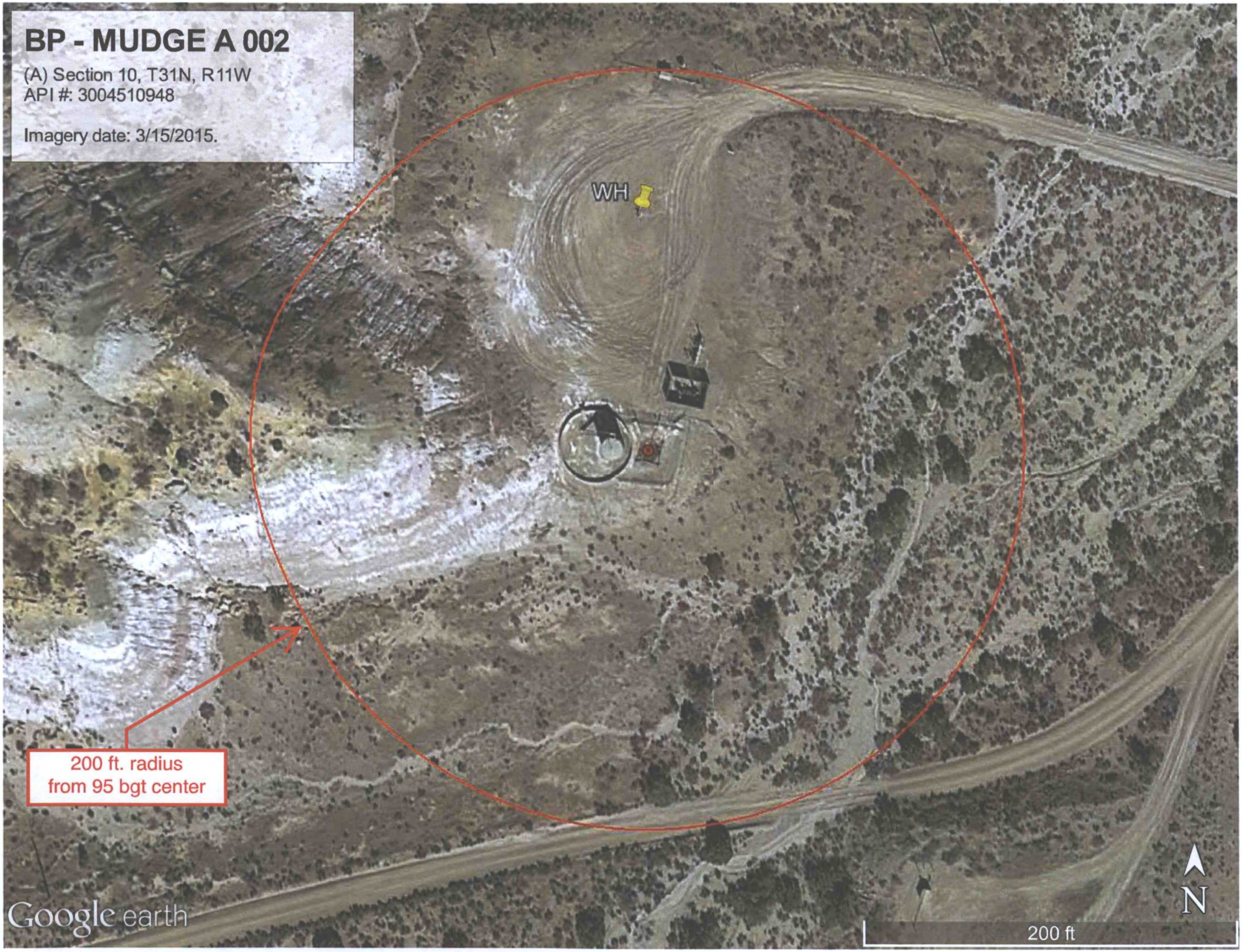
BP - Mudge A 002

API #: 3004510948

Tank ID: 3004510948A

(A) Section 10, Township 31.0N, Range 11W, P.M. NM 23

Proximity to Watercourses


BP - MUDGE A 002
(A) Section 10, T31N, R11W
API #: 3004510948
Imagery date: 3/15/2015.
WH
200 ft. radius
from 95 bgt center
Google earth
N
200 ft

Analytical Report
Lab Order **1704B34**
Date Reported: **4/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1704B34-001

Client Sample ID: 5PC-TB@6'(95)
Collection Date: 4/25/2017 2:20:00 PM
Matrix: MEOH (SOIL) **Received Date:** 4/26/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	4/26/2017 1:35:55 PM	31436
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	94	10		mg/Kg	1	4/26/2017 11:06:52 AM	31426
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/26/2017 11:06:52 AM	31426
Surr: DNOP	86.4	70-130		%Rec	1	4/26/2017 11:06:52 AM	31426
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	3700	670		mg/Kg	200	4/26/2017 12:47:32 PM	31417
Surr: BFB	125	54-150		%Rec	200	4/26/2017 12:47:32 PM	31417
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	14	3.3		mg/Kg	200	4/26/2017 12:47:32 PM	31417
Toluene	10	6.7		mg/Kg	200	4/26/2017 12:47:32 PM	31417
Ethylbenzene	20	6.7		mg/Kg	200	4/26/2017 12:47:32 PM	31417
Xylenes, Total	230	13		mg/Kg	200	4/26/2017 12:47:32 PM	31417
Surr: 4-Bromofluorobenzene	111	66.6-132		%Rec	200	4/26/2017 12:47:32 PM	31417

TPH = 3,794 mg/Kg S & R Closure standard = 100 mg/Kg
Benzene = 14 mg/Kg S & R Closure standard = 10 mg/Kg
Total BTEX = 274 mg/Kg S & R Closure standard = 50 mg/Kg

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 **1704B35**
Date Reported: **4/27/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1704B35-001
Matrix: MEOH (SOIL)

Client Sample ID: TH1@13'-14' (95)
Collection Date: 4/25/2017 2:32:00 PM
Received Date: 4/26/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	4/26/2017 1:48:19 PM	31436
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	89	9.8		mg/Kg	1	4/26/2017 11:34:20 AM	31426
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/26/2017 11:34:20 AM	31426
Surr: DNOP	86.4	70-130		%Rec	1	4/26/2017 11:34:20 AM	31426
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	2500	260		mg/Kg	50	4/26/2017 1:10:59 PM	31417
Surr: BFB	133	54-150		%Rec	50	4/26/2017 1:10:59 PM	31417
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	12	1.3		mg/Kg	50	4/26/2017 1:10:59 PM	31417
Toluene	ND	2.6		mg/Kg	50	4/26/2017 1:10:59 PM	31417
Ethylbenzene	15	2.6		mg/Kg	50	4/26/2017 1:10:59 PM	31417
Xylenes, Total	150	5.1		mg/Kg	50	4/26/2017 1:10:59 PM	31417
Surr: 4-Bromofluorobenzene	113	66.6-132		%Rec	50	4/26/2017 1:10:59 PM	31417

TPH = 2,589 mg/Kg S & R Closure standard = 100 mg/Kg
Benzene = 12 mg/Kg S & R Closure standard = 10 mg/Kg
Total BTEX = 177 mg/Kg S & R Closure standard = 50 mg/Kg

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

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 SAME DAY

Project Name: MUDGE A # 2

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ NV

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.4

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. 1704384	BTEX + ~~MTBE + TMB's~~ (8021B)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (soil - 300.0 / water - 300.1)		Grab sample	5 pt. composite sample	Air Bubbles (Y or N)
4/25/17	1420	SOIL	5PC - TB @ 6 '(95)	4 oz. - 1	Cool	-001	✓		✓									✓			✓	

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/25/17	1540			4/25/17	1540
Date:	Time:	Relinquished by:	Received by:	Date	Time
				04/26/17	0700

Remarks: BILL DIRECTLY TO BP USING THE CONTACT WITH CORRESPONDING VID & REFERENCE # WHEN APPLICABLE;
CONTACT: STEVE MOSKAL / VANCE HIXON
VID: VHIXONEVB2
Reference # P - 786

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: 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 SAME DAY

Project Name: MUDGE A # 2

Project #:

Project Manager: NELSON VELEZ

Sampler: NELSON VELEZ

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.4

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. 1704335	Analysis Request: 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)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride (soil - 300.0 / water - 300.1)		Grab sample	# pt: composite sample	Air Bubbles (Y or N)
4/25/17	1432	SOIL	TH1 @ 13'-14' (95)	4oz.-1	COOL	-001	✓		✓									✓		✓		

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
4/25/17	1540			4/25/17	1540	BILL DIRECTLY TO BP USING THE CONTACT WITH CORRESPONDING VID & REFERENCE # WHEN APPLICABLE;
4/25/17	1847		04/26/17	0700	CONTACT: STEVE MOSKAL VID: VRITCJWFEC Reference # P - 786

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

May 26, 2017

Steven Moskal

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

RE: MUDGE A 2 OrderNo.: 1705C79

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/25/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1705C79**
Date Reported: **5/26/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1705C79-001 **Matrix:** SOIL

Client Sample ID: SE Corner 3-Point
Collection Date: 5/24/2017 3:10:00 PM
Received Date: 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	35	30		mg/Kg	20	5/25/2017 11:25:26 AM	31974
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	160	9.2		mg/Kg	1	5/25/2017 10:07:54 AM	31956
Motor Oil Range Organics (MRO)	95	46		mg/Kg	1	5/25/2017 10:07:54 AM	31956
Surr: DNOP	103	70-130		%Rec	1	5/25/2017 10:07:54 AM	31956
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	2400	360		mg/Kg	100	5/25/2017 9:57:50 AM	G43065
Surr: BFB	191	54-150	S	%Rec	100	5/25/2017 9:57:50 AM	G43065
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	3.7	1.8		mg/Kg	100	5/25/2017 9:57:50 AM	B43065
Toluene	3.1	1.8		mg/Kg	100	5/25/2017 9:57:50 AM	B43065
Ethylbenzene	13	3.6		mg/Kg	100	5/25/2017 9:57:50 AM	B43065
Xylenes, Total	150	7.3		mg/Kg	100	5/25/2017 9:57:50 AM	B43065
Surr: 4-Bromofluorobenzene	100	66.6-132		%Rec	100	5/25/2017 9:57:50 AM	B43065

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1705C79-002 **Matrix:** SOIL

Client Sample ID: North Wall 8-Point
Collection Date: 5/24/2017 3:21:00 PM
Received Date: 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	5/25/2017 11:37:50 AM	31974
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/25/2017 10:30:06 AM	31956
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	5/25/2017 10:30:06 AM	31956
Surr: DNOP	95.7	70-130		%Rec	1	5/25/2017 10:30:06 AM	31956
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.7		mg/Kg	1	5/25/2017 11:36:34 AM	G43065
Surr: BFB	94.8	54-150		%Rec	1	5/25/2017 11:36:34 AM	G43065
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	5/25/2017 11:36:34 AM	B43065
Toluene	ND	0.037		mg/Kg	1	5/25/2017 11:36:34 AM	B43065
Ethylbenzene	ND	0.037		mg/Kg	1	5/25/2017 11:36:34 AM	B43065
Xylenes, Total	ND	0.074		mg/Kg	1	5/25/2017 11:36:34 AM	B43065
Surr: 4-Bromofluorobenzene	93.5	66.6-132		%Rec	1	5/25/2017 11:36:34 AM	B43065

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1705C79-003 **Matrix:** SOIL

Client Sample ID: West Wall 8-Point
Collection Date: 5/24/2017 3:30:00 PM
Received Date: 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	5/25/2017 11:50:15 AM	31974
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	16	9.8		mg/Kg	1	5/25/2017 10:52:10 AM	31956
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/25/2017 10:52:10 AM	31956
Surr: DNOP	101	70-130		%Rec	1	5/25/2017 10:52:10 AM	31956
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	21		mg/Kg	5	5/25/2017 12:00:11 PM	G43065
Surr: BFB	127	54-150		%Rec	5	5/25/2017 12:00:11 PM	G43065
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.11		mg/Kg	5	5/25/2017 12:00:11 PM	B43065
Toluene	ND	0.21		mg/Kg	5	5/25/2017 12:00:11 PM	B43065
Ethylbenzene	ND	0.21		mg/Kg	5	5/25/2017 12:00:11 PM	B43065
Xylenes, Total	ND	0.43		mg/Kg	5	5/25/2017 12:00:11 PM	B43065
Surr: 4-Bromofluorobenzene	97.4	66.6-132		%Rec	5	5/25/2017 12:00:11 PM	B43065

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#: **1705C79**

26-May-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID	**MB-31974**	SampType:	**MBLK**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**31974**		RunNo:	**43067**				
Prep Date:	**5/25/2017**	Analysis Date:	**5/25/2017**		SeqNo:	**1355858**	Units:	**mg/Kg**		

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

Sample ID	**LCS-31974**	SampType:	**LCS**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**31974**		RunNo:	**43067**				
Prep Date:	**5/25/2017**	Analysis Date:	**5/25/2017**		SeqNo:	**1355859**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705C79**

26-May-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **LCS-31943**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **31943**	RunNo: **43051**							
Prep Date: **5/24/2017**	Analysis Date: **5/25/2017**	SeqNo: **1354741**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		95.2	70	130			

Sample ID **MB-31943**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **31943**	RunNo: **43051**							
Prep Date: **5/24/2017**	Analysis Date: **5/25/2017**	SeqNo: **1354742**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.6		10.00		96.1	70	130			

Sample ID **LCS-31956**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **31956**	RunNo: **43052**							
Prep Date: **5/25/2017**	Analysis Date: **5/25/2017**	SeqNo: **1354925**	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	91.1	73.2	114			
Surr: DNOP	4.3		5.000		85.7	70	130			

Sample ID **MB-31956**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **31956**	RunNo: **43052**							
Prep Date: **5/25/2017**	Analysis Date: **5/25/2017**	SeqNo: **1354926**	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	8.1		10.00		81.3	70	130			

Sample ID **LCS-31932**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **31932**	RunNo: **43051**							
Prep Date: **5/24/2017**	Analysis Date: **5/25/2017**	SeqNo: **1355829**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.3	70	130			

Sample ID **MB-31932**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **31932**	RunNo: **43051**							
Prep Date: **5/24/2017**	Analysis Date: **5/25/2017**	SeqNo: **1355830**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		94.4	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#: **1705C79**

26-May-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G43065**	RunNo: **43065**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355625** 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		92.3	54	150			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G43065**	RunNo: **43065**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355626** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	76.4	125			
Surr: BFB	1000		1000		103	54	150			

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#: **1705C79**

26-May-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B43065**	RunNo: **43065**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355634** 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	66.6	132			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B43065**	RunNo: **43065**
Prep Date:	Analysis Date: **5/25/2017**	SeqNo: **1355635** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	85.3	80	120			
Toluene	0.90	0.050	1.000	0	89.6	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.0	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.6	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		93.9	66.6	132			

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: 1705C79 RcptNo: 1

Received By: Anne Thorne 5/25/2017 7:10:00 AM

Completed By: Anne Thorne 5/25/2017 7:58:21 AM

Reviewed By: 5/25/17

Chain of Custody

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

Log In

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

☐ Standard ☒ Rush

Project Name: MUDGE A 2

Project #:

Project Manager: STEVE MOSKAL

Sampler: JEFF BLAGG

On Ice: ☒ Yes ☐ No

Sample Temperature: .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 # (05/25/17 MeOH kit)	Preservative Type	HEAL No. 1705C79	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)
5/24/17	1510	SOIL	SE Corner 3-Point	4oz x1	COOL	001	X		X									X				
"	1521	"	North Wall 8-Point	"	"	002	X		X									X				
"	1530	"	West Wall 8-Point	"	"	003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/24/17	1640	Jeff Blagg	Chantel Walker	5/24/17	1640
5/24/17	1804	Chantel Walker		05/25/17	0710

Remarks: Bill BP contact: Steve Moskal
VID: VHIXONEVRM
WBS Element: L1-0018M-E:10984

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

June 01, 2017

Steven Moskal

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

RE: MUDGE A #2 OrderNo.: 1705E89

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/31/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1705E89**
Date Reported: **6/1/2017**

CLIENT: Blagg Engineering
Project: MUDGE A #2
Lab ID: 1705E89-001 **Matrix:** SOIL

Client Sample ID: East Wall S End 5-pt
Collection Date: 5/30/2017 2:08:00 PM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	330	30		mg/Kg	20	5/31/2017 11:11:03 AM	32038
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	120	9.6		mg/Kg	1	5/31/2017 10:51:53 AM	32035
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/31/2017 10:51:53 AM	32035
Surr: DNOP	96.9	70-130		%Rec	1	5/31/2017 10:51:53 AM	32035
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	110	17		mg/Kg	5	5/31/2017 11:48:53 AM	R43151
Surr: BFB	311	54-150	S	%Rec	5	5/31/2017 11:48:53 AM	R43151
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.084		mg/Kg	5	5/31/2017 11:48:53 AM	B43151
Toluene	0.30	0.17		mg/Kg	5	5/31/2017 11:48:53 AM	B43151
Ethylbenzene	ND	0.17		mg/Kg	5	5/31/2017 11:48:53 AM	B43151
Xylenes, Total	3.8	0.34		mg/Kg	5	5/31/2017 11:48:53 AM	B43151
Surr: 4-Bromofluorobenzene	125	66.6-132		%Rec	5	5/31/2017 11:48:53 AM	B43151

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A #2
Lab ID: 1705E89-002 **Matrix:** SOIL

Client Sample ID: South Wall E End 5-pt
Collection Date: 5/30/2017 2:11:00 PM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	390	30		mg/Kg	20	5/31/2017 11:23:28 AM	32038
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	11	10		mg/Kg	1	5/31/2017 11:13:51 AM	32035
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	5/31/2017 11:13:51 AM	32035
Surr: DNOP	98.1	70-130		%Rec	1	5/31/2017 11:13:51 AM	32035
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	16		mg/Kg	5	5/31/2017 12:12:49 PM	R43151
Surr: BFB	103	54-150		%Rec	5	5/31/2017 12:12:49 PM	R43151
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.080		mg/Kg	5	5/31/2017 12:12:49 PM	B43151
Toluene	ND	0.16		mg/Kg	5	5/31/2017 12:12:49 PM	B43151
Ethylbenzene	ND	0.16		mg/Kg	5	5/31/2017 12:12:49 PM	B43151
Xylenes, Total	ND	0.32		mg/Kg	5	5/31/2017 12:12:49 PM	B43151
Surr: 4-Bromofluorobenzene	113	66.6-132		%Rec	5	5/31/2017 12:12:49 PM	B43151

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A #2
Lab ID: 1705E89-003 **Matrix:** SOIL

Client Sample ID: South Wall W End 5-pt
Collection Date: 5/30/2017 2:15:00 PM
Received Date: 5/31/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	30		mg/Kg	20	5/31/2017 11:35:52 AM	32038
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	210	9.8		mg/Kg	1	5/31/2017 11:35:51 AM	32035
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/31/2017 11:35:51 AM	32035
Surr: DNOP	103	70-130		%Rec	1	5/31/2017 11:35:51 AM	32035
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	380	66		mg/Kg	20	5/31/2017 12:36:43 PM	R43151
Surr: BFB	199	54-150	S	%Rec	20	5/31/2017 12:36:43 PM	R43151
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	0.33		mg/Kg	20	5/31/2017 12:36:43 PM	B43151
Toluene	3.0	0.66		mg/Kg	20	5/31/2017 12:36:43 PM	B43151
Ethylbenzene	1.8	0.66		mg/Kg	20	5/31/2017 12:36:43 PM	B43151
Xylenes, Total	22	1.3		mg/Kg	20	5/31/2017 12:36:43 PM	B43151
Surr: 4-Bromofluorobenzene	118	66.6-132		%Rec	20	5/31/2017 12:36:43 PM	B43151

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#: **1705E89**

01-Jun-17

Client: Blagg Engineering
Project: MUDGE A #2

Sample ID	**MB-32038**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**32038**		RunNo:	**43159**				
Prep Date:	**5/31/2017**	Analysis Date:	**5/31/2017**		SeqNo:	**1359147**	Units:	**mg/Kg**		

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

Sample ID	**LCS-32038**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**32038**		RunNo:	**43159**				
Prep Date:	**5/31/2017**	Analysis Date:	**5/31/2017**		SeqNo:	**1359148**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.7	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#: **1705E89**

01-Jun-17

Client: Blagg Engineering
Project: MUDGE A #2

Sample ID **LCS-32035**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32035**	RunNo: **43153**
Prep Date: **5/31/2017**	Analysis Date: **5/31/2017**	SeqNo: **1358341** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.2	73.2	114			
Surr: DNOP	4.2		5.000		85.0	70	130			

Sample ID **MB-32035**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32035**	RunNo: **43153**
Prep Date: **5/31/2017**	Analysis Date: **5/31/2017**	SeqNo: **1358342** 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	9.1		10.00		91.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1705E89**

01-Jun-17

Client: Blagg Engineering
Project: MUDGE A #2

Sample ID **2.5UG GRO LCS**	SampType: **LCS**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **R43151**			RunNo: **43151**					
Prep Date:	Analysis Date: **5/31/2017**			SeqNo: **1359038**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.0	76.4	125			
Surr: BFB	1100		1000		107	54	150			

