

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

State of New Mexico
Energy Minerals and Natural Resources

Form C-141
Revised August 8, 2011

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

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.: 505-330-9179
Facility Name: Sammons GC A 001A	Facility Type: Natural gas well

Surface Owner: Fee	Mineral Owner: Fee	API No. 30-045-22135
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LOCATION OF RELEASE

Unit Letter P	Section 6	Township 31N	Range 10W	Feet from the 830	North/South Line South	Feet from the 1,000	East/West Line East	County: San Juan
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Latitude 36.92262° Longitude -107.91809°

NATURE OF RELEASE

Type of Release: Condensate	Volume of Release: Unknown	Volume Recovered: Unknown
Source of Release: Unknown (near meter run within northwest portion of well pad)	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: March 1, 2013
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour: OIL CONS. DIV DIST. 3	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. JUL 13 2017	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Identification of hydrocarbon impacted soil from an unknown source (near meter run within northwest portion of well pad). Two initial soil borings were advanced March 2013, and eight follow-up delineation soil borings were advanced August 2013. An additional 4 borings were advanced in October 2016. The recent borings indicate the SVE system is not effective in remediation due to the soil type. The area will be excavated and backfilled with clean, imported soils.

Describe Area Affected and Cleanup Action Taken.* The impacted soils were delineated to be approximately 30'x30' in area with vertical interval impacts approximately 5 to 35' bgs. Of the eight follow-up delineation soil borings, four showed hydrocarbon impacts to soil. These same four borings were converted into SVE points. A SVE remediation system has been operating at location since March 2015. BP advanced an additional 4 borings in October 2016; these borings indicate that the SVE is not effective. Attached is a site diagram, soil boring logs and laboratory results. The area will be excavated at a later date.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Steve Moskal	Approved by Environmental Specialist: 	
Title: Field Environmental Coordinator	Approval Date: <u>8/4/17</u>	Expiration Date:
E-mail Address: steven.moskal@bp.com	Conditions of Approval: <u>Start</u>	Attached <input checked="" type="checkbox"/> <u>Email</u>
Date: July 13, 2017 Phone: 505-326-9429	<u>Remediation By: 9/29/17</u>	

* Attach Additional Sheets If Necessary
#NCS1628650832

Sample for TPA (MRO-GRO-DRO)
Btex.

36

Smith, Cory, EMNRD

From: Smith, Cory, EMNRD
Sent: Friday, August 4, 2017 1:36 PM
To: 'Moskal, Steven'; Ritchie, John
Cc: jeffcblagg@aol.com; Fields, Vanessa, EMNRD
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

All,

OCD has approved the subsequent C-141 for the Sammons GC A #1A (API# 30-045-22135) received on July 13, 2017 with the following conditions of approval.

BP will;

- Commence remediation no later than September 29, 2017
- Sample the excavation for TPH(MR-DRO-GRO), and BTEX
- Provide 72 hour but no more than 1 week notice prior to the start of excavation
- Provide atleast 24 hour notice prior to the collect of any confirmation closure samples.

OCD approval does not relieve BP of any requirements imposed by other regulatory agencies.

If you have any additional questions please give me a call.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Moskal, Steven [mailto:Steven.Moskal@bp.com]
Sent: Friday, June 23, 2017 1:23 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Ritchie, John <John.Ritchie@bp.com>
Cc: jeffcblagg@aol.com; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

We will also submit a C-141 with a SVE update for the Mudge LS 007 next week. The SVE unit has been down, off and on, for quite some time due to issues with the electrical panel. The unit became fully operational just yesterday. I hope to perform additional delineation/closure sampling sometime later this year.

Steve Moskal
BP Lower 48 – San Juan
Field Environmental Coordinator
Office: (505) 326-9497
Cell: (505) 330-9179



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From: Smith, Cory, EMNRD [<mailto:Cory.Smith@state.nm.us>]
Sent: Friday, June 23, 2017 11:52 AM
To: Moskal, Steven; Ritchie, John
Cc: jeffcblagg@aol.com; Fields, Vanessa, EMNRD
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

Steve,

Thanks is the Mudge LS 07 On this list as well? Working on compliance issues and I had ask John for an updated C-141/work plan for the SVE unit.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Moskal, Steven [<mailto:Steven.Moskal@bp.com>]
Sent: Friday, June 23, 2017 11:37 AM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Ritchie, John <John.Ritchie@bp.com>
Cc: jeffcblagg@aol.com; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

Cory – We will submit the C-141 next week as John is out of the office today.

The current plan is to excavate the soil impacts from the location fairly soon. This is one of the sites I would like to discuss during our meeting next week.

Thank you,

Steve Moskal
BP Lower 48 – San Juan
Field Environmental Coordinator
Office: (505) 326-9497
Cell: (505) 330-9179



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From: Smith, Cory, EMNRD [<mailto:Cory.Smith@state.nm.us>]
Sent: Friday, June 23, 2017 10:26 AM
To: Ritchie, John
Cc: Moskal, Steven; jeffcblagg@aol.com; Fields, Vanessa, EMNRD
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

Good Morning John,

I believe we had a discussion on the Sammons Gas Com A #1A SVE in late October from the below Email.

Could you please submit the discussed Initial C-141 in hard copy with any updated information since then.

Thanks.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Ritchie, John [<mailto:John.Ritchie@bp.com>]
Sent: Wednesday, October 12, 2016 6:36 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Moskal, Steven <Steven.Moskal@bp.com>; jeffcblagg@aol.com; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

Thank you Cory.

Please see the attached C-141 and Closure Plan for the Sammons GC A 001A location. I will be available by cell phone all day tomorrow to discuss any questions or comments to either submittal.

We are intending on starting/continuing the soil investigation at Mudge LS 7 tomorrow morning. It is our intent to achieve full delineation at that site prior to moving over to the Sammons GC A 001A for closure sampling. There is a chance we will be at the Mudge LS 7 for most of the day, possibly pushing our efforts at the Sammons GC A 001A until Friday morning.

I will keep you updated throughout the day if it appears we will be able to begin work at the Sammons before the end of the day tomorrow.

Thank you Cory for your time and review.

John Ritchie

BP Lower 48 - San Juan South - Farmington
Field Environmental Coordinator

o. (505) 326-9429

c. (505) 320-7703

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From: Smith, Cory, EMNRD [<mailto:Cory.Smith@state.nm.us>]
Sent: Wednesday, October 12, 2016 2:18 PM
To: Ritchie, John
Cc: Moskal, Steven; jeffcblagg@aol.com; Fields, Vanessa, EMNRD
Subject: RE: Scope of Work Discussion at 4 Remediation System Sites

John,

I was updated our incidents with the information we discussed yesterday. It appears that Jeff Peace never sent in an initial C-141 for the Mudge Ls 7 or the Sammons GC a 1A. I will use the C-141 that you were going to send in as an update as the initial one so please make sure it has all of the correct information on them.

Thanks.

Cory Smith
Environmental Specialist
Oil Conservation Division
Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410
(505)334-6178 ext 115
cory.smith@state.nm.us

From: Ritchie, John [<mailto:John.Ritchie@bp.com>]
Sent: Tuesday, October 11, 2016 1:40 PM
To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>
Cc: Moskal, Steven <Steven.Moskal@bp.com>; jeffcblagg@aol.com
Subject: Scope of Work Discussion at 4 Remediation System Sites

Thank you Cory for taking the time to discuss status and immediate SOW we intend on conducting later this week at 4 of BP's remediation sites that have been remediated by SVE systems. My hope is to update you on the status of each of the 4 sites, and present you with a rough SOW that we hope to implement later this week while we have some availability with a contractor here in town. Below is a rough description of each with additional data files for discussion.

MUDGE LS 7 (300451043100): Planned for Thursday AM

Previous excavation to 20', remaining impacts below 20' treated by SVE; SVE System has reached asymptotic rate (all 10 points)

3 Borings, near BH-11 (TD 40' bgs), BH-6 (TD 35' bgs), BH-1 (TD 30' bgs), plus 4 on edge of delineation = 7
TOTAL

2-3 Soil samples per boring

SAMMONS GC A1A (300452213500): Planned for Thursday PM

SVE System has reach asymptotic rate (all 4 points)

1 Boring near BH-1/VH-3, and possibly up to 2 additional within impacted area (TD 25' bgs)

2-3 TOTAL Borings

2-3 Soil samples per boring

ATLANTIC A LS 9A (300452249200): Planned for Friday AM

SVE System has reached asymptotic rate (all 5 points)

Most likely still impacts near GP-2 (30-45' bgs), possibly GP-3 (38-48' bgs)

2 Borings near GP-2 (TD 50' bgs) and GP-3 (TD 50' bgs) = 2 TOTAL Borings

2-3 Soil samples per boring

If impacts are still obvious between 30-50', Set 2 SVE points (screened 30-50' bgs, and 38-48' bgs).

IRVIN COM 1E (30045258411): Planned for Friday PM

Periodic elevated Xylenes in MW-6

Install 1 AS point near MW-6 and existing SVE point

DTW = (19.8 feet to 21.8 feet last 3 years)

New AS point screened 27-25' bgs with riser to surface

Run AS and SVE together.

John Ritchie

BP Lower 48 - San Juan South - Farmington

Field Environmental Coordinator

o. (505) 326-9429

c. (505) 320-7703

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

Initial Final Report

Name of Company: BP	Contact: John Ritchie
Address: 200 Energy Court, Farmington, NM 87401	Telephone No.: 505-326-9429
Facility Name: Sammons GC A 001A	Facility Type: Natural gas well
Surface Owner: Fee	Mineral Owner: Fee
API No. 30-045-22135	

LOCATION OF RELEASE

Unit Letter P	Section 6	Township 31N	Range 10W	Feet from the 830	North/South Line South	Feet from the 1,000	East/West Line East	County: San Juan
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Latitude 36.92262° Longitude -107.91809°

NATURE OF RELEASE

Type of Release: Condensate	Volume of Release: Unknown	Volume Recovered: Unknown
Source of Release: Unknown (near meter run within northwest portion of well pad)	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery: March 1, 2013
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	OIL CONS. DIV DIST. 3 JUL 03 2017
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* Identification of hydrocarbon impacted soil from an unknown source (near meter run within northwest portion of well pad). Two initial soil borings were advanced March 2013, and eight follow-up delineation soil borings were advanced August 2013.

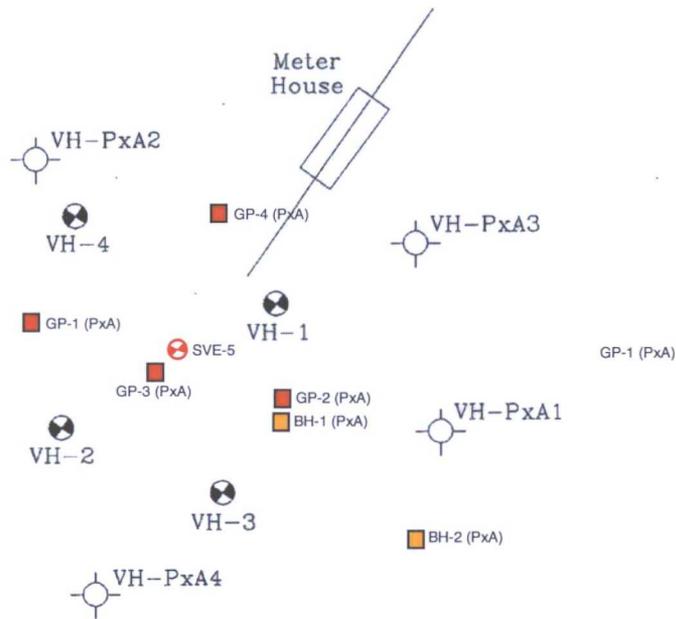
Describe Area Affected and Cleanup Action Taken.* The impacted soils were delineated to be approximately 30'x30' in area with vertical interval impacts approximately 5 to 35' bgs. Of the eight follow-up delineation soil borings, four showed hydrocarbon impacts to soil. These same four borings were converted into SVE points. A SVE remediation system has been operating at location since March 2015. Based on the expected diminishing/asymptotic levels of OVM readings within the effluent stream of the SVE system, from all four SVE points, it is determined that the SVE system has effectively recovered any remaining residual hydrocarbon impacts to subsurface soil. As a result, BP considers soil confirmation of in-place material is warranted in order to demonstrate effective remediation at this site.

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

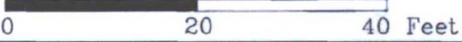
Signature: 	OIL CONSERVATION DIVISION	
Printed Name: John Ritchie	Approved by Environmental Specialist: <u>N/A</u>	
Title: Field Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: john.ritchie@bp.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: October 12, 2016	Phone: 505-326-9429	

* Attach Additional Sheets If Necessary

operator Submitted New C-141 CS



Note: BH borings installed March 2013
 VH borings installed August 2013
 GP borings and SVE-5 installed October 2016

LEGEND	
N ↑	 SVE Point
	

SITE FIGURE		<i>BLAGG ENGINEERING, INC.</i>	
BP ** Sammons GC A 1A ** (P)6-T31N-R10W.			
FIGURE 1	BY: JCB	P.O. BOX 87, BLOOMFIELD, NM PHONE: (505)632-1199	

BLAGG ENGINEERING, INC.

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

West (Between 2+4)

FIELD BORING LOG

BORING ID: GP-1

PROJECT: SAMMONS A. 1A
 CLIENT: BP America Production Co.
 DRILLING CONTRACTOR: Earth Worx
 EQUIPMENT USED: Geoprobe 6620DT
 DATE START: 10/13/16 DATE FINISH: 10/13/16 DRILLER: LT LOGGED BY: JB
 TOTAL DEPTH: 40 CASING TYPE & SIZE: _____ SLOT SIZE: _____
 COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	QVM	SAMPLE DESCRIPTION
1'	1529			START
2'				Recover 36", Likely moist silty sand, TAN, no stain. V. LITE odor 3'-4'
3'				
4'	1531		3.4	
5'				
6'				Recover 28", silty sand (SAA) with same lite HC odor.
7'				
8'	1533		4.0	
9'				
10'				Recover 28" SAA, same odor. Minor silt stringers.
11'				
12'	1535	TPH = 5.037 ppm	21.7	
13'				
14'				Recover 34" SAA, No odor Beginning @ 15'
15'				
16'	1538		1.4	
17'				
18'				Recover 27", SAA, with v. lite HC odor
19'				
20'	1542		1.0	
21'				
22'				SAA 20'-22' Recover 36" 22'-24' Fine sand All with HC odor
23'				
24'	1547	TPH = 7.700 ppm	35.1	
25'				
26'				Recover 18" Fine sand SAA, with odor.
27'				
28'	1551		0.8	
29'				
30'				

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

Page 2 of 2

FIELD BORING LOG

BORING ID: GP-1

PROJECT: SAMMONS A 1A
 CLIENT: BP America Production Co.
 DRILLING CONTRACTOR: EARTHWORKS
 EQUIPMENT USED: GP-4620 DT
 DATE START: 10/13/16 DATE FINISH: 10/13/16 DRILLER: LT LOGGED BY: JB
 TOTAL DEPTH: 40' CASING TYPE & SIZE: _____ SLOT SIZE: _____
 COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	OVUM	SAMPLE DESCRIPTION
31'				Recover 17" silty sand, lite Mox, NO/NS
32'	1556		0.8	
33'				
34'				Recover 22" SAA.
35'				
36'	1600		0.9	
37'				
38'				Recover 8" SAA
39'				
40'	1603	TPH = ND	1.0	
41'				
42'				
43'				
44'				
45'				
46'				
47'				
48'				
49'				
50'				
51'				
52'				
53'				
54'				
55'				
56'				
57'				
58'				
59'				
60'				

EAST side

FIELD BORING LOG

BORING ID: GP-2

PROJECT: SAMMONS A 1A
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/14/16 DATE FINISH: 10/14/16 DRILLER: LT LOGGED BY: JCB
TOTAL DEPTH: _____ CASING TYPE & SIZE: _____ SLOT SIZE: _____
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
1'	0839			START
2'				RECOVER 12", DRY silty sand, TAN, NO/NS
3'				
4'	0840		10.8	
5'				
6'				RECOVER 12", likely moist TAN silty sand, minor odor
7'				
8'	0841		10.7	
9'				
10'				RECOVER 18", SAA
11'				
12'	0844		28.9	
13'				
14'				RECOVER 22", SAT, increased odor
15'				
16'	0847	TPH = 4,812 ppm	35.2	
17'				
18'				RECOVER 24", SAA
19'				
20'	0850		20.2	
21'				
22'				RECOVER 20", SAA, less odor
23'				
24'	0909		10.1	
25'				
26'				
27'				RECOVER 12", SAA
28'	0912		2.5	
29'				
30'				

TPH (5-pt comp 10' - 24') = 5,408 ppm

BLAGG ENGINEERING, INC.

P.O. BOX 87, BLOOMFIELD, NM 87413

(505) 632-1199

EAST SIDE

FIELD BORING LOG

BORING ID: CP-2

PROJECT: SANMONS A 1A

CLIENT: BP America Production Co.

DRILLING CONTRACTOR: EAERWORK

EQUIPMENT USED: GP 6620DT

DATE START: 10/14/2016 DATE FINISH: 10/14/16 DRILLER: LT LOGGED BY: JCB

TOTAL DEPTH: 40 CASING TYPE & SIZE: - SLOT SIZE: -

COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
31'	0917		10.7	Recover 16" SAA
32'				+
33'				+
34'				+
35'	0920		11.0	Recover 16", SAA, NO ODOR
36'				+
37'				+
38'	0925	TPH = ND	11.1	Recover 18" SAA
39'				+
40'				+
41'				
42'				
43'				
44'				
45'				
46'				
47'				
48'				
49'				
50'				
51'				
52'				
53'				
54'				
55'				
56'				
57'				
58'				
59'				
60'				

Center of Impact

FIELD BORING LOG

BORING ID: GP-3

PROJECT: SAMMUS A 1A
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: Earth Worx
EQUIPMENT USED: Geoprobe 6620DT
DATE START: 10/14/16 DATE FINISH: 10/14/16 DRILLER: LT LOGGED BY: JB
TOTAL DEPTH: 40' CASING TYPE & SIZE: - SLOT SIZE: -
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
1'	0937			START
2'				Recover 18", TAN w/ely moist silty SAND minor HC ODR.
3'				
4'	0938		9.9	
5'				
6'				Recover 30", SAA
7'				
8'	0940		80.1	
9'				
10'				Recover 32", SAA 40.10'
11'				10'-12': moist DARK BROWN silt w HC ODR.
12'	0943	TPH = 11,220 ppm	292	
13'				
14'				Recover 42", silty SAND, Dark Brown, moist Lite HC ODR.
15'				
16'	0945		84.0	
17'				
18'				Recover 36", SAA
19'				
20'	0947		26.3	
21'				
22'				Recover 34", SAA
23'				
24'	0951		6.0	
25'				
26'				Recover 30", SAA
27'				
28'	0954		2.7	
29'				
30'				

TPH (5-pt @ 6'-20') = 7,036 ppm

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

FIELD BORING LOG

BORING ID: GP-3

PROJECT: Sammors A IA
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: EARTH WORK
EQUIPMENT USED: GP 6620DT
DATE START: 10/14/2016 DATE FINISH: _____ DRILLER: LT LOGGED BY: JLB
TOTAL DEPTH: 40' CASING TYPE & SIZE: - SLOT SIZE: -
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
31'	0956		1.4	Recover 30", SAA, VV lite odor
32'				
33'				
34'				
35'	1000		2.1	Recover 36", SAA
36'				
37'				
38'				
39'	1004	TPH = ND	2.1	Recover 36", SAA, No odor No stain.
40'				
41'				
42'				
43'				
44'				
45'				
46'				
47'				
48'				
49'				
50'				
51'				
52'				
53'				
54'				
55'				
56'				
57'				
58'				
59'				
60'				

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

NORTH Side OF Center

FIELD BORING LOG

BORING ID: GP-4

PROJECT: Sammous A. 1A
 CLIENT: BP America Production Co.
 DRILLING CONTRACTOR: Earth Worx
 EQUIPMENT USED: Geoprobe 6620DT
 DATE START: 10/14/2014 DATE FINISH: 10/14/14 DRILLER: LT LOGGED BY: JB
 TOTAL DEPTH: 40 CASING TYPE & SIZE: - SLOT SIZE: -
 COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
1'	1033			START
2'				Recover 12" Lately Moist TAN silty SAND, NO/NS
3'				
4'	1034		1.8	
5'				
6'				Recover 16" SAA
7'				
8'	1036		4.0	
9'				
10'				Recover 12" SAA
11'				
12'	1038		4.0	
13'				
14'				Recover 18", SAA, lite HC ODOR 15'-16'
15'				
16'	1041		24.9	
17'				
18'				Recover 30" SAA, No ODOR
19'				
20'	1043		10.3	
21'				
22'				Recover 18", No ODOR
23'				
24'	1045		3.6	
25'				
26'				Recover 12", SAA
27'				
28'	1048		3.2	
29'				
30'				

TPH = 6,309 ppm

TPH (3-pt @ 14'-20') = 4,100 ppm

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

FIELD BORING LOG

BORING ID: GP-4

PROJECT: SAMMIES A 1A
CLIENT: BP America Production Co.
DRILLING CONTRACTOR: EARTHWORK*
EQUIPMENT USED: GP 1020 DT
DATE START: 10/14/2016 DATE FINISH: 10/14/16 DRILLER: LT LOGGED BY: JJB
TOTAL DEPTH: 40' CASING TYPE & SIZE: - SLOT SIZE: -
COMMENTS:

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE		SAMPLE DESCRIPTION
31'				Recover 4" SAA
32'	1052		2.4	
33'				
34'				
35'				Recover 12" SAA
36'	1058		2.8	
37'				
38'				
39'				Recover 12" SAA
40'	1103	TPH = ND	1.7	
41'				
42'				
43'				
44'				
45'				
46'				
47'				
48'				
49'				
50'				
51'				
52'				
53'				
54'				
55'				
56'				
57'				
58'				
59'				
60'				

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

FIELD BORING LOG

BORING ID: SVE-5

PROJECT: Sammias A 1A
 CLIENT: BP America Production Co.
 DRILLING CONTRACTOR: Earth Worx
 EQUIPMENT USED: Geoprobe 6620DT
 DATE START: 10/14/2014 DATE FINISH: 10/14/2014 DRILLER: LT LOGGED BY: JB
 TOTAL DEPTH: 30' CASING TYPE & SIZE: 2" PVC SLOT SIZE: 0.010
 COMMENTS: Boring Installed For SVE Point - NO SAMPLING

DEPTH FEET	SAMPLE TIME	SAMPLE TYPE	DVM (ppm)	SAMPLE DESCRIPTION
1'				
2'				
3'				
4'				
5'				
6'				
7'				
8'				
9'				
10'				
11'				
12'				
13'				
14'				
15'				
16'				
17'				
18'				
19'				
20'				
21'				
22'				
23'				
24'				
25'				
26'				
27'				
28'				
29'				
30'				



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

October 28, 2016

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

RE: Sammons GC A 1A

OrderNo.: 1610843

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory received 12 sample(s) on 10/18/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-1 @ 11'-12'

Project: Sammons GC A 1A

Collection Date: 10/13/2016 3:35:00 PM

Lab ID: 1610843-001

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 9:44:56 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	5700	100		mg/Kg	10	10/20/2016 4:06:03 PM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 4:06:03 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	37	4.7		mg/Kg	1	10/19/2016 3:41:52 PM	28132
Surr: BFB	324	68.3-144	S	%Rec	1	10/19/2016 3:41:52 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2016 3:41:52 PM	28132
Toluene	ND	0.047		mg/Kg	1	10/19/2016 3:41:52 PM	28132
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2016 3:41:52 PM	28132
Xylenes, Total	0.098	0.095		mg/Kg	1	10/19/2016 3:41:52 PM	28132
Surr: 4-Bromofluorobenzene	123	80-120	S	%Rec	1	10/19/2016 3:41:52 PM	28132

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

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

Analytical Report

Lab Order 1610843

Date Reported: 10/28/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-1 @ 23'-24'

Project: Sammons GC A 1A

Collection Date: 10/13/2016 3:47:00 PM

Lab ID: 1610843-002

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 9:57:21 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	7700	95		mg/Kg	10	10/20/2016 4:49:08 PM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 4:49:08 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	23	D	mg/Kg	5	10/19/2016 5:43:09 PM	28132
Surr: BFB	79.5	68.3-144	D	%Rec	5	10/19/2016 5:43:09 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.12	D	mg/Kg	5	10/19/2016 5:43:09 PM	28132
Toluene	ND	0.23	D	mg/Kg	5	10/19/2016 5:43:09 PM	28132
Ethylbenzene	ND	0.23	D	mg/Kg	5	10/19/2016 5:43:09 PM	28132
Xylenes, Total	ND	0.47	D	mg/Kg	5	10/19/2016 5:43:09 PM	28132
Surr: 4-Bromofluorobenzene	96.7	80-120	D	%Rec	5	10/19/2016 5:43:09 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-1 @ 39'-40'

Project: Sammons GC A 1A

Collection Date: 10/13/2016 4:03:00 PM

Lab ID: 1610843-003

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 10:09:46 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/20/2016 5:32:28 PM	28168
Surr: DNOP	96.7	70-130		%Rec	1	10/20/2016 5:32:28 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/20/2016 1:03:26 PM	28132
Surr: BFB	83.7	68.3-144		%Rec	1	10/20/2016 1:03:26 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/20/2016 1:03:26 PM	28132
Toluene	ND	0.050		mg/Kg	1	10/20/2016 1:03:26 PM	28132
Ethylbenzene	ND	0.050		mg/Kg	1	10/20/2016 1:03:26 PM	28132
Xylenes, Total	ND	0.099		mg/Kg	1	10/20/2016 1:03:26 PM	28132
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	1	10/20/2016 1:03:26 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Sammons GC A 1A
Lab ID: 1610843-004

Matrix: SOIL

Client Sample ID: GP-2 @ 15'-16'
Collection Date: 10/14/2016 8:47:00 AM
Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 10:22:11 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	4800	93		mg/Kg	10	10/20/2016 6:15:43 PM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 6:15:43 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	12	4.8		mg/Kg	1	10/19/2016 6:31:56 PM	28132
Surr: BFB	217	68.3-144	S	%Rec	1	10/19/2016 6:31:56 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2016 6:31:56 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 6:31:56 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 6:31:56 PM	28132
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2016 6:31:56 PM	28132
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	10/19/2016 6:31:56 PM	28132

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

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

Analytical Report

Lab Order 1610843

Date Reported: 10/28/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
 Project: Sammons GC A 1A
 Lab ID: 1610843-005

Matrix: SOIL

Client Sample ID: GP-2 @ 39'-40'
 Collection Date: 10/14/2016 9:25:00 AM
 Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 10:34:35 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/20/2016 3:31:24 PM	28168
Surr: DNOP	92.5	70-130		%Rec	1	10/20/2016 3:31:24 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/20/2016 1:26:49 PM	28132
Surr: BFB	82.2	68.3-144		%Rec	1	10/20/2016 1:26:49 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2016 1:26:49 PM	28132
Toluene	ND	0.047		mg/Kg	1	10/20/2016 1:26:49 PM	28132
Ethylbenzene	ND	0.047		mg/Kg	1	10/20/2016 1:26:49 PM	28132
Xylenes, Total	ND	0.095		mg/Kg	1	10/20/2016 1:26:49 PM	28132
Surr: 4-Bromofluorobenzene	93.9	80-120		%Rec	1	10/20/2016 1:26:49 PM	28132

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

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

Analytical Report

Lab Order 1610843

Date Reported: 10/28/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
 Project: Sammons GC A 1A
 Lab ID: 1610843-006

Matrix: SOIL

Client Sample ID: GP-2: 5pt (10'-24')
 Collection Date: 10/14/2016 9:30:00 AM
 Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 10:47:00 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	5400	94		mg/Kg	10	10/20/2016 2:35:43 PM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 2:35:43 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	8.4	4.9		mg/Kg	1	10/19/2016 7:20:31 PM	28132
Surr: BFB	159	68.3-144	S	%Rec	1	10/19/2016 7:20:31 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/19/2016 7:20:31 PM	28132
Toluene	ND	0.049		mg/Kg	1	10/19/2016 7:20:31 PM	28132
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2016 7:20:31 PM	28132
Xylenes, Total	ND	0.099		mg/Kg	1	10/19/2016 7:20:31 PM	28132
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	10/19/2016 7:20:31 PM	28132

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

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

Analytical Report

Lab Order 1610843

Date Reported: 10/28/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
 Project: Sammons GC A 1A
 Lab ID: 1610843-007

Matrix: SOIL

Client Sample ID: GP-3 @ 11'-12'
 Collection Date: 10/14/2016 9:43:00 AM
 Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 10:59:25 PM	28282
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	11000	940		mg/Kg	100	10/21/2016 8:58:10 AM	28168
Surr: DNOP	0	70-130	S	%Rec	100	10/21/2016 8:58:10 AM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	220	4.8		mg/Kg	1	10/19/2016 7:44:44 PM	28132
Surr: BFB	1300	68.3-144	S	%Rec	1	10/19/2016 7:44:44 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2016 7:44:44 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 7:44:44 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 7:44:44 PM	28132
Xylenes, Total	0.62	0.097		mg/Kg	1	10/19/2016 7:44:44 PM	28132
Surr: 4-Bromofluorobenzene	236	80-120	S	%Rec	1	10/19/2016 7:44:44 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-3 @ 39'-40'

Project: Sammons GC A 1A

Collection Date: 10/14/2016 10:04:00 AM

Lab ID: 1610843-008

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 11:36:49 AM	28304
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	10/20/2016 12:44:49 PM	28168
Surr: DNOP	94.3	70-130		%Rec	1	10/20/2016 12:44:49 PM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/20/2016 1:50:10 PM	28132
Surr: BFB	87.4	68.3-144		%Rec	1	10/20/2016 1:50:10 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2016 1:50:10 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/20/2016 1:50:10 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/20/2016 1:50:10 PM	28132
Xylenes, Total	ND	0.097		mg/Kg	1	10/20/2016 1:50:10 PM	28132
Surr: 4-Bromofluorobenzene	98.7	80-120		%Rec	1	10/20/2016 1:50:10 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-3: 5-pt (6'-20')

Project: Sammons GC A 1A

Collection Date: 10/14/2016 10:20:00 AM

Lab ID: 1610843-009

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 12:14:04 PM	28304
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	7000	98		mg/Kg	10	10/20/2016 11:49:47 AM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 11:49:47 AM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	36	23	D	mg/Kg	5	10/19/2016 8:33:03 PM	28132
Surr: BFB	107	68.3-144	D	%Rec	5	10/19/2016 8:33:03 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.11	D	mg/Kg	5	10/19/2016 8:33:03 PM	28132
Toluene	ND	0.23	D	mg/Kg	5	10/19/2016 8:33:03 PM	28132
Ethylbenzene	ND	0.23	D	mg/Kg	5	10/19/2016 8:33:03 PM	28132
Xylenes, Total	ND	0.46	D	mg/Kg	5	10/19/2016 8:33:03 PM	28132
Surr: 4-Bromofluorobenzene	102	80-120	D	%Rec	5	10/19/2016 8:33:03 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering

Client Sample ID: GP-4 @ 15'-16'

