

Tuesday, May 17, 2016

Ross Talboom
EOG Resources
600 17th Street, Suite 1000N
Denver, CO 80202

Re: ALS Workorder: 1605197
Project Name: Simba SWD
Project Number:

Dear Mr. Talboom:

Three soil samples were received from EOG Resources, on 5/10/2016. The samples were scheduled for the following analysis:

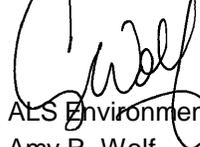
Inorganics

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,



ALS Environmental
Amy R. Wolf
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280



1605197

Inorganics:

The samples were analyzed following USDA Handbook 60 Chapter 6 procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Paste pH	USDA60	810 Draft
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1605197

Client Name: EOG Resources

Client Project Name: Simba SWD

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Simba_1	1605197-1		SOIL	10-May-16	12:00
Simba_2	1605197-2		SOIL	10-May-16	12:05
Simba_3	1605197-3		SOIL	10-May-16	12:08
Simba_1	1605197-4		SatExtract	10-May-16	12:00
Simba_2	1605197-5		SatExtract	10-May-16	12:05
Simba_3	1605197-6		SatExtract	10-May-16	12:08



ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.
Turnaround time for samples received Saturday will be calculated beginning from the next business day.

3.22

ALS WORKORDER #

1605197

PROJECT NAME	Simba SWD		TURNAROUND TIME	Regular TAT	SAMPLER	Blake Ford		PAGE	1	of	1							
PROJECT No.			SITE ID					DISPOSAL	BY LAB	or	RETURN							
COMPANY NAME	EOG Resources		EDD FORMAT					PARAMETER/METHOD REQUEST FOR ANALYSIS										
SEND REPORT TO	Blake Ford		PURCHASE ORDER															
ADDRESS	3001 E. Pershing Blvd. Suite 100		BILL TO COMPANY	EOG Resources				A EC										
CITY / STATE / ZIP	Cheyenne, WY 82001		INVOICE ATTN TO	Ross Talboom				B SAR										
PHONE	307-757-8323		ADDRESS	6000 17th Street, Suite 1000N				C pH										
FAX			CITY / STATE / ZIP	Denver, CO 80202				D										
E-MAIL	blake_ford@eogresources.com		PHONE	303-824-5519				E										
			FAX					F										
			E-MAIL	ross_talboom@eogresources.com				G										
								H										
								I										
								J										
LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
①	Simba_1	S	5/10/16	1200	1	-		X	X	X								
②	Simba_2	S	5/10/16	1205	1	-		X	X	X								
③	Simba_3	S	5/10/16	1208	1	-		X	X	X								

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
	<i>Blake Ford</i>	Blake Ford	5/10/2016	14:00
RECEIVED BY	SIGNATURE	PRINTED NAME	DATE	TIME
	<i>Rebecca Merold</i>	Rebecca Merold	5/10/2016	15:55
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

REPORT LEVEL / QC REQUIRED	NOTES
Summary (Standard QC)	
LEVEL II (Standard QC)	
LEVEL III (Std QC + forms)	
LEVEL IV (Std QC + forms + raw data)	
PRESERVATION KEY	1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other



ALS Environmental - Fort Collins
 CONDITION OF SAMPLE UPON RECEIPT FORM

Client: EOG

Workorder No: 1605197

Project Manager: ARW

Initials: SDM Date: 05-10-16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	<input checked="" type="radio"/> DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4 RAD ONLY		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>3.2</u>			
No. of custody seals on cooler: <u>8</u>			
External µR/hr reading: <u>N/A</u>			
Background µR/hr reading: <u>4</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <input checked="" type="radio"/> NA (if no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: *ARW* 5/11/16

Client: EOG Resources

Date: 17-May-16

Project: Simba SWD

Work Order: 1605197

Sample ID: Simba_1

Lab ID: 1605197-1

Legal Location:

Matrix: SOIL

Collection Date: 5/10/2016 12:00

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Sodium Adsorption Ratio PASTE PH	9		USDA60	0.1 pH	1	Prep Date: 5/17/2016 PrepBy: CBA 5/17/2016

Client: EOG Resources
Project: Simba SWD
Sample ID: Simba_2
Legal Location:
Collection Date: 5/10/2016 12:05

Date: 17-May-16
Work Order: 1605197
Lab ID: 1605197-2
Matrix: SOIL
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Sodium Adsorption Ratio PASTE PH	8.4		USDA60	0.1 pH	1	5/17/2016
					Prep Date: 5/17/2016	PrepBy: CBA