Sample ID **RB**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Gasoline Range**					
Client ID: **PBS**	Batch ID: **R43151**			RunNo: **43151**					
Prep Date:	Analysis Date: **5/31/2017**			SeqNo: **1359039**		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	54	150			

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#: **1705E89**

01-Jun-17

Client: Blagg Engineering
Project: MUDGE A #2

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **B43151**	RunNo: **43151**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359043** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	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	107	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		114	66.6	132			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **B43151**	RunNo: **43151**
Prep Date:	Analysis Date: **5/31/2017**	SeqNo: **1359046** 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		112	66.6	132			

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: 1705E89 RcptNo: 1

Received By: Anne Thorne 5/31/2017 7:15:00 AM Anne Thorne
Completed By: Anne Thorne 5/31/2017 7:49:02 AM Anne Thorne
Reviewed By: 5/31/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

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

17. Additional remarks:

18. **Cooler Information**

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

Chain-of-Custody Record

Client: BP America
Blagg Engineering
Mailing Address:

Phone #: (505) 320-1183
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: SAME DAY
☐ Standard ☒ Rush
Project Name: MUDGE A #2
Project #:
Project Manager: STEVE MOSKAL
Sampler: J. Blagg
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.3

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and # (05/31/17) MeOH kits	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)
5/30/17	1408	SOIL	EAST WALL-S. END 5-pt	4 oz x1	COOL	001	X		X									X				
"	1411	"	SOUTH WALL-E. END 5-pt	"	"	002	X		X									X				
"	1415	"	SOUTH WALL-W. END 5-pt	"	"	003	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/30/17	1620	J. Blagg		05/31/17	0715
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: BILL BP CONTACT: STEVE MOSKAL
VID: VHIXONEVRM
WBS Element: L1-0018M-E:10984

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

June 06, 2017

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

RE: MUDGE A 2 OrderNo.: 1706155

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/5/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706155**
Date Reported: **6/6/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1706155-001 **Matrix:** SOIL

Client Sample ID: GRAB @ 40'
Collection Date: 6/2/2017 2:38:00 PM
Received Date: 6/5/2017 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/5/2017 9:11:35 AM	32097
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/5/2017 9:11:35 AM	32097
Surr: DNOP	85.2	70-130		%Rec	1	6/5/2017 9:11:35 AM	32097
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	3.6		mg/Kg	1	6/5/2017 12:39:20 PM	32090
Surr: BFB	102	54-150		%Rec	1	6/5/2017 12:39:20 PM	32090
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.018		mg/Kg	1	6/5/2017 12:39:20 PM	32090
Toluene	ND	0.036		mg/Kg	1	6/5/2017 12:39:20 PM	32090
Ethylbenzene	ND	0.036		mg/Kg	1	6/5/2017 12:39:20 PM	32090
Xylenes, Total	ND	0.072		mg/Kg	1	6/5/2017 12:39:20 PM	32090
Surr: 4-Bromofluorobenzene	123	66.6-132		%Rec	1	6/5/2017 12:39:20 PM	32090

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#: **1706155**

06-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **LCS-32097**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32097**	RunNo: **43241**
Prep Date: **6/5/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361182** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.7	73.2	114			
Surr: DNOP	3.6		5.000		72.5	70	130			

Sample ID **MB-32097**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32097**	RunNo: **43241**
Prep Date: **6/5/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361183** 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	8.5		10.00		85.0	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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#: **1706155**

06-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **MB-32090**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32090**	RunNo: **43255**
Prep Date: **6/2/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361956** 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		102	54	150			

Sample ID **LCS-32090**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32090**	RunNo: **43255**
Prep Date: **6/2/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361957** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.0	76.4	125			
Surr: BFB	1100		1000		108	54	150			

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#: **1706155**

06-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **MB-32090**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **32090**	RunNo: **43255**
Prep Date: **6/2/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361976** 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	1.3		1.000		126	66.6	132			

Sample ID **LCS-32090**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **32090**	RunNo: **43255**
Prep Date: **6/2/2017**	Analysis Date: **6/5/2017**	SeqNo: **1361977** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	99.8	80	120			
Toluene	1.0	0.050	1.000	0	99.9	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		126	66.6	132			

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: 1706155 | RcptNo: 1

Received By: Anne Thorne 6/5/2017 7:30:00 AM

Completed By: Anne Thorne 6/5/2017 7:52:43 AM

Reviewed By: 6/5/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: BP AMERICA
BLAGG ENGINEERING
Mailing Address:

Phone #: (505) 320-1183
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: SAME DAY
☐ Standard ☒ Rush
Project Name: MUDGE A 2
Project #:
Project Manager: STEVE MOSKAL
Sampler: JEFF BLAGG
On Ice: ☒ Yes ☐ No
Sample Temperature: .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 # (6/6/05/17 MeoHKit)	Preservative Type	HEAL No. 1706155	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)					Air Bubbles (Y or N)
6/2/2017	1438	SOIL	GRAB @ 40'	4oz x 1	COOL	001	X		X													

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/4/2017	1847	Jeff Blagg	Christine Walters	6/4/2017	1847
6/4/17	1915	Christine Walters		06/05/17	0730

Remarks: BILL BP CONTACT: STEVE MOSKAL
VID: VHIXONEVRM
WBS ELEMENT: L1-0018M-E:10984

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
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TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 07, 2017

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

RE: MUDGE A 2 OrderNo.: 1706219

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/6/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706219**
Date Reported: **6/7/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: MUDGE A 2
Lab ID: 1706219-001 **Matrix:** SOIL

Client Sample ID: GRAB @ 42'
Collection Date: 6/5/2017 4:31:00 PM
Received Date: 6/6/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	510	30		mg/Kg	20	6/6/2017 12:01:16 PM	32133
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	210	9.6		mg/Kg	1	6/6/2017 9:10:01 AM	32126
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/6/2017 9:10:01 AM	32126
Surr: DNOP	90.9	70-130		%Rec	1	6/6/2017 9:10:01 AM	32126
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	4100	190		mg/Kg	50	6/6/2017 11:27:39 AM	32111
Surr: BFB	345	54-150	S	%Rec	50	6/6/2017 11:27:39 AM	32111
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	11	0.95		mg/Kg	50	6/6/2017 11:27:39 AM	32111
Toluene	100	1.9		mg/Kg	50	6/6/2017 11:27:39 AM	32111
Ethylbenzene	27	1.9		mg/Kg	50	6/6/2017 11:27:39 AM	32111
Xylenes, Total	330	3.8		mg/Kg	50	6/6/2017 11:27:39 AM	32111
Surr: 4-Bromofluorobenzene	140	66.6-132	S	%Rec	50	6/6/2017 11:27:39 AM	32111

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#: **1706219**

07-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID	**MB-32133**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**32133**		RunNo:	**43284**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/6/2017**		SeqNo:	**1363498**	Units:	**mg/Kg**		

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

Sample ID	**LCS-32133**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**32133**		RunNo:	**43284**				
Prep Date:	**6/6/2017**	Analysis Date:	**6/6/2017**		SeqNo:	**1363499**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.4	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#: **1706219**

07-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **LCS-32126**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **32126**			RunNo: **43268**					
Prep Date: **6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1362102**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.6	73.2	114			
Surr: DNOP	3.6		5.000		72.9	70	130			

Sample ID **MB-32126**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **32126**			RunNo: **43268**					
Prep Date: **6/6/2017**	Analysis Date: **6/6/2017**			SeqNo: **1362103**		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	9.6		10.00		96.4	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#: **1706219**

07-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **MB-32111**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32111**	RunNo: **43287**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1363134** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.2	54	150			

Sample ID **LCS-32111**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32111**	RunNo: **43287**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1363135** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	76.4	125			
Surr: BFB	1100		1000		111	54	150			

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#: **1706219**

07-Jun-17

Client: Blagg Engineering
Project: MUDGE A 2

Sample ID **MB-32111**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **32111**	RunNo: **43287**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1363144** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		124	66.6	132			

Sample ID **LCS-32111**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **32111**	RunNo: **43287**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1363145** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	80	120			
Toluene	1.0	0.050	1.000	0	104	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 4-Bromofluorobenzene	1.3		1.000		128	66.6	132			

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: 1706219 RcptNo: 1

Received By: Anne Thorne 6/6/2017 7:15:00 AM Anne Thorne
Completed By: Anne Thorne 6/6/2017 7:31:30 AM Anne Thorne
Reviewed By: 6/6/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

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

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: BP America
Blagg Engineering
Mailing Address:

Phone #: (505) 320-4183
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: SAME DAY
☐ Standard ☒ Rush
Project Name: A MUDGE A 2
Project #:
Project Manager: STEVE MOSKAL
Sampler: J. 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.
6/5/17	1631	SOIL	GRAB @ 42'	4 oz mason jar w/ Mod Lid	COOL	1706219-001

Analysis Request

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)
X		X									X				

Date	Time	Relinquished by:	Received by:	Date	Time
6/5/17	1744	Jeff Blagg	Chris Walters	6/5/17	1744
6/5/17	1830	Chris Walters			

Remarks: Bill BP Contact: Steve Moskal
VID: VHIXONEVRM
WBS: LI-0018M-E:22147

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

June 19, 2017

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

RE: Mudge A 2 OrderNo.: 1706575

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/10/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706575**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge A 2
Lab ID: 1706575-001 **Matrix:** SOIL

Client Sample ID: West Wall (26'-36') 5-pt
Collection Date: 6/9/2017 3:54:00 PM
Received Date: 6/10/2017 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	45	30		mg/Kg	20	6/17/2017 8:56:00 PM	32341
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	32	9.3		mg/Kg	1	6/14/2017 9:36:20 PM	32258
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/14/2017 9:36:20 PM	32258
Surr: DNOP	100	70-130		%Rec	1	6/14/2017 9:36:20 PM	32258
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/14/2017 8:57:29 PM	32244
Surr: BFB	134	54-150		%Rec	1	6/14/2017 8:57:29 PM	32244
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.043	0.023		mg/Kg	1	6/14/2017 8:57:29 PM	32244
Toluene	ND	0.047		mg/Kg	1	6/14/2017 8:57:29 PM	32244
Ethylbenzene	0.050	0.047		mg/Kg	1	6/14/2017 8:57:29 PM	32244
Xylenes, Total	0.17	0.094		mg/Kg	1	6/14/2017 8:57:29 PM	32244
Surr: 4-Bromofluorobenzene	110	66.6-132		%Rec	1	6/14/2017 8:57:29 PM	32244

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge A 2
Lab ID: 1706575-002 **Matrix:** SOIL

Client Sample ID: West Base (38') 5-pt
Collection Date: 6/9/2017 3:47:00 PM
Received Date: 6/10/2017 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	44	30		mg/Kg	20	6/17/2017 9:08:24 PM	32341
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	24	9.8		mg/Kg	1	6/14/2017 10:04:56 PM	32258
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/14/2017 10:04:56 PM	32258
Surr: DNOP	97.3	70-130		%Rec	1	6/14/2017 10:04:56 PM	32258
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5.0	4.9		mg/Kg	1	6/14/2017 9:21:16 PM	32244
Surr: BFB	146	54-150		%Rec	1	6/14/2017 9:21:16 PM	32244
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.041	0.024		mg/Kg	1	6/14/2017 9:21:16 PM	32244
Toluene	ND	0.049		mg/Kg	1	6/14/2017 9:21:16 PM	32244
Ethylbenzene	0.091	0.049		mg/Kg	1	6/14/2017 9:21:16 PM	32244
Xylenes, Total	0.40	0.098		mg/Kg	1	6/14/2017 9:21:16 PM	32244
Surr: 4-Bromofluorobenzene	112	66.6-132		%Rec	1	6/14/2017 9:21:16 PM	32244

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

Qualifiers:

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

Analytical Report
Lab Order **1706575**
Date Reported: **6/19/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge A 2
Lab ID: 1706575-003 **Matrix:** SOIL

Client Sample ID: South Wall (26'-36') 5-pt
Collection Date: 6/9/2017 3:33:00 PM
Received Date: 6/10/2017 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	600	30		mg/Kg	20	6/17/2017 9:20:48 PM	32341
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	18	9.5		mg/Kg	1	6/14/2017 10:33:49 PM	32258
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/14/2017 10:33:49 PM	32258
Surr: DNOP	95.9	70-130		%Rec	1	6/14/2017 10:33:49 PM	32258
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/14/2017 9:44:50 PM	32244
Surr: BFB	120	54-150		%Rec	1	6/14/2017 9:44:50 PM	32244
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	6/14/2017 9:44:50 PM	32244
Toluene	ND	0.046		mg/Kg	1	6/14/2017 9:44:50 PM	32244
Ethylbenzene	ND	0.046		mg/Kg	1	6/14/2017 9:44:50 PM	32244
Xylenes, Total	ND	0.093		mg/Kg	1	6/14/2017 9:44:50 PM	32244
Surr: 4-Bromofluorobenzene	112	66.6-132		%Rec	1	6/14/2017 9:44:50 PM	32244

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	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706575**

19-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID	**MB-32341**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**32341**		RunNo:	**43585**				
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**		SeqNo:	**1372898**	Units:	**mg/Kg**		

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

Sample ID	**LCS-32341**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**32341**		RunNo:	**43585**				
Prep Date:	**6/17/2017**	Analysis Date:	**6/17/2017**		SeqNo:	**1372899**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.5	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706575**

19-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32258**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32258**	RunNo: **43496**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1369816** Units: **mg/Kg**

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

Sample ID **LCS-32258**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32258**	RunNo: **43496**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370823** 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	109	73.2	114			
Surr: DNOP	4.9		5.000		98.7	70	130			

Sample ID **LCS-32292**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32292**	RunNo: **43528**
Prep Date: **6/14/2017**	Analysis Date: **6/15/2017**	SeqNo: **1372096** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.1		5.000		81.4	70	130			

Sample ID **MB-32292**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32292**	RunNo: **43528**
Prep Date: **6/14/2017**	Analysis Date: **6/15/2017**	SeqNo: **1372097** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.7		10.00		87.4	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	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706575**

19-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32244**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32244**	RunNo: **43491**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370036** 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	1100		1000		110	54	150			

Sample ID **LCS-32244**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32244**	RunNo: **43491**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370037** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.8	76.4	125			
Surr: BFB	1200		1000		119	54	150			

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	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706575**

19-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32244**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **32244**	RunNo: **43491**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370062** 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		108	66.6	132			

Sample ID **LCS-32244**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **32244**	RunNo: **43491**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370063** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	99.6	80	120			
Toluene	1.0	0.050	1.000	0	99.8	80	120			
Ethylbenzene	0.98	0.050	1.000	0	97.8	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.2	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	66.6	132			

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	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	% Recovery outside of range due to dilution or matrix

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: BLAGG | Work Order Number: 1706575 | RcptNo: 1

Received By: Andy Freeman 6/10/2017 11:15:00 AM

Completed By: Ashley Gallegos 6/12/2017 11:39:32 AM

Reviewed By: 6/12/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

Chain-of-Custody Record

Client: BP AMERICA

BLAGG ENGINEERING INC

Mailing Address:

Phone #: (505) 320-1183

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: ~~SAME DAY~~ 6/12
(X) Standard X Rush Standard TAT

Project Name: MUDGE A 2

Project #:

Project Manager: STEVE MOSKAL

Sampler: JEFF BLAGG

On Ice: X 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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1706575	BTEX + ~~MTBE + TMB~~'s (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
6/9/2017	1554	SOIL	West Wall (26'-36') 5-pt	4oz x1	COOL	-001	X		X									X				
"	1547	"	West Base (38') 5-pt	"	"	-002	"		"									"				
"	1533	"	South Wall (26'-36') 5-pt	"	"	-003	"		"									"				

Date: 6/9/2017 Time: 1730 Relinquished by: Jeff Blagg Received by: Date 6/10/17 Time 1115

Date: Time: Relinquished by: Received by: Date Time

Remarks: Bill BP CONTACT: STEVE MOSKAL
VID: VHIXONEVRM
WBS ELEMENT: L1-0018M-E: 10984

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

June 21, 2017

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

RE: Mudge A 2 OrderNo.: 1706650

Dear Steven Moskal:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/13/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706650**
Date Reported: **6/21/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge A 2
Lab ID: 1706650-001 **Matrix:** SOIL

Client Sample ID: NE BASE 5-pt @ 37'
Collection Date: 6/12/2017 10:16:00 AM
Received Date: 6/13/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	74	30		mg/Kg	20	6/20/2017 3:51:18 PM	32385
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	89	9.9		mg/Kg	1	6/14/2017 11:59:55 PM	32258
Motor Oil Range Organics (MRO)	65	50		mg/Kg	1	6/14/2017 11:59:55 PM	32258
Surr: DNOP	97.1	70-130		%Rec	1	6/14/2017 11:59:55 PM	32258
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	200	24		mg/Kg	5	6/15/2017 11:18:36 PM	32257
Surr: BFB	296	54-150	S	%Rec	5	6/15/2017 11:18:36 PM	32257
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.19	0.12		mg/Kg	5	6/14/2017 5:47:27 PM	32257
Toluene	0.56	0.24		mg/Kg	5	6/14/2017 5:47:27 PM	32257
Ethylbenzene	1.2	0.24		mg/Kg	5	6/14/2017 5:47:27 PM	32257
Xylenes, Total	18	0.48		mg/Kg	5	6/15/2017 11:18:36 PM	32257
Surr: 4-Bromofluorobenzene	132	66.6-132		%Rec	5	6/14/2017 5:47:27 PM	32257

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Mudge A 2
Lab ID: 1706650-002 **Matrix:** SOIL

Client Sample ID: N. Wall 5-pt (26'-36')
Collection Date: 6/12/2017 10:24:00 AM
Received Date: 6/13/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	410	30		mg/Kg	20	6/20/2017 4:03:43 PM	32385
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	20	10		mg/Kg	1	6/15/2017 12:28:15 AM	32258
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/15/2017 12:28:15 AM	32258
Surr: DNOP	94.3	70-130		%Rec	1	6/15/2017 12:28:15 AM	32258
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/16/2017 12:06:20 AM	32257
Surr: BFB	116	54-150		%Rec	1	6/16/2017 12:06:20 AM	32257
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	6/14/2017 6:35:26 PM	32257
Toluene	ND	0.047		mg/Kg	1	6/14/2017 6:35:26 PM	32257
Ethylbenzene	ND	0.047		mg/Kg	1	6/14/2017 6:35:26 PM	32257
Xylenes, Total	ND	0.095		mg/Kg	1	6/14/2017 6:35:26 PM	32257
Surr: 4-Bromofluorobenzene	118	66.6-132		%Rec	1	6/14/2017 6:35:26 PM	32257

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#: **1706650**

21-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID	**MB-32385**	SampType:	**mblk**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**32385**		RunNo:	**43638**				
Prep Date:	**6/20/2017**	Analysis Date:	**6/20/2017**		SeqNo:	**1375850**	Units:	**mg/Kg**		

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

Sample ID	**LCS-32385**	SampType:	**lcs**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**32385**		RunNo:	**43638**				
Prep Date:	**6/20/2017**	Analysis Date:	**6/20/2017**		SeqNo:	**1375851**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	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#: **1706650**

21-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32258**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32258**	RunNo: **43496**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1369816** Units: **mg/Kg**

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

Sample ID **LCS-32258**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32258**	RunNo: **43496**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370823** 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	109	73.2	114			
Surr: DNOP	4.9		5.000		98.7	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#: **1706650**

21-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32257**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32257**	RunNo: **43490**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370009** 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		95.9	54	150			

Sample ID **LCS-32257**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32257**	RunNo: **43490**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370010** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	76.4	125			
Surr: BFB	1000		1000		103	54	150			

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#: **1706650**

21-Jun-17

Client: Blagg Engineering
Project: Mudge A 2

Sample ID **MB-32257**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **32257**	RunNo: **43490**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370018** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.2		1.000		123	66.6	132			

Sample ID **LCS-32257**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **32257**	RunNo: **43490**
Prep Date: **6/13/2017**	Analysis Date: **6/14/2017**	SeqNo: **1370019** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	105	80	120			
Toluene	1.1	0.050	1.000	0	106	80	120			
Ethylbenzene	1.1	0.050	1.000	0	106	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 4-Bromofluorobenzene	1.2		1.000		125	66.6	132			

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: 1706650 | RcptNo: 1

Received By: Anne Thorne 6/13/2017 7:55:00 AM

Completed By: Sophia Campuzano 6/13/2017 11:16:14 AM

Reviewed By: ENM 06/13/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: ____ Date: ____

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

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: BP AMERICA

BLAGG ENGINEERING INC.

Mailing Address:

Phone #: (505) 320-1193

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: MUDGE A 2

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1706650	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	CHLORIDE				Air Bubbles (Y or N)
6/12/17	1016	SOIL	NE BASE 5-pt @ 37'	4 oz x 1	COOL	-001	X		X									X				
"	1024	"	N. WALL 5-pt (26'-36')	"	"	-002	X		X									X				

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/12/17	1119	Jeff Blagg		6/12/17	1119
6/12/17	1817			06/13/17	0753

Remarks: BILL BP CONTACT: STEVE MOSKAL

VID: VHIXONEVRM

WBS ELEMENT: L1-0018M-E: 10984

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.