Project: Sammons GC A 1A

Collection Date: 10/14/2016 10:41:00 AM

Lab ID: 1610843-010

Matrix: SOIL

Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 12:26:28 PM	28304
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	6300	95		mg/Kg	10	10/20/2016 10:55:04 AM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 10:55:04 AM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	9.4	5.0		mg/Kg	1	10/20/2016 2:13:42 PM	28132
Surr: BFB	213	68.3-144	S	%Rec	1	10/20/2016 2:13:42 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/20/2016 2:13:42 PM	28132
Toluene	ND	0.050		mg/Kg	1	10/20/2016 2:13:42 PM	28132
Ethylbenzene	ND	0.050		mg/Kg	1	10/20/2016 2:13:42 PM	28132
Xylenes, Total	ND	0.10		mg/Kg	1	10/20/2016 2:13:42 PM	28132
Surr: 4-Bromofluorobenzene	98.7	80-120		%Rec	1	10/20/2016 2:13:42 PM	28132

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
Project: Sammons GC A 1A
Lab ID: 1610843-011

Matrix: SOIL

Client Sample ID: GP-4 @ 39'-40'
Collection Date: 10/14/2016 11:03:00 AM
Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 12:38:52 PM	28304
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/20/2016 10:27:51 AM	28168
Surr: DNOP	95.8	70-130		%Rec	1	10/20/2016 10:27:51 AM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2016 9:21:27 PM	28132
Surr: BFB	88.8	68.3-144		%Rec	1	10/19/2016 9:21:27 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2016 9:21:27 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 9:21:27 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 9:21:27 PM	28132
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2016 9:21:27 PM	28132
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	10/19/2016 9:21:27 PM	28132

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

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

Analytical Report

Lab Order 1610843

Date Reported: 10/28/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Blagg Engineering
 Project: Sammons GC A 1A
 Lab ID: 1610843-012

Matrix: SOIL

Client Sample ID: GP-4: 3-pt (14'-20')
 Collection Date: 10/14/2016 11:10:00 AM
 Received Date: 10/18/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	ND	30		mg/Kg	20	10/26/2016 12:51:17 PM	28304
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	4100	98		mg/Kg	10	10/20/2016 10:00:35 AM	28168
Surr: DNOP	0	70-130	S	%Rec	10	10/20/2016 10:00:35 AM	28168
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2016 11:22:42 PM	28132
Surr: BFB	101	68.3-144		%Rec	1	10/19/2016 11:22:42 PM	28132
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2016 11:22:42 PM	28132
Toluene	ND	0.048		mg/Kg	1	10/19/2016 11:22:42 PM	28132
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2016 11:22:42 PM	28132
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2016 11:22:42 PM	28132
Surr: 4-Bromofluorobenzene	96.5	80-120		%Rec	1	10/19/2016 11:22:42 PM	28132

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610843

28-Oct-16

Client: Blagg Engineering
Project: Sammons GC A 1A

Sample ID	MB-28282	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	28282	RunNo:	38270					
Prep Date:	10/25/2016	Analysis Date:	10/26/2016	SeqNo:	1194409	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-28282	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	28282	RunNo:	38270					
Prep Date:	10/25/2016	Analysis Date:	10/26/2016	SeqNo:	1194410	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.7	90	110			

Sample ID	MB-28304	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	28304	RunNo:	38270					
Prep Date:	10/26/2016	Analysis Date:	10/26/2016	SeqNo:	1194460	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-28304	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	28304	RunNo:	38270					
Prep Date:	10/26/2016	Analysis Date:	10/26/2016	SeqNo:	1194461	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610843

28-Oct-16

Client: Blagg Engineering

Project: Sammons GC A 1A

Sample ID	MB-28168	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	28168	RunNo:	38067					
Prep Date:	10/19/2016	Analysis Date:	10/20/2016	SeqNo:	1187499	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	8.7		10.00		86.6	70	130			

Sample ID	LCS-28168	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	28168	RunNo:	38067					
Prep Date:	10/19/2016	Analysis Date:	10/20/2016	SeqNo:	1188812	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.7	62.6	124			
Surr: DNOP	4.3		5.000		86.8	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610843

28-Oct-16

Client: Blagg Engineering

Project: Sammons GC A 1A

Sample ID	MB-28132	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	28132	RunNo:	38052					
Prep Date:	10/18/2016	Analysis Date:	10/19/2016	SeqNo:	1186959	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		91.1	68.3	144			

Sample ID	LCS-28132	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	28132	RunNo:	38052					
Prep Date:	10/18/2016	Analysis Date:	10/19/2016	SeqNo:	1186960	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	74.6	123			
Surr: BFB	950		1000		94.9	68.3	144			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610843

28-Oct-16

Client: Blagg Engineering

Project: Sammons GC A 1A

Sample ID MB-28132	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 28132	RunNo: 38052								
Prep Date: 10/18/2016	Analysis Date: 10/19/2016	SeqNo: 1187007	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

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

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
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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: **1610843**

RcptNo: **1**

Received by/date: AT 10/18/16

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

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

Reviewed By: *JC W/10/16*

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: _____
 (< 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			