Client: EOG Resources

Date: 17-May-16

Project: Simba SWD

Work Order: 1605197

Sample ID: Simba_3

Lab ID: 1605197-3

Legal Location:

Matrix: SOIL

Collection Date: 5/10/2016 12:08

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Sodium Adsorption Ratio PASTE PH	7.3		USDA60	0.1 pH	1	Prep Date: 5/17/2016 PrepBy: CBA 5/17/2016

Client: EOG Resources
Project: Simba SWD
Sample ID: Simba_1
Legal Location:
Collection Date: 5/10/2016 12:00

Date: 17-May-16
Work Order: 1605197
Lab ID: 1605197-4
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals						
			USDA60		Prep Date: 5/13/2016	PrepBy: NAQ
CALCIUM	29		10	MG/L	10	5/17/2016 12:19
MAGNESIUM	ND		10	MG/L	10	5/17/2016 12:19
SODIUM	130		10	MG/L	10	5/17/2016 12:19
Sodium Adsorption Ratio						
			USDA60		Prep Date: 5/17/2016	PrepBy: CBA
ELECTRICAL CONDUCTIVITY @ SATURATION	820		1	umhos/cm	1	5/17/2016
SODIUM ADSORPTION RATIO	5.2	S	0.54	NU	10	5/17/2016 12:19

Client: EOG Resources
Project: Simba SWD
Sample ID: Simba_2
Legal Location:
Collection Date: 5/10/2016 12:05

Date: 17-May-16
Work Order: 1605197
Lab ID: 1605197-5
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals						
			USDA60		Prep Date: 5/13/2016	PrepBy: NAQ
CALCIUM	55		10	MG/L	10	5/17/2016 12:20
MAGNESIUM	ND		10	MG/L	10	5/17/2016 12:20
SODIUM	25		10	MG/L	10	5/17/2016 12:20
Sodium Adsorption Ratio						
			USDA60		Prep Date: 5/17/2016	PrepBy: CBA
ELECTRICAL CONDUCTIVITY @ SATURATION	460		1	umhos/cm	1	5/17/2016
SODIUM ADSORPTION RATIO	0.82	S	0.54	NU	10	5/17/2016 12:20

Client: EOG Resources
Project: Simba SWD
Sample ID: Simba_3
Legal Location:
Collection Date: 5/10/2016 12:08

Date: 17-May-16
Work Order: 1605197
Lab ID: 1605197-6
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals			USDA60		Prep Date: 5/13/2016	PrepBy: NAQ
CALCIUM	180		10	MG/L	10	5/17/2016 12:21
MAGNESIUM	21		10	MG/L	10	5/17/2016 12:21
SODIUM	ND		10	MG/L	10	5/17/2016 12:21
Sodium Adsorption Ratio			USDA60		Prep Date: 5/17/2016	PrepBy: CBA
ELECTRICAL CONDUCTIVITY @ SATURATION	980		1	umhos/cm	1	5/17/2016
SODIUM ADSORPTION RATIO	0.19	S	0.54	NU	10	5/17/2016 12:21

Client: EOG Resources
Project: Simba SWD
Sample ID: Simba_3
Legal Location:
Collection Date: 5/10/2016 12:08

Date: 17-May-16
Work Order: 1605197
Lab ID: 1605197-6
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

- U or ND - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
- Y2 - Chemical Yield outside default limits.
- W - DER is greater than Warning Limit of 1.42
- * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
- # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
- G - Sample density differs by more than 15% of LCS density.
- D - DER is greater than Control Limit
- M - Requested MDC not met.
- LT - Result is less than requested MDC but greater than achieved MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS, Matrix Spike Recovery within control limits.
- N - Matrix Spike Recovery outside control limits
- NC - Not Calculated for duplicate results less than 5 times MDC
- B - Analyte concentration greater than MDC.
- B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

- B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
- U or ND - Indicates that the compound was analyzed for but not detected.
- E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
- M - Duplicate injection precision was not met.
- N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
- Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
- * - Duplicate analysis (relative percent difference) not within control limits.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

Client:
Work Order:
Project:

QC BATCH REPORT

Batch ID: _____ Instrument ID: _____ Method: _____

Sample ID:	Units:	Analysis Date:	#Error							
Client ID:	Run ID:	Prep Date:	DF:							
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	#Error	#Err	Qual

The following samples were analyzed in this batch: