

**Unocal 1 (Location ID 335206)**  
**Spill/Release Point ID 446791**  
**Form 4 (Status Update)**  
**Narrative Attachment**

This Form 4 (Status Update) was prepared for the purpose of describing completed work associated with the assessment of soil during the removal of a partially buried vessel (PBV) at the Unocal 1 (Location ID 335206) pad location in the Caerus Piceance, LLC (Caerus) area of operations.

Upon removing the PBV from the ground, visual observations and field screening of soil around and below the tank indicated that hydrocarbon-impacted soil was present. Excavation of the impacted soil was conducted and field screen readings were utilized to determine the extent of the impacts.

On June 27, 2016, confirmation soil samples were collected from the soil around and beneath the removed PBV (Base@9', N-Wall@5', E-Wall@5', S-Wall02@5', and W-Wall@5'). Soil samples were submitted for laboratory analysis of all COGCC Table 910-1 analytes. Analytical results indicate the majority of soil samples were in compliance with COGCC Table 910-1 Concentration Levels for all analytes or were within background concentrations. Analytes indicating exceedances included the electrical conductivity (EC) and/or sodium adsorption ratio (SAR) measurements for soil samples N-Wall@5', E-Wall@5', and W-Wall@5' and the total petroleum hydrocarbon (TPH) and benzene measurements for S-Wall02@5'. However, these samples were collected at a depth greater than three feet below the ground surface and the COGCC does not apply the Concentration Level for EC or SAR to soils deeper than three feet below the ground surface. Background samples were collected from an undisturbed area near the Chevron 41-8D pad (COGCC Location ID 324198). Sample locations are depicted on the attached Site Map and laboratory analytical results are summarized in the attached analytical table. Laboratory analytical reports are included as an attachment.

On July 19, 2016, additional soil was removed from the area represented by soil sample S-Wall02@5'. As the excavation progressed to the south, the vertical extent of the impacted soil increased. Additional soil samples (S-Base@17', E-Wall02@12', W-Wall02@15', and S-Wall04@12') were collected from the base and sidewalls of the excavation. Soil samples were submitted for laboratory analysis of all COGCC Table 910-1 analytes. Analytical results indicate all soil samples were in compliance with COGCC Table 910-1 Concentration Levels for all analytes or were within background concentrations except for the EC, pH, and/or SAR measurements for soil samples E-Wall02@12', W-Wall02@15', and S-Wall04@12' and the benzene measurements for soil samples W-Wall02@15', S-Wall04@12', and S-Base@17'. However, these samples were collected at a depth greater than three feet below the ground surface and the COGCC does not apply the Concentration Level for EC, pH, or SAR to soils deeper than three feet below the ground surface. The supplementary sample locations are depicted on the attached Site Map and laboratory analytical results are summarized in the attached analytical table. Laboratory analytical reports are included as an attachment.

On August 9, 2016, additional soil was removed from the areas represented by soil samples S-Base@17' and S-Wall04@12'. A soil sample (S-Base@22.5') was collected from the base of

the southern extent of the excavation and submitted for laboratory analysis of benzene. Analytical results indicate the soil sample was in compliance with the COGCC Table 910-1 Concentration Level for benzene. In order to determine the southwestern extent of the impact, a field screening sample was collected from a pothole advanced to 16 feet below ground surface approximately five feet west of the existing southwest corner of the excavation extent. Field screening readings indicate that the lateral extent of hydrocarbon-impacted soil terminates at this point.

Regarding the southern extent of the impacted soil, a decision was made to cease excavation activities and conduct research into the possibility that the excavation had progressed into the remnants of a legacy drilling/reserve pit used in 2007. This decision was based on analytical data, field screen readings, soil properties, and historical documents identifying a drilling/reserve pit in the area adjacent to the excavation.

On September 7, 2016, Carlos Lujan and Stan Spencer of the COGCC and Caerus personnel visited the location to review the project details and observe the existing excavation. Discussions were held to review the next steps of the project with regard to remediating soil associated with a historic drilling/reserve pit along the southern wall of the current excavation. Carlos and Stan were informed that all hydrocarbon-impacted soil associated with the failed PBV had been removed except for the southwestern corner and southern extent (area believed to be the northern extent of the historic drilling/reserve pit) and that confirmation soil samples were collected for verification. Caerus was directed by the COGCC to provide documentation that a drilling/reserve pit existed adjacent to the current environmental excavation. Pending the COGCC's review of this documentation, Caerus may be relieved of the responsibility of remediating the residual hydrocarbon impacts to soil associated with the historic drilling/reserve pit.

The documentation being used to argue the existence of the drilling/reserve pit include survey plat documents found on the COGCC database and water hauling invoices which reference the hauling of water to/from a reserve pit built on the Unocal 1 pad. Based on the COGCC-approved well Plat (COGCC Document ID 1752263) downloaded from the COGCC database which is presented in Appendix A of this narrative, it appears that the drilling/reserve pit was to be built in the area adjacent to the southern extent of the current excavation. Furthermore, during drilling operations associated with the Unocal-Encana 14A-16D, 24D-16D, and 14B-16D wells which are located on the Unocal 1 pad location, water was moved to and from this reserve pit for miscellaneous drilling operations. Details of this water transportation are noted on invoices presented in Appendix B.

According to COGCC Rule 1003.d(2) prior to 2009, there were no sampling requirements associated with the closure of drilling/reserve pits. Rules pertaining to drilling pit closure prior to 2009 included ensuring the drilling pit is sufficiently dry and that any muds and associated solids will be confined to the pit footprint and mitigating any subsidence occurring after pit closure. Based on the integrity of the reclaimed area above the historic pit, health of surrounding vegetation including multiple species of plant growing above the historic pit, and distance between ground surface and remaining hydrocarbon impacted soil associated with the historic pit, it appears that the above-mentioned rule was followed during the closure of the drilling/reserve pit.

Based on removal of the PBV, soil analytical results, proven compliance with former rules associated with drilling pit closure, and the above-mentioned documentation concerning the existence of the drilling/reserve pit, Caerus believes that no further excavation activities are warranted and respectfully requests that removal of the soil impacted by the leaking tank identified above be considered complete.

## FIGURES





## Legend

- Excavation Samples
- Fence

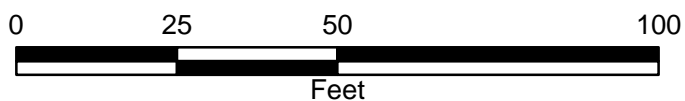


FIGURE 1  
SITE MAP  
UNOCAL 1 RELEASE  
GARFIELD COUNTY, COLORADO



## TABLES

TABLE 1  
UNOCAL 1  
SOIL ANALYTICAL RESULTS  
CAERUS OIL AND GAS  
PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	Base @ 9'	N-Wall @ 5'	E-Wall @ 5'	W-Wall @ 5'	S-Wall02 @ 5'	S-Wall04 @ 12'	E-Wall02 @ 12'	W-Wall02 @ 15'	S-Base @ 17'	S-Base @ 22.5'	BKGD 1*
Sample Date			6/27/2016	6/27/2016	6/27/2016	6/27/2016	6/27/2016	7/19/2016	7/19/2016	7/19/2016	7/19/2016	8/9/2016	7/22/2013
Sample Type			Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Confirmation	Background
Arsenic	0.39	mg/kg	31	30	35	19	20	28	12	20	20	NA	39
Barium	15,000	mg/kg	440	390	960	350	610	480	320	260	290	NA	NA
Cadmium	70	mg/kg	ND	0.97	ND	1.1	ND	ND	1.1	ND	ND	NA	NA
Chromium (III)	120,000	mg/kg	21	23	22	23	19	25	14	21	25	NA	NA
Chromium (VI)	23	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Copper	3,100	mg/kg	28	33	34	31	27	33	24	25	26	NA	NA
Lead	400	mg/kg	16	17	19	15	14	18	13	16	15	NA	NA
Mercury	23	mg/kg	0.020	0.019	0.026	ND	ND	0.019	0.025	ND	ND	NA	NA
Nickel	1,600	mg/kg	22	26	28	26	19	27	23	23	26	NA	NA
Selenium	390	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Silver	390	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Zinc	23,000	mg/kg	85	81	87	86	67	86	84	83	87	NA	NA
EC	4 or 2x background	mmhos/cm	2.6	21	4.9	7.6	2.6	12	15	20	0.42	NA	NA
pH	6-9	SU	8.6	8.9	8.8	8.0	8.1	9.1	7.9	8.2	9.0	NA	NA
SAR	12	unitless	6.1	44	17	8.6	4.2	49	17	31	11	NA	NA
TPH-DRO			49	63	64	ND	590	90	110	82	71	NA	NA
TPH-GRO			ND	ND	ND	ND	2,100	150	230	60	ND	NA	NA
TPH	500	mg/kg	49	63	64	ND	2,690	240	340	142	71	NA	NA
Benzene	0.17	mg/kg	ND	ND	ND	ND	0.37	2.0	0.061	0.80	1.1	ND	NA
Toluene	85	mg/kg	ND	ND	ND	ND	ND	0.19	0.046	0.41	0.18	NA	NA
Ethylbenzene	100	mg/kg	ND	ND	ND	ND	5.0	2.6	0.52	1.6	0.51	NA	NA
Total Xylenes	175	mg/kg	ND	ND	ND	ND	120	47	9.5	3.7	0.91	NA	NA
Acenaphthene	1,000	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Anthracene	1,000	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benz(a)anthracene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo(b)fluoranthene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo(k)fluoranthene	2.2	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Benzo(a)pyrene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Chrysene	22	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Dibenzo(a,h)anthracene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Fluoranthene	1,000	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Fluorene	1,000	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Naphthalene	23	mg/kg	ND	ND	ND	ND	0.800	0.035	0.045	0.200	0.084	NA	NA
Pyrene	1,000	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA

Notes:  
\* This background sample was collected near another pad location, Chevron 41-8D (COGCC Location ID 324198)  
< - less than the stated reporting limit  
Highlight - indicates result exceeds the COGCC concentration level  
COGCC - Colorado Oil and Gas Conservation Commission  
EC - electrical conductivity  
mg/kg - milligrams per kilogram  
mmhos/cm - millimhos per centimeter  
NA - not analyzed  
SAR - sodium adsorption ratio  
SU - standard unit  
TPH-GRO - total petroleum hydrocarbons-gasoline range organics  
TPH-DRO - total petroleum hydrocarbons-diesel range organics  
TPH - combination of TPH-GRO and TPH-DRO

## LABORATORY ANALYTICAL REPORTS



06-Jul-2016

Jake Janicek  
Caerus Oil and Gas LLC  
120 N. Railroad Ave. Suite D  
Parachute, CO 81635

Re: **Unocal 1**

Work Order: **16061637**

Dear Jake,

ALS Environmental received 7 samples on 28-Jun-2016 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 998501

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Work Order:** 16061637

**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
16061637-01	Base @ 9'	Soil		6/27/2016 08:42	6/28/2016 10:00	<input type="checkbox"/>
16061637-02	E- Wall @ 5	Soil		6/27/2016 08:50	6/28/2016 10:00	<input type="checkbox"/>
16061637-03	N- Wall @ 5	Soil		6/27/2016 08:55	6/28/2016 10:00	<input type="checkbox"/>
16061637-04	W- Wall @ 5	Soil		6/27/2016 09:02	6/28/2016 10:00	<input type="checkbox"/>
16061637-05	S- Wall02 @ 5	Soil		6/27/2016 09:23	6/28/2016 10:00	<input type="checkbox"/>
16061637-06	Unocal 1 Landform	Soil		6/27/2016 09:29	6/28/2016 10:00	<input checked="" type="checkbox"/>
16061637-07	S-Wall03 @ 5	Soil		6/27/2016 12:00	6/28/2016 10:00	<input checked="" type="checkbox"/>

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**Client:** Caerus Oil and Gas LLC**Project:** Unocal 1**Work Order:** 16061637**Case Narrative**

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Batch 87972, Method VOC\_8260\_S, Sample 16061637-05A: Surrogate recovery high due to matrix interference.

Batch 88102, Method SVO\_8270\_S, Samples 16061637-01A and -05A: One or more surrogate recoveries were below the lower control limits due to matrix interference. The sample results may be biased low.

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**WorkOrder:** 16061637

## QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight



# ALS Group USA, Corp

Date: 06-Jul-16

Client: Caerus Oil and Gas LLC

Project: Unocal 1

Work Order: 16061637

Sample ID: Base @ 9'

Lab ID: 16061637-01

Collection Date: 6/27/2016 08:42 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3546 / 7/1/16	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>49</b>		<b>9.7</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/1/2016 11:31 PM
Surr: 4-Terphenyl-d14	63.6		39-133	%REC	1	7/1/2016 11:31 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 6/29/16	Analyst: <b>IT</b>
GRO (C6-C10)	ND		3.6	mg/Kg-dry	1	6/29/2016 12:13 PM
Surr: Toluene-d8	107		50-150	%REC	1	6/29/2016 12:13 PM
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/1/16	Analyst: <b>JF</b>
Acenaphthene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Benzo(a)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Benzo(a)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Benzo(b)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Benzo(k)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Chrysene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Dibenzo(a,h)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Fluorene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Indeno(1,2,3-cd)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Naphthalene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:20 AM
Surr: 2-Fluorobiphenyl	29.7		12-100	%REC	1	7/2/2016 01:20 AM
Surr: 4-Terphenyl-d14	37.8		25-137	%REC	1	7/2/2016 01:20 AM
Surr: Nitrobenzene-d5	30.8	S	37-107	%REC	1	7/2/2016 01:20 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>		Prep: SW5035 / 6/29/16	Analyst: <b>AK</b>
Benzene	ND		0.043	mg/Kg-dry	1	7/4/2016 05:25 AM
Ethylbenzene	ND		0.043	mg/Kg-dry	1	7/4/2016 05:25 AM
m,p-Xylene	ND		0.086	mg/Kg-dry	1	7/4/2016 05:25 AM
o-Xylene	ND		0.043	mg/Kg-dry	1	7/4/2016 05:25 AM
Toluene	ND		0.043	mg/Kg-dry	1	7/4/2016 05:25 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	7/4/2016 05:25 AM
Surr: 1,2-Dichloroethane-d4	96.3		70-130	%REC	1	7/4/2016 05:25 AM
Surr: 4-Bromofluorobenzene	99.4		70-130	%REC	1	7/4/2016 05:25 AM
Surr: Dibromofluoromethane	86.8		70-130	%REC	1	7/4/2016 05:25 AM
Surr: Toluene-d8	99.5		70-130	%REC	1	7/4/2016 05:25 AM
<b>MOISTURE</b>						
			<b>SW3550C</b>			Analyst: <b>EDL</b>
Moisture	<b>18</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	6/30/2016 09:16 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 06-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** E- Wall @ 5  
**Collection Date:** 6/27/2016 08:50 AM

**Work Order:** 16061637  
**Lab ID:** 16061637-02  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3546 / 7/1/16	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>64</b>		<b>9.8</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/2/2016 12:01 PM
Surr: 4-Terphenyl-d14	60.8		39-133	%REC	1	7/2/2016 12:01 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 6/29/16	Analyst: <b>IT</b>
<b>GRO (C6-C10)</b>	<b>ND</b>		<b>3.6</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/29/2016 12:38 PM
Surr: Toluene-d8	106		50-150	%REC	1	6/29/2016 12:38 PM
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/1/16	Analyst: <b>JF</b>
Acenaphthene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Benzo(a)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Benzo(a)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Benzo(b)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Benzo(k)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Chrysene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Dibenzo(a,h)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Fluorene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Indeno(1,2,3-cd)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Naphthalene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Pyrene	ND		16	µg/Kg-dry	1	7/2/2016 01:45 AM
Surr: 2-Fluorobiphenyl	60.8		12-100	%REC	1	7/2/2016 01:45 AM
Surr: 4-Terphenyl-d14	82.2		25-137	%REC	1	7/2/2016 01:45 AM
Surr: Nitrobenzene-d5	60.0		37-107	%REC	1	7/2/2016 01:45 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>		Prep: SW5035 / 6/29/16	Analyst: <b>AK</b>
Benzene	ND		0.043	mg/Kg-dry	1	7/1/2016 02:18 AM
Ethylbenzene	ND		0.043	mg/Kg-dry	1	7/1/2016 02:18 AM
m,p-Xylene	ND		0.086	mg/Kg-dry	1	7/1/2016 02:18 AM
o-Xylene	ND		0.043	mg/Kg-dry	1	7/1/2016 02:18 AM
Toluene	ND		0.043	mg/Kg-dry	1	7/1/2016 02:18 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	7/1/2016 02:18 AM
Surr: 1,2-Dichloroethane-d4	98.2		70-130	%REC	1	7/1/2016 02:18 AM
Surr: 4-Bromofluorobenzene	97.6		70-130	%REC	1	7/1/2016 02:18 AM
Surr: Dibromofluoromethane	95.9		70-130	%REC	1	7/1/2016 02:18 AM
Surr: Toluene-d8	100		70-130	%REC	1	7/1/2016 02:18 AM
<b>MOISTURE</b>						
			<b>SW3550C</b>			Analyst: <b>EDL</b>
<b>Moisture</b>	<b>18</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	6/30/2016 09:16 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 06-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** N- Wall @ 5  
**Collection Date:** 6/27/2016 08:55 AM

**Work Order:** 16061637  
**Lab ID:** 16061637-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3546 / 7/1/16	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>63</b>		<b>9.9</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/2/2016 12:31 PM
Surr: 4-Terphenyl-d14	62.7		39-133	%REC	1	7/2/2016 12:31 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 6/29/16	Analyst: <b>IT</b>
<b>GRO (C6-C10)</b>	<b>ND</b>		<b>3.5</b>	<b>mg/Kg-dry</b>	<b>1</b>	6/29/2016 01:02 PM
Surr: Toluene-d8	104		50-150	%REC	1	6/29/2016 01:02 PM
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/1/16	Analyst: <b>JF</b>
Acenaphthene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Benzo(a)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Benzo(a)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Benzo(b)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Benzo(k)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Chrysene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Dibenzo(a,h)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Fluorene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Indeno(1,2,3-cd)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Naphthalene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:09 AM
Surr: 2-Fluorobiphenyl	62.2		12-100	%REC	1	7/2/2016 02:09 AM
Surr: 4-Terphenyl-d14	87.8		25-137	%REC	1	7/2/2016 02:09 AM
Surr: Nitrobenzene-d5	60.5		37-107	%REC	1	7/2/2016 02:09 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>		Prep: SW5035 / 6/29/16	Analyst: <b>AK</b>
Benzene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:00 AM
Ethylbenzene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:00 AM
m,p-Xylene	ND		0.085	mg/Kg-dry	1	7/4/2016 05:00 AM
o-Xylene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:00 AM
Toluene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:00 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	7/4/2016 05:00 AM
Surr: 1,2-Dichloroethane-d4	95.2		70-130	%REC	1	7/4/2016 05:00 AM
Surr: 4-Bromofluorobenzene	98.4		70-130	%REC	1	7/4/2016 05:00 AM
Surr: Dibromofluoromethane	85.3		70-130	%REC	1	7/4/2016 05:00 AM
Surr: Toluene-d8	99.1		70-130	%REC	1	7/4/2016 05:00 AM
<b>MOISTURE</b>						
			<b>SW3550C</b>			Analyst: <b>EDL</b>
<b>Moisture</b>	<b>17</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	6/30/2016 09:16 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 06-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** W- Wall @ 5  
**Collection Date:** 6/27/2016 09:02 AM

**Work Order:** 16061637  
**Lab ID:** 16061637-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3546 / 7/1/16	Analyst: <b>IT</b>
DRO (C10-C28)	ND		9.7	mg/Kg-dry	1	7/2/2016 01:01 AM
Surr: 4-Terphenyl-d14	73.3		39-133	%REC	1	7/2/2016 01:01 AM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 6/29/16	Analyst: <b>IT</b>
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	6/29/2016 01:27 PM
Surr: Toluene-d8	105		50-150	%REC	1	6/29/2016 01:27 PM
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/1/16	Analyst: <b>JF</b>
Acenaphthene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Benzo(a)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Benzo(a)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Benzo(b)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Benzo(k)fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Chrysene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Dibenzo(a,h)anthracene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Fluoranthene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Fluorene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Indeno(1,2,3-cd)pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Naphthalene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Pyrene	ND		16	µg/Kg-dry	1	7/2/2016 02:33 AM
Surr: 2-Fluorobiphenyl	50.9		12-100	%REC	1	7/2/2016 02:33 AM
Surr: 4-Terphenyl-d14	85.9		25-137	%REC	1	7/2/2016 02:33 AM
Surr: Nitrobenzene-d5	51.8		37-107	%REC	1	7/2/2016 02:33 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>		Prep: SW5035 / 6/29/16	Analyst: <b>AK</b>
Benzene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:49 AM
Ethylbenzene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:49 AM
m,p-Xylene	ND		0.085	mg/Kg-dry	1	7/4/2016 05:49 AM
o-Xylene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:49 AM
Toluene	ND		0.042	mg/Kg-dry	1	7/4/2016 05:49 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	7/4/2016 05:49 AM
Surr: 1,2-Dichloroethane-d4	95.0		70-130	%REC	1	7/4/2016 05:49 AM
Surr: 4-Bromofluorobenzene	101		70-130	%REC	1	7/4/2016 05:49 AM
Surr: Dibromofluoromethane	84.0		70-130	%REC	1	7/4/2016 05:49 AM
Surr: Toluene-d8	101		70-130	%REC	1	7/4/2016 05:49 AM
<b>MOISTURE</b>						
			<b>SW3550C</b>			Analyst: <b>EDL</b>
Moisture	17		0.050	% of sample	1	6/30/2016 09:16 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 06-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S- Wall02 @ 5  
**Collection Date:** 6/27/2016 09:23 AM

**Work Order:** 16061637  
**Lab ID:** 16061637-05  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015M</b>		Prep: SW3546 / 7/1/16	Analyst: <b>IT</b>
<b>DRO (C10-C28)</b>	<b>590</b>		<b>9.4</b>	<b>mg/Kg-dry</b>	1	7/2/2016 01:31 AM
Surr: 4-Terphenyl-d14	72.3		39-133	%REC	1	7/2/2016 01:31 AM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
			<b>SW8015D</b>		Prep: SW5035 / 6/29/16	Analyst: <b>IT</b>
<b>GRO (C6-C10)</b>	<b>2,100</b>		<b>3.5</b>	<b>mg/Kg-dry</b>	1	6/29/2016 01:52 PM
Surr: Toluene-d8	99.3		50-150	%REC	1	6/29/2016 01:52 PM
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/1/16	Analyst: <b>JF</b>
Acenaphthene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Anthracene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Benzo(a)anthracene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Benzo(a)pyrene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Benzo(b)fluoranthene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Benzo(k)fluoranthene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Chrysene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Dibenzo(a,h)anthracene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Fluoranthene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Fluorene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Indeno(1,2,3-cd)pyrene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
<b>Naphthalene</b>	<b>800</b>		<b>15</b>	<b>µg/Kg-dry</b>	1	7/2/2016 02:57 AM
Pyrene	ND		15	µg/Kg-dry	1	7/2/2016 02:57 AM
Surr: 2-Fluorobiphenyl	59.8		12-100	%REC	1	7/2/2016 02:57 AM
Surr: 4-Terphenyl-d14	83.6		25-137	%REC	1	7/2/2016 02:57 AM
Surr: Nitrobenzene-d5	4.88	S	37-107	%REC	1	7/2/2016 02:57 AM
<b>VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW8260B</b>		Prep: SW5035 / 6/29/16	Analyst: <b>AK</b>
<b>Benzene</b>	<b>0.37</b>		<b>0.041</b>	<b>mg/Kg-dry</b>	1	7/4/2016 07:53 AM
<b>Ethylbenzene</b>	<b>5.0</b>		<b>0.041</b>	<b>mg/Kg-dry</b>	1	7/4/2016 07:53 AM
<b>m,p-Xylene</b>	<b>100</b>		<b>4.1</b>	<b>mg/Kg-dry</b>	50	7/5/2016 08:17 AM
<b>o-Xylene</b>	<b>17</b>		<b>2.1</b>	<b>mg/Kg-dry</b>	50	7/5/2016 08:17 AM
Toluene	ND		0.041	mg/Kg-dry	1	7/4/2016 07:53 AM
<b>Xylenes, Total</b>	<b>120</b>		<b>6.2</b>	<b>mg/Kg-dry</b>	50	7/5/2016 08:17 AM
Surr: 1,2-Dichloroethane-d4	108		70-130	%REC	50	7/5/2016 08:17 AM
Surr: 1,2-Dichloroethane-d4	90.8		70-130	%REC	1	7/4/2016 07:53 AM
Surr: 4-Bromofluorobenzene	100		70-130	%REC	50	7/5/2016 08:17 AM
Surr: 4-Bromofluorobenzene	108		70-130	%REC	1	7/4/2016 07:53 AM
Surr: Dibromofluoromethane	97.2		70-130	%REC	50	7/5/2016 08:17 AM
Surr: Dibromofluoromethane	82.2		70-130	%REC	1	7/4/2016 07:53 AM
Surr: Toluene-d8	173	S	70-130	%REC	1	7/4/2016 07:53 AM
Surr: Toluene-d8	97.8		70-130	%REC	50	7/5/2016 08:17 AM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

## ALS Group USA, Corp

Date: 06-Jul-16

**Client:** Caerus Oil and Gas LLC

**Project:** Unocal 1

**Work Order:** 16061637

**Sample ID:** S- Wall02 @ 5

**Lab ID:** 16061637-05

**Collection Date:** 6/27/2016 09:23 AM

**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: EDL
Moisture	16		0.050	% of sample	1	6/30/2016 09:16 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16061637  
**Project:** Unocal 1

# QC BATCH REPORT

Batch ID: **88103** Instrument ID **GC8** Method: **SW8015M**

<b>MBLK</b>		Sample ID: <b>DBLKS1-88103-88103</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/1/2016 06:02 PM</b>		
Client ID:		Run ID: <b>GC8_160701A</b>				SeqNo: <b>3905542</b>		Prep Date: <b>7/1/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	8.3	0	0	0			0		
<i>Surr: 4-Terphenyl-d14</i>	2.719	0	3.333	0	81.6	39-133		0		

<b>LCS</b>		Sample ID: <b>DLCSS1-88103-88103</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/1/2016 06:32 PM</b>		
Client ID:		Run ID: <b>GC8_160701A</b>				SeqNo: <b>3905543</b>		Prep Date: <b>7/1/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	304.7	8.3	333.3	0	91.4	61-109		0		
<i>Surr: 4-Terphenyl-d14</i>	2.306	0	3.333	0	69.2	39-133		0		

<b>MS</b>		Sample ID: <b>16061618-06A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/1/2016 07:02 PM</b>		
Client ID:		Run ID: <b>GC8_160701A</b>				SeqNo: <b>3905544</b>		Prep Date: <b>7/1/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	290.8	8.2	328.7	0	88.5	48-110		0		
<i>Surr: 4-Terphenyl-d14</i>	2.145	0	3.287	0	65.3	39-133		0		

<b>MSD</b>		Sample ID: <b>16061618-06A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/1/2016 07:32 PM</b>		
Client ID:		Run ID: <b>GC8_160701A</b>				SeqNo: <b>3905545</b>		Prep Date: <b>7/1/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	245.6	7.9	316.4	0	77.6	48-110	290.8	16.9	30	
<i>Surr: 4-Terphenyl-d14</i>	1.92	0	3.164	0	60.7	39-133	2.145	11.1	30	

The following samples were analyzed in this batch:

16061637-01A	16061637-02A	16061637-03A
16061637-04A	16061637-05A	

Client: Caerus Oil and Gas LLC  
 Work Order: 16061637  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: **87973** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-87973-87973</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/29/2016 11:48 AM</b>		
Client ID:		Run ID: <b>GC9_160629A</b>				SeqNo: <b>3900529</b>		Prep Date: <b>6/29/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500	0	0	0	0	0			
Surr: Toluene-d8	4838	0	5000	0	96.8	50-150	0			

<b>LCS</b>		Sample ID: <b>LCS-87973-87973</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/29/2016 11:23 AM</b>		
Client ID:		Run ID: <b>GC9_160629A</b>				SeqNo: <b>3900528</b>		Prep Date: <b>6/29/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	446500	2,500	500000	0	89.3	70-130	0			
Surr: Toluene-d8	4930	0	5000	0	98.6	50-150	0			

<b>MS</b>		Sample ID: <b>16061637-02A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/29/2016 02:17 PM</b>		
Client ID: <b>E- Wall @ 5</b>		Run ID: <b>GC9_160629A</b>				SeqNo: <b>3900535</b>		Prep Date: <b>6/29/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	691800	3,600	719500	0	96.2	70-130	0			
Surr: Toluene-d8	7343	0	7195	0	102	50-150	0			

<b>MSD</b>		Sample ID: <b>16061637-02A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>6/29/2016 02:42 PM</b>		
Client ID: <b>E- Wall @ 5</b>		Run ID: <b>GC9_160629A</b>				SeqNo: <b>3900536</b>		Prep Date: <b>6/29/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	748300	3,600	719500	0	104	70-130	691800	7.85	30	
Surr: Toluene-d8	7582	0	7195	0	105	50-150	7343	3.21	30	

The following samples were analyzed in this batch:

16061637-01A	16061637-02A	16061637-03A
16061637-04A	16061637-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16061637  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88102**      Instrument ID **SVMS8**      Method: **SW846 8270D**

MBLK				Sample ID: <b>SBLKS1-88102-88102</b>				Units: <b>µg/Kg</b>			Analysis Date: <b>7/1/2016 05:36 PM</b>		
Client ID:			Run ID: <b>SVMS8_160701A</b>				SeqNo: <b>3905893</b>			Prep Date: <b>7/1/2016</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Acenaphthene	ND	13											
Anthracene	ND	13											
Benzo(a)anthracene	ND	13											
Benzo(a)pyrene	ND	13											
Benzo(b)fluoranthene	ND	13											
Benzo(k)fluoranthene	ND	13											
Chrysene	ND	13											
Dibenzo(a,h)anthracene	ND	13											
Fluoranthene	ND	13											
Fluorene	ND	13											
Indeno(1,2,3-cd)pyrene	ND	13											
Naphthalene	ND	13											
Pyrene	ND	13											
Surr: 2-Fluorobiphenyl	2325	0	3333	0	69.7	12-100	0						
Surr: 4-Terphenyl-d14	2770	0	3333	0	83.1	25-137	0						
Surr: Nitrobenzene-d5	2286	0	3333	0	68.6	37-107	0						

LCS				Sample ID: <b>SLCSS1-88102-88102</b>			Units: <b>µg/Kg</b>		Analysis Date: <b>7/1/2016 05:56 PM</b>		
Client ID:			Run ID: <b>SVMS8_160701A</b>			SeqNo: <b>3905894</b>		Prep Date: <b>7/1/2016</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	955.3	13	1333	0	71.6	45-110	0				
Anthracene	1259	13	1333	0	94.4	55-105	0				
Benzo(a)anthracene	1270	13	1333	0	95.2	50-110	0				
Benzo(a)pyrene	1268	13	1333	0	95.1	50-110	0				
Benzo(b)fluoranthene	1243	13	1333	0	93.2	45-115	0				
Benzo(k)fluoranthene	1235	13	1333	0	92.6	45-115	0				
Chrysene	1199	13	1333	0	89.9	55-110	0				
Dibenzo(a,h)anthracene	1292	13	1333	0	96.9	40-125	0				
Fluoranthene	1343	13	1333	0	101	55-115	0				
Fluorene	1111	13	1333	0	83.3	50-110	0				
Indeno(1,2,3-cd)pyrene	1279	13	1333	0	95.9	40-120	0				
Naphthalene	1065	13	1333	0	79.8	40-105	0				
Pyrene	1201	13	1333	0	90.1	45-125	0				
Surr: 2-Fluorobiphenyl	2428	0	3333	0	72.8	12-100	0				
Surr: 4-Terphenyl-d14	2958	0	3333	0	88.7	25-137	0				
Surr: Nitrobenzene-d5	2635	0	3333	0	79	37-107	0				

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 16061637  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: **88102** Instrument ID **SVMS8** Method: **SW846 8270D**

MS				Sample ID: 16061604-13B MS			Units: µg/Kg		Analysis Date: 7/1/2016 06:45 PM		
Client ID:			Run ID: SVMS8_160701A			SeqNo: 3905895		Prep Date: 7/1/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	821.5	13	1259	0	65.2	45-110	0				
Anthracene	1152	13	1259	96.29	83.8	55-105	0				
Benzo(a)anthracene	1357	13	1259	268.4	86.5	50-110	0				
Benzo(a)pyrene	1335	13	1259	279	83.8	50-110	0				
Benzo(b)fluoranthene	1341	13	1259	354.2	78.4	45-115	0				
Benzo(k)fluoranthene	1205	13	1259	120.7	86.2	45-115	0				
Chrysene	1272	13	1259	271.7	79.5	55-110	0				
Dibenzo(a,h)anthracene	1197	13	1259	46.82	91.3	40-125	0				
Fluoranthene	1662	13	1259	614.7	83.2	55-115	0				
Fluorene	953.7	13	1259	0	75.7	50-110	0				
Indeno(1,2,3-cd)pyrene	1319	13	1259	220.9	87.2	40-120	0				
Naphthalene	956.2	13	1259	0	75.9	40-105	0				
Pyrene	1637	13	1259	690.5	75.2	45-125	0				
Surr: 2-Fluorobiphenyl	2160	0	3147	0	68.6	12-100	0				
Surr: 4-Terphenyl-d14	2556	0	3147	0	81.2	25-137	0				
Surr: Nitrobenzene-d5	2382	0	3147	0	75.7	37-107	0				

MSD				Sample ID: 16061604-13B MSD			Units: µg/Kg		Analysis Date: 7/1/2016 07:06 PM		
Client ID:			Run ID: SVMS8_160701A			SeqNo: 3905896		Prep Date: 7/1/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	876.7	13	1294	0	67.7	45-110	821.5	6.5	30		
Anthracene	1285	13	1294	96.29	91.9	55-105	1152	10.9	30		
Benzo(a)anthracene	1545	13	1294	268.4	98.7	50-110	1357	12.9	30		
Benzo(a)pyrene	1566	13	1294	279	99.5	50-110	1335	16	30		
Benzo(b)fluoranthene	1597	13	1294	354.2	96.1	45-115	1341	17.4	30		
Benzo(k)fluoranthene	1319	13	1294	120.7	92.6	45-115	1205	8.96	30		
Chrysene	1443	13	1294	271.7	90.5	55-110	1272	12.6	30		
Dibenzo(a,h)anthracene	1306	13	1294	46.82	97.3	40-125	1197	8.71	30		
Fluoranthene	1956	13	1294	614.7	104	55-115	1662	16.3	30		
Fluorene	1041	13	1294	0	80.4	50-110	953.7	8.76	30		
Indeno(1,2,3-cd)pyrene	1526	13	1294	220.9	101	40-120	1319	14.5	30		
Naphthalene	978.9	13	1294	0	75.6	40-105	956.2	2.35	30		
Pyrene	1996	13	1294	690.5	101	45-125	1637	19.7	30		
Surr: 2-Fluorobiphenyl	2268	0	3235	0	70.1	12-100	2160	4.91	40		
Surr: 4-Terphenyl-d14	2723	0	3235	0	84.2	25-137	2556	6.32	40		
Surr: Nitrobenzene-d5	2468	0	3235	0	76.3	37-107	2382	3.53	40		

The following samples were analyzed in this batch:

16061637-01A	16061637-02A	16061637-03A
16061637-04A	16061637-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16061637  
**Project:** Unocal 1

# QC BATCH REPORT

Batch ID: **87972**      Instrument ID **VMS9**      Method: **SW8260B**

MBLK				Sample ID: MBLK-87972-87972				Units: µg/Kg-dry			Analysis Date: 6/29/2016 02:19 PM			
Client ID:				Run ID: VMS9_160629A				SeqNo: 3900598			Prep Date: 6/29/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	ND	30												
Ethylbenzene	ND	30												
m,p-Xylene	ND	60												
o-Xylene	ND	30												
Toluene	ND	30												
Xylenes, Total	ND	90												
Surr: 1,2-Dichloroethane-d4	1008	0	1000	0	101	70-130	0							
Surr: 4-Bromofluorobenzene	962	0	1000	0	96.2	70-130	0							
Surr: Dibromofluoromethane	954	0	1000	0	95.4	70-130	0							
Surr: Toluene-d8	960	0	1000	0	96	70-130	0							

LCS			Sample ID: LCS-87972-87972			Units: µg/Kg-dry		Analysis Date: 6/29/2016 12:16 PM		
Client ID:			Run ID: VMS9_160629A			SeqNo: 3900596		Prep Date: 6/29/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1064	30	1000	0	106	75-125	0			
Ethylbenzene	1051	30	1000	0	105	75-125	0			
m,p-Xylene	2146	60	2000	0	107	80-125	0			
o-Xylene	949.5	30	1000	0	95	75-125	0			
Toluene	1029	30	1000	0	103	70-125	0			
Xylenes, Total	3096	90	3000	0	103	75-125	0			
Surr: 1,2-Dichloroethane-d4	1009	0	1000	0	101	70-130	0			
Surr: 4-Bromofluorobenzene	1020	0	1000	0	102	70-130	0			
Surr: Dibromofluoromethane	1082	0	1000	0	108	70-130	0			
Surr: Toluene-d8	959.5	0	1000	0	96	70-130	0			

MS				Sample ID: 16061637-02A MS			Units: µg/Kg-dry		Analysis Date: 7/1/2016 08:52 AM		
Client ID: E- Wall @ 5			Run ID: VMS9_160630A		SeqNo: 3903543		Prep Date: 6/29/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1241	43	1439	0	86.2	75-125	0				
Ethylbenzene	1289	43	1439	0	89.6	75-125	0				
m,p-Xylene	2625	86	2878	0	91.2	80-125	0				
o-Xylene	1303	43	1439	0	90.6	75-125	0				
Toluene	1262	43	1439	0	87.7	70-125	0				
Xylenes, Total	3928	130	4317	0	91	75-125	0				
Surr: 1,2-Dichloroethane-d4	1404	0	1439	0	97.6	70-130	0				
Surr: 4-Bromofluorobenzene	1512	0	1439	0	105	70-130	0				
Surr: Dibromofluoromethane	1378	0	1439	0	95.8	70-130	0				
Surr: Toluene-d8	1422	0	1439	0	98.8	70-130	0				

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16061637  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **87972**      Instrument ID **VMS9**      Method: **SW8260B**

MSD				Sample ID: 16061637-02A MSD			Units: µg/Kg-dry		Analysis Date: 7/1/2016 09:17 AM	
Client ID: E- Wall @ 5				Run ID: VMS9_160630A			SeqNo: 3903544		Prep Date: 6/29/2016	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1377	43	1439	0	95.7	75-125	1241	10.4	30	
Ethylbenzene	1431	43	1439	0	99.4	75-125	1289	10.4	30	
m,p-Xylene	2881	86	2878	0	100	80-125	2625	9.3	30	
o-Xylene	1451	43	1439	0	101	75-125	1303	10.7	30	
Toluene	1412	43	1439	0	98.1	70-125	1262	11.2	30	
Xylenes, Total	4331	130	4317	0	100	75-125	3928	9.77	30	
Surr: 1,2-Dichloroethane-d4	1387	0	1439	0	96.4	70-130	1404	1.24	30	
Surr: 4-Bromofluorobenzene	1486	0	1439	0	103	70-130	1512	1.73	30	
Surr: Dibromofluoromethane	1386	0	1439	0	96.4	70-130	1378	0.625	30	
Surr: Toluene-d8	1411	0	1439	0	98	70-130	1422	0.813	30	

The following samples were analyzed in this batch:

16061637-01A	16061637-02A	16061637-03A
16061637-04A	16061637-05A	

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 16061637  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: **R190687** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R190687</b>				Units: % of sample			Analysis Date: <b>6/30/2016 09:16 PM</b>		
Client ID:		Run ID: <b>MOIST_160630D</b>				SeqNo: <b>3903337</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R190687</b>				Units: % of sample			Analysis Date: <b>6/30/2016 09:16 PM</b>		
Client ID:		Run ID: <b>MOIST_160630D</b>				SeqNo: <b>3903336</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

<b>DUP</b>		Sample ID: <b>16061637-01A DUP</b>				Units: % of sample			Analysis Date: <b>6/30/2016 09:16 PM</b>		
Client ID: <b>Base @ 9'</b>		Run ID: <b>MOIST_160630D</b>				SeqNo: <b>3903318</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 18.48 0.050 0 0 0 17.83 3.58 20

<b>DUP</b>		Sample ID: <b>16061637-03A DUP</b>				Units: % of sample			Analysis Date: <b>6/30/2016 09:16 PM</b>		
Client ID: <b>N- Wall @ 5</b>		Run ID: <b>MOIST_160630D</b>				SeqNo: <b>3903321</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 17.05 0.050 0 0 0 17.15 0.585 20

The following samples were analyzed in this batch:

16061637-01A	16061637-02A	16061637-03A
16061637-04A	16061637-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



# ALS Laboratory Group

ALS Holland 3352 128th Ave, Holland MI  
616-572-1944 616-399-8070

## Chain-of-Custody

Form 202r6

WORKORDER #

100061637

PAGE

.1 of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME

Unocal 1

SAMPLER

Jake Janicek

DATE

6-27-2016

TURNAROUND

STD 5 Day

PROJECT No.

EDD FORMAT

COMPANY NAME

Caerus Piceance, LLC

PURCHASE ORDER

BILL TO COMPANY

Caerus Piceance, LLC

SEND REPORT TO

Jake Janicek

INVOICE ATTN TO

Jake Janicek

ADDRESS

120 N. Railroad, suite D

ADDRESS

120 N. Railroad, suite D

CITY / STATE / ZIP

Parachute Co, 81635

CITY / STATE / ZIP

Parachute Co, 81635

PHONE

970-285-9608

PHONE

970-285-9608

FAX

FAX

E-MAIL

jjanicek@caerusoilandgas.com

E-MAIL

invoices@caerusoilandgas.com

Lab ID

Field ID

Matrix

Sample Date

Sample Time

# Bottles

Pres.

QC

TPH/GRO/DRO

BTEX

Table 810 PAH's

EC

PH

SAR

Benzene

Table 810 Metals

1

Base @ 9'

Soil

6-27-16

0842

2

X

X

X

X

X

X

X

2

E-Wall @ 5'

0850

3

N-Wall @ 5'

0855

4

W-Wall @ 5'

0902

5

S-Wall 02 @ 5'

0923

6

Unocal 1 Land Farm

0929

7

S-Wall 03 @ 5'

1200

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

For metals or anions, please detail analytes below.

Comments:

Hold Samples:

- Unocal 1 Land Farm
- S-Wall 03 @ 5'

20°C

QC PACKAGE (check below)

X

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE

PRINTED NAME

DATE

TIME

RELINQUISHED BY

Tph 22

Tyler Rust

6-27-16 12:25

RECEIVED BY

MP Breach

MP Breach

6-27-16 1:25

RELINQUISHED BY

MP Breach

MP Breach

6-27-16 1:50

RECEIVED BY

MP Breach

MP Breach

6/28/16 1000

RECEIVED BY

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **28-Jun-16 10:00**

Work Order: **16061637**

Received by: **MEB**

Checklist completed by Meghan Broadbent  
eSignature

28-Jun-16  
Date

Reviewed by: Alex Coaszar  
eSignature

28-Jun-16  
Date

Matrices: **soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.0/2.0</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/28/2016 1:38:33 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



20-Jul-2016

Jake Janicek  
Caerus Oil and Gas LLC  
120 N. Railroad Ave. Suite D  
Parachute, CO 81635

Re: **Unocal 1**

Work Order: **1607607**

Dear Jake,

ALS Environmental received 6 samples on 13-Jul-2016 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 21.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 998501

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



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**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Work Order:** 1607607

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**Work Order Sample Summary**

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<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1607607-01	Base@9'	Soil		6/27/2016 08:42	7/13/2016	<input type="checkbox"/>
1607607-02	E-Wall@5'	Soil		6/27/2016 08:50	7/13/2016	<input type="checkbox"/>
1607607-03	N-Wall@5'	Soil		6/27/2016 08:55	7/13/2016	<input type="checkbox"/>
1607607-04	W-Wall@5'	Soil		6/27/2016 09:02	7/13/2016	<input type="checkbox"/>
1607607-05	S-Wall02@5'	Soil		6/27/2016 09:23	7/13/2016	<input type="checkbox"/>
1607607-06	S-Wall03@5'	Soil		6/27/2016 12:00	7/13/2016	<input type="checkbox"/>

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**Client:** Caerus Oil and Gas LLC**Project:** Unocal 1**Work Order:** 1607607**Case Narrative**

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Batch 88557, Method PH\_9045\_S: Sample holding times for pH were past hold time and were analyzed at the request of the client. Results should be considered estimated.

Batch 88649, Method ICP\_6010\_S: The reporting limits for all metals samples are elevated due to internal standard failure in the undiluted runs.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** Base@9'  
**Collection Date:** 6/27/2016 08:42 AM

**Work Order:** 1607607  
**Lab ID:** 1607607-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	0.020		SW7471B 0.016	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: LR 7/15/2016 04:28 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	31		SW846 6010C 0.78	mg/Kg-dry	Prep: SW3050B / 7/15/16 2	Analyst: JEC 7/18/2016 06:16 PM
Barium	440		0.39	mg/Kg-dry	1	7/15/2016 08:28 PM
Cadmium	ND		0.78	mg/Kg-dry	1	7/15/2016 08:28 PM
Chromium	21		0.78	mg/Kg-dry	2	7/18/2016 06:16 PM
Copper	28		0.78	mg/Kg-dry	1	7/15/2016 08:28 PM
Lead	16		0.78	mg/Kg-dry	2	7/18/2016 06:16 PM
Nickel	22		0.39	mg/Kg-dry	1	7/15/2016 08:28 PM
Selenium	ND		1.6	mg/Kg-dry	2	7/18/2016 06:16 PM
Silver	ND		0.39	mg/Kg-dry	1	7/15/2016 08:28 PM
Zinc	85		1.6	mg/Kg-dry	2	7/18/2016 06:16 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	60		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: JEC 7/18/2016 09:16 PM
Magnesium	75		2.0	mg/L	10	7/18/2016 09:16 PM
Sodium	300		2.0	mg/L	10	7/19/2016 03:07 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	6.1		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: JEC 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	2.6		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: JB 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	21		CALCULATION 0.61	mg/Kg-dry	1	Analyst: MB 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		SW7196A 1.2	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: MB 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	18		SW3550C 0.050	% of sample	1	Analyst: EDL 6/30/2016 09:16 PM
<b>PH</b>						
pH	8.6	H	SW9045D s.u.		Prep: EXTRACT / 7/13/16 1	Analyst: KF 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** E-Wall@5'  
**Collection Date:** 6/27/2016 08:50 AM

**Work Order:** 1607607  
**Lab ID:** 1607607-02  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	0.026		SW7471B 0.016	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: LR 7/15/2016 04:30 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	35		SW846 6010C 2.3	mg/Kg-dry	Prep: SW3050B / 7/15/16 5	Analyst: JEC 7/19/2016 12:19 PM
Barium	960		2.3	mg/Kg-dry	5	7/19/2016 12:19 PM
Cadmium	ND		4.7	mg/Kg-dry	5	7/19/2016 12:19 PM
Chromium	22		2.3	mg/Kg-dry	5	7/19/2016 12:19 PM
Copper	34		4.7	mg/Kg-dry	5	7/19/2016 12:19 PM
Lead	19		2.3	mg/Kg-dry	5	7/19/2016 12:19 PM
Nickel	28		2.3	mg/Kg-dry	5	7/19/2016 12:19 PM
Selenium	ND		4.7	mg/Kg-dry	5	7/19/2016 12:19 PM
Silver	ND		2.3	mg/Kg-dry	5	7/19/2016 12:19 PM
Zinc	87		4.7	mg/Kg-dry	5	7/19/2016 12:19 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	50		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: JEC 7/18/2016 09:22 PM
Magnesium	51		2.0	mg/L	10	7/18/2016 09:22 PM
Sodium	720		2.0	mg/L	10	7/19/2016 03:13 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	17		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: JEC 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	4.9		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: JB 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	22		CALCULATION 0.61	mg/Kg-dry	1	Analyst: MB 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		SW7196A 1.2	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: MB 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	18		SW3550C 0.050	% of sample	1	Analyst: EDL 6/30/2016 09:16 PM
<b>PH</b>						
pH	8.8	H	SW9045D	s.u.	Prep: EXTRACT / 7/13/16 1	Analyst: KF 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** N-Wall@5'  
**Collection Date:** 6/27/2016 08:55 AM

**Work Order:** 1607607  
**Lab ID:** 1607607-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	0.019		SW7471B 0.017	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: LR 7/15/2016 04:32 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	30		SW846 6010C 2.2	mg/Kg-dry	Prep: SW3050B / 7/15/16 5	Analyst: JEC 7/19/2016 12:24 PM
Barium	390		2.2	mg/Kg-dry	5	7/19/2016 12:24 PM
Cadmium	0.97		0.88	mg/Kg-dry	1	7/18/2016 06:44 PM
Chromium	23		2.2	mg/Kg-dry	5	7/19/2016 12:24 PM
Copper	33		0.88	mg/Kg-dry	1	7/18/2016 06:44 PM
Lead	17		2.2	mg/Kg-dry	5	7/19/2016 12:24 PM
Nickel	26		0.44	mg/Kg-dry	1	7/18/2016 06:44 PM
Selenium	ND		4.4	mg/Kg-dry	5	7/19/2016 12:24 PM
Silver	ND		0.44	mg/Kg-dry	1	7/18/2016 06:44 PM
Zinc	81		4.4	mg/Kg-dry	5	7/19/2016 12:24 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	76		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: JEC 7/18/2016 09:27 PM
Magnesium	290		2.0	mg/L	10	7/18/2016 09:27 PM
Sodium	3,800		20	mg/L	100	7/19/2016 03:19 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	44		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: JEC 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	21		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: JB 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	23		CALCULATION 0.60	mg/Kg-dry	1	Analyst: MB 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		SW7196A 1.1	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: MB 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	17		SW3550C 0.050	% of sample	1	Analyst: EDL 6/30/2016 09:16 PM
<b>PH</b>						
pH	8.9	H	SW9045D	s.u.	Prep: EXTRACT / 7/13/16 1	Analyst: KF 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** W-Wall@5'  
**Collection Date:** 6/27/2016 09:02 AM

**Work Order:** 1607607  
**Lab ID:** 1607607-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	ND		SW7471B 0.015	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: LR 7/15/2016 04:34 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	19		SW846 6010C 2.2	mg/Kg-dry	Prep: SW3050B / 7/15/16 5	Analyst: JEC 7/19/2016 12:29 PM
Barium	350		2.2	mg/Kg-dry	5	7/19/2016 12:29 PM
Cadmium	1.1		0.90	mg/Kg-dry	1	7/18/2016 06:50 PM
Chromium	23		2.2	mg/Kg-dry	5	7/19/2016 12:29 PM
Copper	31		0.90	mg/Kg-dry	1	7/18/2016 06:50 PM
Lead	15		2.2	mg/Kg-dry	5	7/19/2016 12:29 PM
Nickel	26		0.45	mg/Kg-dry	1	7/18/2016 06:50 PM
Selenium	ND		4.5	mg/Kg-dry	5	7/19/2016 12:29 PM
Silver	ND		0.45	mg/Kg-dry	1	7/18/2016 06:50 PM
Zinc	86		4.5	mg/Kg-dry	5	7/19/2016 12:29 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	480		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: JEC 7/18/2016 09:34 PM
Magnesium	110		2.0	mg/L	10	7/18/2016 09:34 PM
Sodium	800		2.0	mg/L	10	7/19/2016 04:03 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	8.6		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: JEC 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	7.6		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: JB 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	23		CALCULATION 0.60	mg/Kg-dry	1	Analyst: MB 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		SW7196A 1.1	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: MB 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	17		SW3550C 0.050	% of sample	1	Analyst: EDL 6/30/2016 09:16 PM
<b>PH</b>						
pH	8.0	H	SW9045D	s.u.	Prep: EXTRACT / 7/13/16 1	Analyst: KF 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Wall02@5'  
**Collection Date:** 6/27/2016 09:23 AM

**Work Order:** 1607607  
**Lab ID:** 1607607-05  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	ND		<b>SW7471B</b> 0.016	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: <b>LR</b> 7/15/2016 04:36 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	20		<b>SW846 6010C</b> 2.2	mg/Kg-dry	Prep: SW3050B / 7/15/16 5	Analyst: <b>JEC</b> 7/19/2016 12:35 PM
Barium	610		2.2	mg/Kg-dry	5	7/19/2016 12:35 PM
Cadmium	ND		0.89	mg/Kg-dry	1	7/18/2016 06:56 PM
Chromium	19		2.2	mg/Kg-dry	5	7/19/2016 12:35 PM
Copper	27		0.89	mg/Kg-dry	1	7/18/2016 06:56 PM
Lead	14		2.2	mg/Kg-dry	5	7/19/2016 12:35 PM
Nickel	19		0.44	mg/Kg-dry	1	7/18/2016 06:56 PM
Selenium	ND		4.4	mg/Kg-dry	5	7/19/2016 12:35 PM
Silver	ND		0.44	mg/Kg-dry	1	7/18/2016 06:56 PM
Zinc	67		4.4	mg/Kg-dry	5	7/19/2016 12:35 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	94		<b>SW846 6010C</b> 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: <b>JEC</b> 7/18/2016 09:40 PM
Magnesium	85		2.0	mg/L	10	7/18/2016 09:40 PM
Sodium	230		2.0	mg/L	10	7/19/2016 04:08 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.2		<b>USDA H60 METHO</b> 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: <b>JEC</b> 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	2.6		<b>USDA H60 METHO</b> 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: <b>JB</b> 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	19		<b>CALCULATION</b> 0.59	mg/Kg-dry	1	Analyst: <b>MB</b> 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		<b>SW7196A</b> 1.1	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: <b>MB</b> 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	16		<b>SW3550C</b> 0.050	% of sample	1	Analyst: <b>EDL</b> 6/30/2016 09:16 PM
<b>PH</b>						
pH	8.1	H	<b>SW9045D</b>	s.u.	Prep: EXTRACT / 7/13/16 1	Analyst: <b>KF</b> 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



# ALS Group USA, Corp

Date: 20-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Wall03@5'  
**Collection Date:** 6/27/2016 12:00 PM

**Work Order:** 1607607  
**Lab ID:** 1607607-06  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>						
Mercury	0.023		SW7471B 0.016	mg/Kg-dry	Prep: SW7471 / 7/15/16 1	Analyst: LR 7/15/2016 04:39 PM
<b>METALS ANALYSIS BY ICP</b>						
Arsenic	26		SW846 6010C 2.4	mg/Kg-dry	Prep: SW3050B / 7/15/16 5	Analyst: JEC 7/19/2016 12:40 PM
Barium	680		2.4	mg/Kg-dry	5	7/19/2016 12:40 PM
Cadmium	1.0		0.95	mg/Kg-dry	1	7/18/2016 07:02 PM
Chromium	22		2.4	mg/Kg-dry	5	7/19/2016 12:40 PM
Copper	33		0.95	mg/Kg-dry	1	7/18/2016 07:02 PM
Lead	17		2.4	mg/Kg-dry	5	7/19/2016 12:40 PM
Nickel	29		0.47	mg/Kg-dry	1	7/18/2016 07:02 PM
Selenium	ND		4.7	mg/Kg-dry	5	7/19/2016 12:40 PM
Silver	ND		0.47	mg/Kg-dry	1	7/18/2016 07:02 PM
Zinc	83		4.7	mg/Kg-dry	5	7/19/2016 12:40 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
Calcium	71		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 7/18/16 10	Analyst: JEC 7/18/2016 09:45 PM
Magnesium	98		2.0	mg/L	10	7/18/2016 09:45 PM
Sodium	490		2.0	mg/L	10	7/19/2016 04:14 PM
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	8.9		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 7/18/16 1	Analyst: JEC 7/19/2016
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>						
Electrical Conductivity @ Saturation	4.2		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 7/18/16 10	Analyst: JB 7/18/2016 01:30 PM
<b>CHROMIUM, TRIVALENT</b>						
Chromium, Trivalent	22		CALCULATION 0.62	mg/Kg-dry	1	Analyst: MB 7/19/2016 04:00 PM
<b>CHROMIUM, HEXAVALENT</b>						
Chromium, Hexavalent	ND		SW7196A 1.1	mg/Kg-dry	Prep: SW3060A / 7/14/16 1	Analyst: MB 7/15/2016 04:00 PM
<b>MOISTURE</b>						
Moisture	20		SW3550C 0.050	% of sample	1	Analyst: EDL 7/7/2016 05:07 PM
<b>PH</b>						
pH	8.6	H	SW9045D	s.u.	Prep: EXTRACT / 7/13/16 1	Analyst: KF 7/13/2016 06:07 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88630** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-88630-88630</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 03:59 PM</b>		
Client ID:		Run ID: <b>HG1_160715A</b>				SeqNo: <b>3927689</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury ND 0.020

<b>LCS</b>		Sample ID: <b>LCS-88630-88630</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:01 PM</b>		
Client ID:		Run ID: <b>HG1_160715A</b>				SeqNo: <b>3927690</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1817 0.020 0.1665 0 109 80-120 0

<b>MS</b>		Sample ID: <b>1607549-04DMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:14 PM</b>		
Client ID:		Run ID: <b>HG1_160715A</b>				SeqNo: <b>3927696</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.12 0.013 0.1061 0.000639 113 75-125 0

<b>MSD</b>		Sample ID: <b>1607549-04DMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:23 PM</b>		
Client ID:		Run ID: <b>HG1_160715A</b>				SeqNo: <b>3927700</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1185 0.013 0.1062 0.000639 111 75-125 0.12 1.23 35

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88562**      Instrument ID **ICP2**      Method: **SW846 6010C**

<b>DUP</b>		Sample ID: <b>1607687-04BDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>7/18/2016 10:35 PM</b>		
Client ID:		Run ID: <b>ICP2_160718A</b>				SeqNo: <b>3929321</b>		Prep Date: <b>7/18/2016</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	138.6	5.0	0	0	0	0-0	150.8	8.39		
Magnesium	27.82	2.0	0	0	0	0-0	29.98	7.45		
Sodium	47.36	2.0	0	0	0	0-0	51.84	9.03		

<b>DUP</b>		Sample ID: <b>1607687-04BDUP</b>				Units: <b>none</b>		Analysis Date: <b>7/19/2016</b>		
Client ID:		Run ID: <b>SAR_160719A</b>				SeqNo: <b>3931063</b>		Prep Date: <b>7/18/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.96	0.010	0	0	0		1.009	4.96	50	

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 1607607  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: **88649** Instrument ID **ICP2** Method: **SW846 6010C**

<b>MBLK</b>		Sample ID: <b>MBLK-88649-88649</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 08:00 PM</b>		
Client ID:		Run ID: <b>ICP2_160715A</b>				SeqNo: <b>3926461</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	ND	0.50								
Chromium	0.02475	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								
Zinc	0.1295	0.50								J

<b>LCS</b>		Sample ID: <b>LCS-88649-88649</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 08:05 PM</b>		
Client ID:		Run ID: <b>ICP2_160715A</b>				SeqNo: <b>3926462</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.085	0.25	5	0	102	80-120	0			
Barium	4.661	0.25	5	0	93.2	80-120	0			
Cadmium	5.043	0.50	5	0	101	80-120	0			
Chromium	5.384	0.25	5	0	108	80-120	0			
Copper	5.208	0.50	5	0	104	80-120	0			
Lead	4.897	0.25	5	0	97.9	80-120	0			
Nickel	5.022	0.25	5	0	100	80-120	0			
Selenium	4.875	0.50	5	0	97.5	80-120	0			
Silver	5.037	0.25	5	0	101	80-120	0			
Zinc	5.083	0.50	5	0	102	80-120	0			

<b>MS</b>		Sample ID: <b>1607608-03AMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/18/2016 07:24 PM</b>		
Client ID:		Run ID: <b>ICP2_160718A</b>				SeqNo: <b>3929269</b>		Prep Date: <b>7/15/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cadmium	11.22	0.79	7.937	0.6164	134	75-125	0			S
Copper	32.78	0.79	7.937	22.57	129	75-125	0			S
Nickel	34.64	0.40	7.937	25.45	116	75-125	0			
Silver	9.163	0.40	7.937	-0.1227	117	75-125	0			

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 1607607  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: 88649 Instrument ID ICP2 Method: SW846 6010C

MS Sample ID: 1607608-03AMS				Units: mg/Kg		Analysis Date: 7/19/2016 01:02 PM				
Client ID:		Run ID: ICP2_160719A		SeqNo: 3930328		Prep Date: 7/15/2016		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	24.46	2.0	7.937	13.34	140	75-125	0			S
Chromium	41.15	2.0	7.937	25.51	197	75-125	0			S
Lead	21.53	2.0	7.937	12.73	111	75-125	0			
Selenium	9.226	4.0	7.937	0.5914	109	75-125	0			
Zinc	75.02	4.0	7.937	57.17	225	75-125	0			SO

MSD Sample ID: 1607608-03AMSD				Units: mg/Kg		Analysis Date: 7/18/2016 07:30 PM				
Client ID:		Run ID: ICP2_160718A		SeqNo: 3929270		Prep Date: 7/15/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cadmium	11.77	0.80	8.026	0.6164	139	75-125	11.22	4.76	20	S
Copper	33.03	0.80	8.026	22.57	130	75-125	32.78	0.76	20	S
Nickel	37.38	0.40	8.026	25.45	149	75-125	34.64	7.6	20	S
Silver	9.513	0.40	8.026	-0.1227	120	75-125	9.163	3.75	20	

MSD Sample ID: 1607608-03AMSD				Units: mg/Kg		Analysis Date: 7/19/2016 01:07 PM				
Client ID:		Run ID: ICP2_160719A		SeqNo: 3930329		Prep Date: 7/15/2016		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	22.78	2.0	8.026	13.34	118	75-125	24.46	7.08	20	
Chromium	40.23	2.0	8.026	25.51	183	75-125	41.15	2.25	20	S
Lead	20.92	2.0	8.026	12.73	102	75-125	21.53	2.89	20	
Selenium	8.908	4.0	8.026	0.5914	104	75-125	9.226	3.51	20	
Zinc	74.18	4.0	8.026	57.17	212	75-125	75.02	1.13	20	SO

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88557** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-88557-88557				Units: s.u.		Analysis Date: 7/13/2016 06:07 PM		
Client ID:		Run ID: WETCHEM_160713W				SeqNo: 3921938		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 3.98 0 4 0 99.5 90-110 0

DUP				Sample ID: 1607606-02A DUP				Units: s.u.			Analysis Date: 7/13/2016 06:07 PM			
Client ID:				Run ID: WETCHEM_160713W				SeqNo: 3921941			Prep Date: 7/13/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH 8.18 0 0 0 0 0-0 8.36 2.18 20

DUP				Sample ID: 1607607-01A DUP				Units: s.u.			Analysis Date: 7/13/2016 06:07 PM			
Client ID: Base@9'				Run ID: WETCHEM_160713W				SeqNo: 3921943			Prep Date: 7/13/2016		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

pH 8.5 0 0 0 0 0-0 8.56 0.703 20 H

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88562** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>1607687-04B DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>7/18/2016 01:30 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160718D</b>				SeqNo: <b>3928264</b>		Prep Date: <b>7/18/2016</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.477	0.050	0	0	0		1.463	0.952	50	

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 1607607  
 Project: Unocal 1

## QC BATCH REPORT

Batch ID: **88696** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-88696-88696</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160715T</b>		SeqNo: <b>3928158</b>		Prep Date: <b>7/14/2016</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

<b>LCS</b>		Sample ID: <b>LCS-88696-88696</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160715T</b>		SeqNo: <b>3928157</b>		Prep Date: <b>7/14/2016</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.45 1.0 5 0 89 80-120 0

<b>MS</b>		Sample ID: <b>1607690-03A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160715T</b>		SeqNo: <b>3928153</b>		Prep Date: <b>7/14/2016</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 0.84 1.0 5 0.3333 10.1 75-125 0 JS

<b>MS</b>		Sample ID: <b>1607690-03A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160715T</b>		SeqNo: <b>3928155</b>		Prep Date: <b>7/14/2016</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 2384 100 2703 0.3333 88.2 75-125 0

<b>MSD</b>		Sample ID: <b>1607690-03A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/15/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160715T</b>		SeqNo: <b>3928154</b>		Prep Date: <b>7/14/2016</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 0.98 4.902 0.3333 -6.8 75-125 0.84 0 20 S

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	1607607-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **R190687** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190687				Units: % of sample		Analysis Date: 6/30/2016 09:16 PM		
Client ID:		Run ID: MOIST_160630D				SeqNo: 3903337		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS		Sample ID: LCS-R190687					Units: % of sample		Analysis Date: 6/30/2016 09:16 PM		
Client ID:			Run ID: MOIST_160630D			SeqNo: 3903336		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 16061637-01A DUP					Units: % of sample		Analysis Date: 6/30/2016 09:16 PM		
Client ID:			Run ID: MOIST_160630D			SeqNo: 3903318		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 18.48 0.050 0 0 0 17.83 3.58 20

<b>DUP</b>				Sample ID: <b>16061637-03A DUP</b>				Units: % of sample			Analysis Date: <b>6/30/2016 09:16 PM</b>			
Client ID:				Run ID: <b>MOIST_160630D</b>				SeqNo: <b>3903321</b>			Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 17.05 0.050 0 0 0 17.15 0.585 20

The following samples were analyzed in this batch:

1607607-01A	1607607-02A	1607607-03A
1607607-04A	1607607-05A	

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1607607  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **R191102** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R191102</b>				Units: % of sample		Analysis Date: <b>7/7/2016 05:07 PM</b>		
Client ID:		Run ID: <b>MOIST_160707E</b>		SeqNo: <b>3912951</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R191102</b>				Units: % of sample		Analysis Date: <b>7/7/2016 05:07 PM</b>		
Client ID:		Run ID: <b>MOIST_160707E</b>		SeqNo: <b>3912950</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

<b>DUP</b>		Sample ID: <b>1607169-01A DUP</b>				Units: % of sample		Analysis Date: <b>7/7/2016 05:07 PM</b>		
Client ID:		Run ID: <b>MOIST_160707E</b>		SeqNo: <b>3912912</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 17.3 0.050 0 0 0 17.37 0.404 20

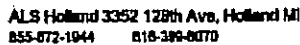
<b>DUP</b>		Sample ID: <b>1607202-03B DUP</b>				Units: % of sample		Analysis Date: <b>7/7/2016 05:07 PM</b>		
Client ID:		Run ID: <b>MOIST_160707E</b>		SeqNo: <b>3912925</b>		Prep Date:		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 16.08 0.050 0 0 0 16.2 0.743 20

The following samples were analyzed in this batch:

1607607-06A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



## Form 302a

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	<i>Tph 2st</i>	<i>Tyler Rust</i>	6-27-16	125
RECEIVED BY	<i>MA</i>	<i>MA</i>	6-27-16	1:25
RELINQUISHED BY	<i>MA</i>	<i>MA</i>	6-27-16	1500
RECEIVED BY	<i>YMBrook</i>	<i>YMBrook</i>	6/28/16	1000
RELINQUISHED BY				
RECEIVED BY				

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **13-Jul-16 00:00**

Work Order: **1607607**

Received by: **MEB**

Checklist completed by Chad Whelton  
eSignature

13-Jul-16  
Date

Reviewed by: Chad Whelton  
eSignature

13-Jul-16  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☐ No ☐ Not Present ☒

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 2.0/2.0 SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 6/28/2016 1:38:33 PM

Water - VOA vials have zero headspace? Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt? Yes ☐ No ☐ N/A ☒

pH adjusted? Yes ☐ No ☐ N/A ☒

pH adjusted by:

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



27-Jul-2016

Jake Janicek  
Caerus Oil and Gas LLC  
120 N. Railroad Ave. Suite D  
Parachute, CO 81635

Re: **Unocal 1**

Work Order: **16071107**

Dear Jake,

ALS Environmental received 4 samples on 20-Jul-2016 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 29.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 998501

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental The ALS logo, a stylized blue triangle with a yellow flame.

[www.alsglobal.com](http://www.alsglobal.com)

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**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Work Order:** 16071107

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**Work Order Sample Summary**

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<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
16071107-01	S-Base @ 17'	Soil		7/19/2016 13:38	7/20/2016 09:30	<input type="checkbox"/>
16071107-02	S-Wall 04 @ 12'	Soil		7/19/2016 14:10	7/20/2016 09:30	<input type="checkbox"/>
16071107-03	W-Wall 02 @ 15'	Soil		7/19/2016 14:30	7/20/2016 09:30	<input type="checkbox"/>
16071107-04	E-Wall 02 @ 12'	Soil		7/19/2016 15:20	7/20/2016 09:30	<input type="checkbox"/>

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**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Work Order:** 16071107

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**Case Narrative**

Batch 88924, Method VOC\_8260\_S, Sample 16071107-02A MSD: The MSD recoveries were above the upper control limits for Benzene and Ethylbenzene. However, the MS recoveries and RPDs between the MS and MSD were within control limits. No qualification required.

Batch 88924, Method VOC\_8260\_S, Sample 16071107-02A MSD: The RPDs between the MS and MSD were outside the control limits for m,p-Xylene, o-Xylene and Total Xylenes. The corresponding results in the parent sample should be considered estimated.

Batch 88942, Method ICP\_6010\_S, Samples 16071107-01B, -02B and -04B: The reporting limits for Selenium are elevated due to internal standard failure in the undiluted run.

Batch 89007, Method CR6\_7196\_S, Sample 16071107-03B MS/MSD: The MS and MSD recovery was below the lower control limit for Hexavalent Chromium. The corresponding result in the parent sample may be biased low.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units



# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Base @ 17'  
**Collection Date:** 7/19/2016 01:38 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
<b>DRO (C10-C28)</b>	<b>71</b>		<b>SW8015M</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: 4-Terphenyl-d14</i>	63.1		11	mg/Kg-dry	1	7/22/2016 01:52 PM
			39-133	%REC	1	7/22/2016 01:52 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
<b>GRO (C6-C10)</b>	<b>ND</b>		<b>SW8015D</b>		Prep: SW5035 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: Toluene-d8</i>	95.0		4.3	mg/Kg-dry	1	7/22/2016 04:45 PM
			50-150	%REC	1	7/22/2016 04:45 PM
<b>MERCURY BY CVAA</b>						
Mercury	ND		<b>SW7471B</b>		Prep: SW7471 / 7/25/16	Analyst: <b>LR</b>
			0.017	mg/Kg-dry	1	7/26/2016 02:41 PM
<b>METALS ANALYSIS BY ICP</b>						
<b>Arsenic</b>	<b>20</b>		<b>SW846 6010C</b>		Prep: SW3050B / 7/21/16	Analyst: <b>JEC</b>
<b>Barium</b>	<b>290</b>		2.7	mg/Kg-dry	5	7/22/2016 10:19 AM
Cadmium	ND		0.53	mg/Kg-dry	1	7/21/2016 04:07 PM
<b>Chromium</b>	<b>25</b>		1.1	mg/Kg-dry	1	7/21/2016 04:07 PM
<b>Copper</b>	<b>26</b>		2.7	mg/Kg-dry	5	7/22/2016 10:19 AM
<b>Lead</b>	<b>15</b>		1.1	mg/Kg-dry	1	7/21/2016 04:07 PM
<b>Nickel</b>	<b>26</b>		2.7	mg/Kg-dry	5	7/22/2016 10:19 AM
Selenium	ND		0.53	mg/Kg-dry	1	7/21/2016 04:07 PM
Silver	ND		5.3	mg/Kg-dry	5	7/22/2016 10:19 AM
<b>Zinc</b>	<b>87</b>		0.53	mg/Kg-dry	1	7/21/2016 04:07 PM
			5.3	mg/Kg-dry	5	7/22/2016 10:19 AM
<b>SOLUBLE CATIONS FOR SAR</b>						
			<b>SW846 6010C</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
Calcium	ND		5.0	mg/L	10	7/25/2016 05:04 PM
Magnesium	ND		2.0	mg/L	10	7/25/2016 05:04 PM
<b>Sodium</b>	<b>68</b>		2.0	mg/L	10	7/25/2016 05:04 PM
<b>SODIUM ADSORPTION RATIO</b>						
			<b>USDA H60 METHO</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
<b>Sodium Adsorption Ratio</b>	<b>11</b>		0.010	none	1	7/25/2016
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RS</b>
Acenaphthene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Anthracene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Benzo(a)anthracene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Benzo(a)pyrene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Benzo(b)fluoranthene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Benzo(k)fluoranthene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Chrysene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Dibenzo(a,h)anthracene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Fluoranthene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Base @ 17'  
**Collection Date:** 7/19/2016 01:38 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Indeno(1,2,3-cd)pyrene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
<b>Naphthalene</b>	<b>84</b>		<b>18</b>	<b>µg/Kg-dry</b>	<b>1</b>	7/21/2016 07:17 PM
Pyrene	ND		18	µg/Kg-dry	1	7/21/2016 07:17 PM
Surr: 2-Fluorobiphenyl	67.2		12-100	%REC	1	7/21/2016 07:17 PM
Surr: 4-Terphenyl-d14	80.5		25-137	%REC	1	7/21/2016 07:17 PM
Surr: Nitrobenzene-d5	74.7		37-107	%REC	1	7/21/2016 07:17 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>	Prep: SW5035 / 7/21/16		Analyst: <b>AK</b>
<b>Benzene</b>	<b>1.1</b>		<b>0.052</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
<b>Ethylbenzene</b>	<b>0.51</b>		<b>0.052</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
<b>m,p-Xylene</b>	<b>0.82</b>		<b>0.10</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
<b>o-Xylene</b>	<b>0.088</b>		<b>0.052</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
<b>Toluene</b>	<b>0.18</b>		<b>0.052</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
<b>Xylenes, Total</b>	<b>0.91</b>		<b>0.16</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 08:12 AM
Surr: 1,2-Dichloroethane-d4	99.0		70-130	%REC	1	7/22/2016 08:12 AM
Surr: 4-Bromofluorobenzene	93.9		70-130	%REC	1	7/22/2016 08:12 AM
Surr: Dibromofluoromethane	91.0		70-130	%REC	1	7/22/2016 08:12 AM
Surr: Toluene-d8	94.4		70-130	%REC	1	7/22/2016 08:12 AM
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>	Prep: USDA Method 20B / 7/25/16		Analyst: <b>JB</b>
<b>Electrical Conductivity @ Saturation</b>	<b>0.42</b>		<b>0.25</b>	<b>mmhos/cm @2</b>	<b>50</b>	7/25/2016 03:00 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>MB</b>
<b>Chromium, Trivalent</b>	<b>25</b>		<b>0.68</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/25/2016 07:00 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A / 7/22/16		Analyst: <b>MB</b>
<b>Chromium, Hexavalent</b>	<b>ND</b>		<b>1.3</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/25/2016 04:00 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>EDL</b>
<b>Moisture</b>	<b>27</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	7/21/2016 09:40 PM
<b>PH</b>			<b>SW9045D</b>	Prep: EXTRACT / 7/24/16		Analyst: <b>EDL</b>
<b>pH</b>	<b>9.0</b>			<b>s.u.</b>	<b>1</b>	7/24/2016 07:27 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Wall 04 @ 12'  
**Collection Date:** 7/19/2016 02:10 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-02  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
<b>DRO (C10-C28)</b>	<b>90</b>		<b>11</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>Analyst: RM</b>
Surr: 4-Terphenyl-d14	63.3		39-133	%REC	1	7/22/2016 02:22 PM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
<b>GRO (C6-C10)</b>	<b>150</b>		<b>4.1</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>Analyst: RM</b>
Surr: Toluene-d8	105		50-150	%REC	1	7/22/2016 02:14 PM
<b>MERCURY BY CVAA</b>						
<b>Mercury</b>	<b>0.019</b>		<b>0.016</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>Analyst: LR</b>
<b>METALS ANALYSIS BY ICP</b>						
<b>Arsenic</b>	<b>28</b>		<b>2.4</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>Analyst: JEC</b>
<b>Barium</b>	<b>480</b>		<b>0.47</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 10:24 AM
Cadmium	ND		0.94	mg/Kg-dry	1	7/21/2016 04:13 PM
<b>Chromium</b>	<b>25</b>		<b>2.4</b>	<b>mg/Kg-dry</b>	<b>5</b>	7/21/2016 04:13 PM
<b>Copper</b>	<b>33</b>		<b>0.94</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 10:24 AM
<b>Lead</b>	<b>18</b>		<b>2.4</b>	<b>mg/Kg-dry</b>	<b>5</b>	7/21/2016 04:13 PM
<b>Nickel</b>	<b>27</b>		<b>0.47</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 10:24 AM
Selenium	ND		4.7	mg/Kg-dry	5	7/21/2016 04:13 PM
Silver	ND		0.47	mg/Kg-dry	1	7/22/2016 10:24 AM
<b>Zinc</b>	<b>86</b>		<b>4.7</b>	<b>mg/Kg-dry</b>	<b>5</b>	7/21/2016 04:13 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
			<b>SW846 6010C</b>		Prep: USDA Method 20B / 7/25/16	<b>Analyst: JEC</b>
<b>Calcium</b>	<b>86</b>		<b>5.0</b>	<b>mg/L</b>	<b>10</b>	7/25/2016 05:10 PM
<b>Magnesium</b>	<b>48</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	7/25/2016 05:10 PM
<b>Sodium</b>	<b>2,300</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	7/25/2016 05:10 PM
<b>SODIUM ADSORPTION RATIO</b>						
			<b>USDA H60 METHO</b>		Prep: USDA Method 20B / 7/25/16	<b>Analyst: JEC</b>
<b>Sodium Adsorption Ratio</b>	<b>49</b>		<b>0.010</b>	<b>none</b>	<b>1</b>	7/25/2016
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/21/16	<b>Analyst: RS</b>
Acenaphthene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Anthracene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Benzo(a)anthracene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Benzo(a)pyrene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Benzo(b)fluoranthene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Benzo(k)fluoranthene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Chrysene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Dibenzo(a,h)anthracene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Fluoranthene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** S-Wall 04 @ 12'  
**Collection Date:** 7/19/2016 02:10 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-02  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Indeno(1,2,3-cd)pyrene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
<b>Naphthalene</b>	<b>35</b>		<b>17</b>	<b>µg/Kg-dry</b>	<b>1</b>	7/21/2016 07:38 PM
Pyrene	ND		17	µg/Kg-dry	1	7/21/2016 07:38 PM
Surr: 2-Fluorobiphenyl	69.5		12-100	%REC	1	7/21/2016 07:38 PM
Surr: 4-Terphenyl-d14	91.3		25-137	%REC	1	7/21/2016 07:38 PM
Surr: Nitrobenzene-d5	71.7		37-107	%REC	1	7/21/2016 07:38 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>	Prep: SW5035 / 7/21/16	Analyst: <b>BG</b>	
<b>Benzene</b>	<b>2.0</b>		<b>0.049</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/23/2016 06:54 AM
<b>Ethylbenzene</b>	<b>2.6</b>		<b>0.049</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/23/2016 06:54 AM
<b>m,p-Xylene</b>	<b>43</b>		<b>0.49</b>	<b>mg/Kg-dry</b>	<b>5</b>	7/26/2016 01:55 PM
<b>o-Xylene</b>	<b>2.6</b>		<b>0.049</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/23/2016 06:54 AM
<b>Toluene</b>	<b>0.19</b>		<b>0.049</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/23/2016 06:54 AM
<b>Xylenes, Total</b>	<b>47</b>		<b>0.73</b>	<b>mg/Kg-dry</b>	<b>5</b>	7/26/2016 01:55 PM
Surr: 1,2-Dichloroethane-d4	106		70-130	%REC	5	7/26/2016 01:55 PM
Surr: 1,2-Dichloroethane-d4	97.2		70-130	%REC	1	7/23/2016 06:54 AM
Surr: 4-Bromofluorobenzene	98.6		70-130	%REC	1	7/23/2016 06:54 AM
Surr: 4-Bromofluorobenzene	96.4		70-130	%REC	5	7/26/2016 01:55 PM
Surr: Dibromofluoromethane	96.5		70-130	%REC	1	7/23/2016 06:54 AM
Surr: Dibromofluoromethane	99.6		70-130	%REC	5	7/26/2016 01:55 PM
Surr: Toluene-d8	112		70-130	%REC	5	7/26/2016 01:55 PM
Surr: Toluene-d8	120		70-130	%REC	1	7/23/2016 06:54 AM
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>	Prep: USDA Method 20B / 7/25/16	Analyst: <b>JB</b>	
<b>Electrical Conductivity @ Saturation</b>	<b>12</b>		<b>0.25</b>	<b>mmhos/cm @2</b>	<b>50</b>	7/25/2016 03:00 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>	Analyst: <b>MB</b>		
<b>Chromium, Trivalent</b>	<b>25</b>		<b>0.66</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/25/2016 07:00 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A / 7/22/16	Analyst: <b>MB</b>	
<b>Chromium, Hexavalent</b>	ND		1.2	mg/Kg-dry	1	7/25/2016 04:00 PM
<b>MOISTURE</b>			<b>SW3550C</b>	Analyst: <b>EDL</b>		
<b>Moisture</b>	<b>24</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	7/21/2016 09:40 PM
<b>PH</b>			<b>SW9045D</b>	Prep: EXTRACT / 7/24/16	Analyst: <b>EDL</b>	
<b>pH</b>	<b>9.1</b>			<b>s.u.</b>	<b>1</b>	7/24/2016 07:27 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** W-Wall 02 @ 15'  
**Collection Date:** 7/19/2016 02:30 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
<b>DRO (C10-C28)</b>	<b>82</b>		<b>SW8015M</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: 4-Terphenyl-d14</i>	55.9		9.6	mg/Kg-dry	1	7/22/2016 11:52 AM
			39-133	%REC	1	7/22/2016 11:52 AM
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
<b>GRO (C6-C10)</b>	<b>60</b>		<b>SW8015D</b>		Prep: SW5035 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: Toluene-d8</i>	97.8		3.7	mg/Kg-dry	1	7/22/2016 04:20 PM
			50-150	%REC	1	7/22/2016 04:20 PM
<b>MERCURY BY CVAA</b>						
Mercury	ND		<b>SW7471B</b>		Prep: SW7471 / 7/25/16	Analyst: <b>LR</b>
			0.015	mg/Kg-dry	1	7/26/2016 02:46 PM
<b>METALS ANALYSIS BY ICP</b>						
<b>Arsenic</b>	<b>20</b>		<b>SW846 6010C</b>		Prep: SW3050B / 7/21/16	Analyst: <b>JEC</b>
<b>Barium</b>	<b>260</b>		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
Cadmium	ND		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>Chromium</b>	<b>21</b>		0.93	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>Copper</b>	<b>25</b>		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>Lead</b>	<b>16</b>		0.93	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>Nickel</b>	<b>23</b>		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
Selenium	ND		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
Silver	ND		0.93	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>Zinc</b>	<b>83</b>		0.46	mg/Kg-dry	1	7/21/2016 04:18 PM
<b>SOLUBLE CATIONS FOR SAR</b>						
			<b>SW846 6010C</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
<b>Calcium</b>	<b>450</b>		5.0	mg/L	10	7/25/2016 05:15 PM
<b>Magnesium</b>	<b>260</b>		2.0	mg/L	10	7/25/2016 05:15 PM
<b>Sodium</b>	<b>3,400</b>		2.0	mg/L	10	7/25/2016 05:15 PM
<b>SODIUM ADSORPTION RATIO</b>						
			<b>USDA H60 METHO</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
<b>Sodium Adsorption Ratio</b>	<b>31</b>		0.010	none	1	7/25/2016
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RS</b>
Acenaphthene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Anthracene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Benzo(a)anthracene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Benzo(a)pyrene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Benzo(b)fluoranthene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Benzo(k)fluoranthene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Chrysene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Dibenzo(a,h)anthracene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Fluoranthene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** W-Wall 02 @ 15'  
**Collection Date:** 7/19/2016 02:30 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Indeno(1,2,3-cd)pyrene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
<b>Naphthalene</b>	<b>200</b>		<b>15</b>	<b>µg/Kg-dry</b>	1	7/21/2016 07:59 PM
Pyrene	ND		15	µg/Kg-dry	1	7/21/2016 07:59 PM
Surr: 2-Fluorobiphenyl	60.3		12-100	%REC	1	7/21/2016 07:59 PM
Surr: 4-Terphenyl-d14	67.5		25-137	%REC	1	7/21/2016 07:59 PM
Surr: Nitrobenzene-d5	65.6		37-107	%REC	1	7/21/2016 07:59 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>	Prep: SW5035 / 7/21/16		Analyst: <b>AK</b>
<b>Benzene</b>	<b>0.80</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
<b>Ethylbenzene</b>	<b>1.6</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
<b>m,p-Xylene</b>	<b>3.3</b>		<b>0.088</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
<b>o-Xylene</b>	<b>0.36</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
<b>Toluene</b>	<b>0.41</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
<b>Xylenes, Total</b>	<b>3.7</b>		<b>0.13</b>	<b>mg/Kg-dry</b>	1	7/22/2016 08:39 AM
Surr: 1,2-Dichloroethane-d4	95.5		70-130	%REC	1	7/22/2016 08:39 AM
Surr: 4-Bromofluorobenzene	100		70-130	%REC	1	7/22/2016 08:39 AM
Surr: Dibromofluoromethane	87.6		70-130	%REC	1	7/22/2016 08:39 AM
Surr: Toluene-d8	99.3		70-130	%REC	1	7/22/2016 08:39 AM
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>	Prep: USDA Method 20B / 7/25/16		Analyst: <b>JB</b>
<b>Electrical Conductivity @ Saturation</b>	<b>20</b>		<b>0.050</b>	<b>mmhos/cm @2</b>	10	7/25/2016 03:00 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>MB</b>
<b>Chromium, Trivalent</b>	<b>21</b>		<b>0.61</b>	<b>mg/Kg-dry</b>	1	7/25/2016 07:00 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A / 7/22/16		Analyst: <b>MB</b>
<b>Chromium, Hexavalent</b>	ND		1.2	mg/Kg-dry	1	7/25/2016 04:00 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>EDL</b>
<b>Moisture</b>	<b>19</b>		<b>0.050</b>	<b>% of sample</b>	1	7/21/2016 09:40 PM
<b>PH</b>			<b>SW9045D</b>	Prep: EXTRACT / 7/24/16		Analyst: <b>EDL</b>
<b>pH</b>	<b>8.2</b>			<b>s.u.</b>	1	7/24/2016 07:27 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** E-Wall 02 @ 12'  
**Collection Date:** 7/19/2016 03:20 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>						
<b>DRO (C10-C28)</b>	<b>110</b>		<b>SW8015M</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: 4-Terphenyl-d14</i>	<i>55.8</i>		<i>10</i>	<i>mg/Kg-dry</i>	<i>1</i>	<i>7/22/2016 04:17 PM</i>
			<i>39-133</i>	<i>%REC</i>	<i>1</i>	<i>7/22/2016 04:17 PM</i>
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>						
<b>GRO (C6-C10)</b>	<b>230</b>		<b>SW8015D</b>		Prep: SW5035 / 7/21/16	Analyst: <b>RM</b>
<i>Surr: Toluene-d8</i>	<i>50.5</i>		<i>3.7</i>	<i>mg/Kg-dry</i>	<i>1</i>	<i>7/22/2016 03:29 PM</i>
			<i>50-150</i>	<i>%REC</i>	<i>1</i>	<i>7/22/2016 03:29 PM</i>
<b>MERCURY BY CVAA</b>						
<b>Mercury</b>	<b>0.025</b>		<b>SW7471B</b>		Prep: SW7471 / 7/25/16	Analyst: <b>LR</b>
			<b>0.015</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/26/2016 02:48 PM</b>
<b>METALS ANALYSIS BY ICP</b>						
<b>Arsenic</b>	<b>12</b>		<b>SW846 6010C</b>		Prep: SW3050B / 7/21/16	Analyst: <b>JEC</b>
<b>Barium</b>	<b>320</b>		<b>2.5</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>7/22/2016 10:30 AM</b>
<b>Cadmium</b>	<b>1.1</b>		<b>0.50</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 04:24 PM</b>
<b>Chromium</b>	<b>14</b>		<b>1.0</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 04:24 PM</b>
<b>Copper</b>	<b>24</b>		<b>2.5</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>7/22/2016 10:30 AM</b>
<b>Lead</b>	<b>13</b>		<b>1.0</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 04:24 PM</b>
<b>Nickel</b>	<b>23</b>		<b>2.5</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>7/22/2016 10:30 AM</b>
<b>Selenium</b>	<b>ND</b>		<b>0.50</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 04:24 PM</b>
<b>Silver</b>	<b>ND</b>		<b>5.0</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>7/22/2016 10:30 AM</b>
<b>Zinc</b>	<b>84</b>		<b>0.50</b>	<b>mg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 04:24 PM</b>
			<b>5.0</b>	<b>mg/Kg-dry</b>	<b>5</b>	<b>7/22/2016 10:30 AM</b>
<b>SOLUBLE CATIONS FOR SAR</b>						
			<b>SW846 6010C</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
<b>Calcium</b>	<b>640</b>		<b>5.0</b>	<b>mg/L</b>	<b>10</b>	<b>7/25/2016 05:21 PM</b>
<b>Magnesium</b>	<b>340</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	<b>7/25/2016 05:21 PM</b>
<b>Sodium</b>	<b>2,100</b>		<b>2.0</b>	<b>mg/L</b>	<b>10</b>	<b>7/25/2016 05:21 PM</b>
<b>SODIUM ADSORPTION RATIO</b>						
			<b>USDA H60 METHO</b>		Prep: USDA Method 20B / 7/25/16	Analyst: <b>JEC</b>
<b>Sodium Adsorption Ratio</b>	<b>17</b>		<b>0.010</b>	<b>none</b>	<b>1</b>	<b>7/25/2016</b>
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>						
			<b>SW846 8270D</b>		Prep: SW3546 / 7/21/16	Analyst: <b>RS</b>
<b>Acenaphthene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Anthracene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Benzo(a)anthracene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Benzo(a)pyrene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Benzo(b)fluoranthene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Benzo(k)fluoranthene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Chrysene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Dibenzo(a,h)anthracene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>
<b>Fluoranthene</b>	<b>ND</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	<b>7/21/2016 08:20 PM</b>

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Sample ID:** E-Wall 02 @ 12'  
**Collection Date:** 7/19/2016 03:20 PM

**Work Order:** 16071107  
**Lab ID:** 16071107-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		16	µg/Kg-dry	1	7/21/2016 08:20 PM
Indeno(1,2,3-cd)pyrene	ND		16	µg/Kg-dry	1	7/21/2016 08:20 PM
<b>Naphthalene</b>	<b>45</b>		<b>16</b>	<b>µg/Kg-dry</b>	<b>1</b>	7/21/2016 08:20 PM
Pyrene	ND		16	µg/Kg-dry	1	7/21/2016 08:20 PM
Surr: 2-Fluorobiphenyl	59.4		12-100	%REC	1	7/21/2016 08:20 PM
Surr: 4-Terphenyl-d14	72.8		25-137	%REC	1	7/21/2016 08:20 PM
Surr: Nitrobenzene-d5	65.3		37-107	%REC	1	7/21/2016 08:20 PM
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>	Prep: SW5035 / 7/21/16		Analyst: <b>AK</b>
<b>Benzene</b>	<b>0.061</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
<b>Ethylbenzene</b>	<b>0.52</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
<b>m,p-Xylene</b>	<b>8.4</b>		<b>0.088</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
<b>o-Xylene</b>	<b>1.1</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
<b>Toluene</b>	<b>0.046</b>		<b>0.044</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
<b>Xylenes, Total</b>	<b>9.5</b>		<b>0.13</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/22/2016 09:06 AM
Surr: 1,2-Dichloroethane-d4	100		70-130	%REC	1	7/22/2016 09:06 AM
Surr: 4-Bromofluorobenzene	97.8		70-130	%REC	1	7/22/2016 09:06 AM
Surr: Dibromofluoromethane	88.0		70-130	%REC	1	7/22/2016 09:06 AM
Surr: Toluene-d8	108		70-130	%REC	1	7/22/2016 09:06 AM
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>	Prep: USDA Method 20B / 7/25/16		Analyst: <b>JB</b>
<b>Electrical Conductivity @ Saturation</b>	<b>15</b>		<b>0.050</b>	<b>mmhos/cm @2</b>	<b>10</b>	7/25/2016 03:00 PM
<b>CHROMIUM, TRIVALENT</b>			<b>CALCULATION</b>			Analyst: <b>MB</b>
<b>Chromium, Trivalent</b>	<b>14</b>		<b>0.62</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/25/2016 07:00 PM
<b>CHROMIUM, HEXAVALENT</b>			<b>SW7196A</b>	Prep: SW3060A / 7/22/16		Analyst: <b>MB</b>
<b>Chromium, Hexavalent</b>	<b>ND</b>		<b>1.2</b>	<b>mg/Kg-dry</b>	<b>1</b>	7/25/2016 04:00 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>EDL</b>
<b>Moisture</b>	<b>19</b>		<b>0.050</b>	<b>% of sample</b>	<b>1</b>	7/21/2016 09:40 PM
<b>PH</b>			<b>SW9045D</b>	Prep: EXTRACT / 7/24/16		Analyst: <b>EDL</b>
<b>pH</b>	<b>7.9</b>			<b>s.u.</b>	<b>1</b>	7/24/2016 07:27 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



# ALS Group USA, Corp

Date: 27-Jul-16

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88939** Instrument ID **GC8** Method: **SW8015M**

<b>MBLK</b>		Sample ID: <b>DBLKS1-88939-88939</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/22/2016 09:53 AM</b>		
Client ID:		Run ID: <b>GC8_160722A</b>				SeqNo: <b>3938474</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	8.3								
Surr: 4-Terphenyl-d14	2.3	0	3.333	0	69	39-133		0		

<b>LCS</b>		Sample ID: <b>DLCSS1-88939-88939</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/22/2016 10:22 AM</b>		
Client ID:		Run ID: <b>GC8_160722A</b>				SeqNo: <b>3938475</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	287.6	8.3	333.3	0	86.3	61-109		0		
Surr: 4-Terphenyl-d14	2.201	0	3.333	0	66	39-133		0		

<b>MS</b>		Sample ID: <b>16071107-03B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/22/2016 10:53 AM</b>		
Client ID: <b>W-Wall 02 @ 15'</b>		Run ID: <b>GC8_160722A</b>				SeqNo: <b>3938476</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	329.8	7.8	313.6	67.06	83.8	48-110		0		
Surr: 4-Terphenyl-d14	1.916	0	3.136	0	61.1	39-133		0		

<b>MSD</b>		Sample ID: <b>16071107-03B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/22/2016 11:22 AM</b>		
Client ID: <b>W-Wall 02 @ 15'</b>		Run ID: <b>GC8_160722A</b>				SeqNo: <b>3938477</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	337.3	8.0	319.9	67.06	84.5	48-110	329.8	2.27	30	
Surr: 4-Terphenyl-d14	1.971	0	3.199	0	61.6	39-133	1.916	2.85	30	

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 16071107  
 Project: Unocal 1

# QC BATCH REPORT

Batch ID: 88929 Instrument ID GC9 Method: SW8015D

<b>MBLK</b>		Sample ID: <b>MBLK-88929-88929</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/22/2016 11:44 AM</b>		
Client ID:		Run ID: <b>GC9_160722A</b>				SeqNo: <b>3938576</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4822	0	5000	0	96.4	50-150	0			

<b>LCS</b>		Sample ID: <b>LCS-88929-88929</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/22/2016 10:53 AM</b>		
Client ID:		Run ID: <b>GC9_160722A</b>				SeqNo: <b>3938575</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	431000	2,500	500000	0	86.2	70-130	0			
Surr: Toluene-d8	4836	0	5000	0	96.7	50-150	0			

<b>MS</b>		Sample ID: <b>16071107-02A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/22/2016 02:39 PM</b>		
Client ID: <b>S-Wall 04 @ 12'</b>		Run ID: <b>GC9_160722A</b>				SeqNo: <b>3938582</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	847300	4,100	815800	147000	85.8	70-130	0			
Surr: Toluene-d8	5631	0	8158	0	69	50-150	0			

<b>MSD</b>		Sample ID: <b>16071107-02A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/22/2016 03:04 PM</b>		
Client ID: <b>S-Wall 04 @ 12'</b>		Run ID: <b>GC9_160722A</b>				SeqNo: <b>3938583</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	802300	4,100	815800	147000	80.3	70-130	847300	5.45	30	
Surr: Toluene-d8	5054	0	8158	0	62	50-150	5631	10.8	30	

The following samples were analyzed in this batch:

16071107-01A	16071107-02A	16071107-03A
16071107-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **89103** Instrument ID **HG1** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-89103-89103</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2016 02:24 PM</b>		
Client ID:		Run ID: <b>HG1_160726A</b>				SeqNo: <b>3944094</b>		Prep Date: <b>7/25/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury ND 0.020

<b>LCS</b>		Sample ID: <b>LCS-89103-89103</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2016 02:26 PM</b>		
Client ID:		Run ID: <b>HG1_160726A</b>				SeqNo: <b>3944095</b>		Prep Date: <b>7/25/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1667 0.020 0.1665 0 100 80-120 0

<b>MS</b>		Sample ID: <b>16071107-04BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2016 02:50 PM</b>		
Client ID: <b>E-Wall 02 @ 12'</b>		Run ID: <b>HG1_160726A</b>				SeqNo: <b>3944459</b>		Prep Date: <b>7/25/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1235 0.012 0.1015 0.01997 102 75-125 0

<b>MSD</b>		Sample ID: <b>16071107-04BMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2016 02:53 PM</b>		
Client ID: <b>E-Wall 02 @ 12'</b>		Run ID: <b>HG1_160726A</b>				SeqNo: <b>3944460</b>		Prep Date: <b>7/25/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1203 0.012 0.1023 0.01997 98.1 75-125 0.1235 2.63 35

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

# QC BATCH REPORT

Batch ID: **88942** Instrument ID **ICP2** Method: **SW846 6010C**

Sample ID: <b>MBLK-88942-88942</b>				Units: <b>mg/Kg</b>			Analysis Date: <b>7/21/2016 03:56 PM</b>				
Client ID:			Run ID: <b>ICP2_160721A</b>			SeqNo: <b>3936783</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	ND	0.25									
Barium	ND	0.25									
Cadmium	0.03921	0.50								J	
Chromium	0.01566	0.25								J	
Copper	ND	0.50									
Lead	ND	0.25									
Nickel	ND	0.25									
Selenium	ND	0.50									
Silver	ND	0.25									
Zinc	0.05628	0.50								J	

LCS				Sample ID: LCS-88942-88942				Units: mg/Kg			Analysis Date: 7/21/2016 04:02 PM		
Client ID:			Run ID: ICP2_160721A				SeqNo: 3936784			Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Arsenic	5.238	0.25	5	0	105	80-120	0						
Barium	5.254	0.25	5	0	105	80-120	0						
Cadmium	5.468	0.50	5	0	109	80-120	0						
Chromium	5.623	0.25	5	0	112	80-120	0						
Copper	5.437	0.50	5	0	109	80-120	0						
Lead	5.274	0.25	5	0	105	80-120	0						
Nickel	5.271	0.25	5	0	105	80-120	0						
Selenium	5.041	0.50	5	0	101	80-120	0						
Silver	4.899	0.25	5	0	98	80-120	0						
Zinc	5.428	0.50	5	0	109	80-120	0						

MS				Sample ID: 16071177-01CMS			Units: mg/Kg		Analysis Date: 7/21/2016 04:34 PM		
Client ID:			Run ID: ICP2_160721A			SeqNo: 3936790		Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	11.29	0.40	7.924	2.862	106	75-125	0				
Barium	44.47	0.40	7.924	38.69	73	75-125	0			SO	
Cadmium	8.858	0.79	7.924	0.2629	108	75-125	0				
Chromium	19.84	0.40	7.924	11.84	101	75-125	0				
Copper	18.09	0.79	7.924	11	89.4	75-125	0				
Lead	23.13	0.40	7.924	16.77	80.2	75-125	0				
Nickel	21.54	0.40	7.924	13.02	108	75-125	0				
Selenium	8.113	0.79	7.924	0.1267	101	75-125	0				
Silver	7.36	0.40	7.924	-0.04531	93.5	75-125	0				
Zinc	67.25	0.79	7.924	63.09	52.5	75-125	0			SO	

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88942**

Instrument ID **ICP2**

Method: **SW846 6010C**

MSD		Sample ID: <b>16071177-01CMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/21/2016 04:40 PM</b>		
Client ID:		Run ID: <b>ICP2_160721A</b>				SeqNo: <b>3936791</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.81	0.40	7.974	2.862	99.7	75-125	11.29	4.34	20	
Barium	44.82	0.40	7.974	38.69	76.8	75-125	44.47	0.776	20	O
Cadmium	8.702	0.80	7.974	0.2629	106	75-125	8.858	1.77	20	
Chromium	19.62	0.40	7.974	11.84	97.6	75-125	19.84	1.07	20	
Copper	18.34	0.80	7.974	11	92.1	75-125	18.09	1.4	20	
Lead	22.29	0.40	7.974	16.77	69.2	75-125	23.13	3.67	20	S
Nickel	21.07	0.40	7.974	13.02	101	75-125	21.54	2.22	20	
Selenium	7.74	0.80	7.974	0.1267	95.5	75-125	8.113	4.7	20	
Silver	7.276	0.40	7.974	-0.04531	91.8	75-125	7.36	1.14	20	
Zinc	72.31	0.80	7.974	63.09	116	75-125	67.25	7.25	20	O

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **89025** Instrument ID **ICP2** Method: **SW846 6010C**

<b>DUP</b>		Sample ID: <b>16071286-01BDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>7/25/2016 02:05 PM</b>		
Client ID:		Run ID: <b>ICP2_160725B</b>				SeqNo: <b>3941131</b>		Prep Date: <b>7/25/2016</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	40.84	5.0	0	0	0	0-0	40.25	1.45		
Magnesium	3.111	2.0	0	0	0	0-0	2.842	9.05		
Sodium	1536	2.0	0	0	0	0-0	1507	1.9		

<b>DUP</b>		Sample ID: <b>16071286-01BDUP</b>				Units: <b>none</b>		Analysis Date: <b>7/25/2016</b>		
Client ID:		Run ID: <b>SAR_160725A</b>				SeqNo: <b>3941152</b>		Prep Date: <b>7/25/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	62.38	0.010	0	0	0		61.91	0.767	50	

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **88938**      Instrument ID **SVMS7**      Method: **SW846 8270D**

MBLK		Sample ID: <b>SBLKS1-88938-88938</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>7/21/2016 05:32 PM</b>		
Client ID:		Run ID: <b>SVMS7_160721A</b>				SeqNo: <b>3938272</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	13								
Anthracene	ND	13								
Benzo(a)anthracene	ND	13								
Benzo(a)pyrene	ND	13								
Benzo(b)fluoranthene	ND	13								
Benzo(k)fluoranthene	ND	13								
Chrysene	ND	13								
Dibenzo(a,h)anthracene	ND	13								
Fluoranthene	ND	13								
Fluorene	ND	13								
Indeno(1,2,3-cd)pyrene	ND	13								
Naphthalene	ND	13								
Pyrene	ND	13								
<i>Surr: 2-Fluorobiphenyl</i>	2561	0	3333	0	76.8	12-100	0			
<i>Surr: 4-Terphenyl-d14</i>	2876	0	3333	0	86.3	25-137	0			
<i>Surr: Nitrobenzene-d5</i>	2583	0	3333	0	77.5	37-107	0			

LCS		Sample ID: <b>SLCSS1-88938-88938</b>				Units: <b>µg/Kg</b>		Analysis Date: <b>7/21/2016 05:53 PM</b>		
Client ID:		Run ID: <b>SVMS7_160721A</b>				SeqNo: <b>3938275</b>		Prep Date: <b>7/21/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	567.3	6.7	666.7	0	85.1	45-110	0			
Anthracene	651	6.7	666.7	0	97.6	55-105	0			
Benzo(a)anthracene	645.3	6.7	666.7	0	96.8	50-110	0			
Benzo(a)pyrene	667.7	6.7	666.7	0	100	50-110	0			
Benzo(b)fluoranthene	655.3	6.7	666.7	0	98.3	45-115	0			
Benzo(k)fluoranthene	648.7	6.7	666.7	0	97.3	45-115	0			
Chrysene	648.3	6.7	666.7	0	97.2	55-110	0			
Dibenzo(a,h)anthracene	654	6.7	666.7	0	98.1	40-125	0			
Fluoranthene	717.3	6.7	666.7	0	108	55-115	0			
Fluorene	622.3	6.7	666.7	0	93.3	50-110	0			
Indeno(1,2,3-cd)pyrene	690	6.7	666.7	0	103	40-120	0			
Naphthalene	578.3	6.7	666.7	0	86.7	40-105	0			
Pyrene	611.7	6.7	666.7	0	91.7	45-125	0			
<i>Surr: 2-Fluorobiphenyl</i>	1309	0	1667	0	78.5	12-100	0			
<i>Surr: 4-Terphenyl-d14</i>	1448	0	1667	0	86.9	25-137	0			
<i>Surr: Nitrobenzene-d5</i>	1419	0	1667	0	85.1	37-107	0			

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 16071107  
 Project: Unocal 1

## QC BATCH REPORT

Batch ID: 88938 Instrument ID SVMS7 Method: SW846 8270D

MS				Sample ID: 16071177-01B MS				Units: µg/Kg		Analysis Date: 7/21/2016 06:14 PM	
Client ID:			Run ID: SVMS7_160721A			SeqNo: 3938276		Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1095	13	1306	0	83.8	45-110	0				
Anthracene	1248	13	1306	0	95.5	55-105	0				
Benzo(a)anthracene	1208	13	1306	0	92.4	50-110	0				
Benzo(a)pyrene	1268	13	1306	0	97	50-110	0				
Benzo(b)fluoranthene	1269	13	1306	0	97.1	45-115	0				
Benzo(k)fluoranthene	1229	13	1306	0	94	45-115	0				
Chrysene	1218	13	1306	0	93.2	55-110	0				
Dibenzo(a,h)anthracene	1059	13	1306	0	81	40-125	0				
Fluoranthene	1395	13	1306	6.447	106	55-115	0				
Fluorene	1185	13	1306	0	90.7	50-110	0				
Indeno(1,2,3-cd)pyrene	1112	13	1306	0	85.1	40-120	0				
Naphthalene	1069	13	1306	0	81.8	40-105	0				
Pyrene	1145	13	1306	5.802	87.2	45-125	0				
Surr: 2-Fluorobiphenyl	2496	0	3266	0	76.4	12-100	0				
Surr: 4-Terphenyl-d14	2699	0	3266	0	82.6	25-137	0				
Surr: Nitrobenzene-d5	2664	0	3266	0	81.6	37-107	0				

MSD				Sample ID: 16071177-01B MSD				Units: µg/Kg		Analysis Date: 7/21/2016 06:35 PM	
Client ID:			Run ID: SVMS7_160721A			SeqNo: 3938281		Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1105	13	1330	0	83.1	45-110	1095	0.861	30		
Anthracene	1237	13	1330	0	93	55-105	1248	0.892	30		
Benzo(a)anthracene	1197	13	1330	0	90	50-110	1208	0.926	30		
Benzo(a)pyrene	1255	13	1330	0	94.4	50-110	1268	1.01	30		
Benzo(b)fluoranthene	1270	13	1330	0	95.5	45-115	1269	0.0464	30		
Benzo(k)fluoranthene	1236	13	1330	0	92.9	45-115	1229	0.583	30		
Chrysene	1193	13	1330	0	89.7	55-110	1218	2.07	30		
Dibenzo(a,h)anthracene	976.5	13	1330	0	73.4	40-125	1059	8.08	30		
Fluoranthene	1401	13	1330	6.447	105	55-115	1395	0.44	30		
Fluorene	1213	13	1330	0	91.2	50-110	1185	2.31	30		
Indeno(1,2,3-cd)pyrene	1026	13	1330	0	77.1	40-120	1112	8.1	30		
Naphthalene	1033	13	1330	0	77.7	40-105	1069	3.38	30		
Pyrene	1133	13	1330	5.802	84.8	45-125	1145	1.08	30		
Surr: 2-Fluorobiphenyl	2424	0	3324	0	72.9	12-100	2496	2.95	40		
Surr: 4-Terphenyl-d14	2672	0	3324	0	80.4	25-137	2699	0.989	40		
Surr: Nitrobenzene-d5	2521	0	3324	0	75.8	37-107	2664	5.54	40		

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

# QC BATCH REPORT

Batch ID: **88924**      Instrument ID **VMS8**      Method: **SW8260B**

MBLK				Sample ID: MBLK-88924-88924				Units: µg/Kg-dry			Analysis Date: 7/21/2016 01:06 PM			
Client ID:				Run ID: VMS8_160721A				SeqNo: 3935788			Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	ND	30												
Ethylbenzene	ND	30												
m,p-Xylene	ND	60												
o-Xylene	ND	30												
Toluene	ND	30												
Xylenes, Total	ND	90												
Surr: 1,2-Dichloroethane-d4	1020	0	1000	0	102	70-130		0						
Surr: 4-Bromofluorobenzene	976.5	0	1000	0	97.6	70-130		0						
Surr: Dibromofluoromethane	900.5	0	1000	0	90	70-130		0						
Surr: Toluene-d8	991	0	1000	0	99.1	70-130		0						

LCS				Sample ID: LCS-88924-88924			Units: µg/Kg-dry		Analysis Date: 7/21/2016 11:05 AM		
Client ID:			Run ID: VMS8_160721A			SeqNo: 3935787		Prep Date: 7/21/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1116	30	1000	0	112	75-125	0				
Ethylbenzene	1070	30	1000	0	107	75-125	0				
m,p-Xylene	2218	60	2000	0	111	80-125	0				
o-Xylene	1093	30	1000	0	109	75-125	0				
Toluene	1086	30	1000	0	109	70-125	0				
Xylenes, Total	3310	90	3000	0	110	75-125	0				
Surr: 1,2-Dichloroethane-d4	1024	0	1000	0	102	70-130	0				
Surr: 4-Bromofluorobenzene	1013	0	1000	0	101	70-130	0				
Surr: Dibromofluoromethane	1094	0	1000	0	109	70-130	0				
Surr: Toluene-d8	1004	0	1000	0	100	70-130	0				

MS				Sample ID: 16071107-02A MS			Units: µg/Kg-dry		Analysis Date: 7/26/2016 02:21 PM		
Client ID: S-Wall 04 @ 12'			Run ID: VMS5_160726A		SeqNo: 3944235		Prep Date: 7/21/2016		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	11590	240	8158	2847	107	75-125		0			
Ethylbenzene	14050	240	8158	4010	123	75-125		0			
m,p-Xylene	74610	490	16320	42940	194	80-125		0		S	
o-Xylene	14080	240	8158	4083	123	75-125		0			
Toluene	8448	240	8158	314.1	99.7	70-125		0			
Xylenes, Total	88690	730	24470	47020	170	75-125		0		S	
Surr: 1,2-Dichloroethane-d4	8492	0	8158	0	104	70-130		0			
Surr: 4-Bromofluorobenzene	7925	0	8158	0	97.2	70-130		0			
Surr: Dibromofluoromethane	8129	0	8158	0	99.6	70-130		0			
Surr: Toluene-d8	9353	0	8158	0	115	70-130		0			

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC  
 Work Order: 16071107  
 Project: Unocal 1

## QC BATCH REPORT

Batch ID: **88924** Instrument ID **VMS8** Method: **SW8260B**

MSD				Sample ID: 16071107-02A MSD			Units: µg/Kg-dry		Analysis Date: 7/26/2016 02:48 PM		
Client ID: S-Wall 04 @ 12'			Run ID: VMS5_160726A			SeqNo: 3944236		Prep Date: 7/21/2016		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	14440	240	8158	2847	142	75-125	11590	21.9	30	S	
Ethylbenzene	18940	240	8158	4010	183	75-125	14050	29.7	30	S	
m,p-Xylene	121000	490	16320	42940	479	80-125	74610	47.5	30	SRE	
o-Xylene	19340	240	8158	4083	187	75-125	14080	31.5	30	SR	
Toluene	8888	240	8158	314.1	105	70-125	8448	5.08	30		
Xylenes, Total	140400	730	24470	47020	381	75-125	88690	45.1	30	SRE	
Surr: 1,2-Dichloroethane-d4	8374	0	8158	0	103	70-130	8492	1.4	30		
Surr: 4-Bromofluorobenzene	7991	0	8158	0	98	70-130	7925	0.82	30		
Surr: Dibromofluoromethane	8068	0	8158	0	98.9	70-130	8129	0.755	30		
Surr: Toluene-d8	9949	0	8158	0	122	70-130	9353	6.17	30		

The following samples were analyzed in this batch:

16071107-01A	16071107-02A	16071107-03A
16071107-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **89007**      Instrument ID **WETCHEM**      Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-89007-89007</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/25/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160725K</b>				SeqNo: <b>3941865</b>		Prep Date: <b>7/22/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      ND      1.0

<b>LCS</b>		Sample ID: <b>LCS-89007-89007</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/25/2016 04:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160725K</b>				SeqNo: <b>3941864</b>		Prep Date: <b>7/22/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      4.194      0.97      4.854      0      86.4      80-120      0

<b>MS</b>		Sample ID: <b>16071107-03B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/25/2016 04:00 PM</b>		
Client ID: <b>W-Wall 02 @ 15'</b>		Run ID: <b>WETCHEM_160725K</b>				SeqNo: <b>3941853</b>		Prep Date: <b>7/22/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      0.84      1.0      5      0      16.8      75-125      0      JS

<b>MS</b>		Sample ID: <b>16071107-03B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/25/2016 04:00 PM</b>		
Client ID: <b>W-Wall 02 @ 15'</b>		Run ID: <b>WETCHEM_160725K</b>				SeqNo: <b>3941855</b>		Prep Date: <b>7/22/2016</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      2792      99      3075      0      90.8      75-125      0

<b>MSD</b>		Sample ID: <b>16071107-03B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/25/2016 04:00 PM</b>		
Client ID: <b>W-Wall 02 @ 15'</b>		Run ID: <b>WETCHEM_160725K</b>				SeqNo: <b>3941854</b>		Prep Date: <b>7/22/2016</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      0.72      1.0      5      0      14.4      75-125      0.84      0      20      JS

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **89024** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-89024-89024					Units: s.u.		Analysis Date: 7/24/2016 07:27 PM		
Client ID:		Run ID: WETCHEM_160724B					SeqNo: 3939793		Prep Date: 7/24/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	3.96	0	4	0	99	90-110	0			
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DUP				Sample ID: 16071107-03B DUP				Units: s.u.			Analysis Date: 7/24/2016 07:27 PM			
Client ID: W-Wall 02 @ 15'				Run ID: WETCHEM_160724B				SeqNo: 3939797			Prep Date: 7/24/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH	8.46	0	0	0	0	0-0	8.16	3.61	20	
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DUP				Sample ID: 16071353-01C DUP				Units: s.u.			Analysis Date: 7/24/2016 07:27 PM			
Client ID:				Run ID: WETCHEM_160724B				SeqNo: 3939805			Prep Date: 7/24/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH	7.74	0	0	0	0	0-0	7.72	0.259	20	
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The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **89025** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>16071286-01B DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>7/25/2016 03:00 PM</b>		
Client ID:		Run ID: <b>WETCHEM_160725I</b>			SeqNo: <b>3941328</b>		Prep Date: <b>7/25/2016</b>		DF: <b>10</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	8.69	0.050	0	0	0		8.81	1.37	50	

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 16071107  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **R192100** Instrument ID **MOIST** Method: **SW3550C**

MBLK				Sample ID: WBLKS-R192100				Units: % of sample			Analysis Date: 7/21/2016 09:40 PM			
Client ID:				Run ID: MOIST_160721D				SeqNo: 3937495			Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Moisture		0.03	0.050								J			

LCS		Sample ID: LCS-R192100				Units: % of sample		Analysis Date: 7/21/2016 09:40 PM		
Client ID:		Run ID: MOIST_160721D			SeqNo: 3937494		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

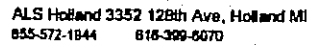
DUP				Sample ID: 16071107-01B DUP				Units: % of sample			Analysis Date: 7/21/2016 09:40 PM			
Client ID: S-Base @ 17'				Run ID: MOIST_160721D				SeqNo: 3937473			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	25.02	0.050	0	0	0		26.95	7.43	20					

DUP				Sample ID: 16071107-02B DUP				Units: % of sample			Analysis Date: 7/21/2016 09:40 PM			
Client ID: S-Wall 04 @ 12'				Run ID: MOIST_160721D				SeqNo: 3937475			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	24.42	0.050	0	0	0		23.83	2.45	20					

The following samples were analyzed in this batch:

16071107-01B	16071107-02B	16071107-03B
16071107-04B		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.







## Form 202r1

16071167

1 of 1

**(By Lab) or Return to Cite**

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Jake Janicek	7-19-16	1630
RECEIVED BY		M	7-19-16	1630
RELINQUISHED BY		M	7-19-16	1700
RECEIVED BY		M Broadbent	7/20/16	930
RELINQUISHED BY				
RECEIVED BY				

**FedEx** US Airbill  
ExpressFedEx  
Tracking  
Number

8722 9438 5946

0200 Form  
ID No.

FedEx Retrieval Copy

1 From  
Date 7/19/16 Sender's FedEx Account Number 222 903 422

Sender's Name Nick Martner Phone 610 298-1033

Company MS Environmental Parachute Location

Address 127 E 1st street

City Parachute State PA ZIP 17035

## 2 Your Internal Billing Reference

3 To  
Recipient's Name Sample Recurs Phone

Company Alst Holland Laboratory

Address 3352 08th AVE

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Use this line for the HOLD location address or for continuation of your shipping address.

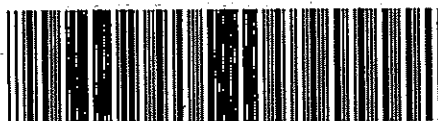
City Holland State PA ZIP 49434

HOLD Weekday  
FedEx location address  
REQUIRED. NOT available for  
FedEx First Overnight.

01

HOLD Saturday  
FedEx location address  
REQUIRED. Available ONLY for  
FedEx Priority Overnight and  
FedEx 2Day to select locations.

31



8722 9438 5946

## 4a Express Package Service

\* To meet location.

Packages up to 150 lbs.

01X ☒ FedEx Priority Overnight Next business morning. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight Next business afternoon. Saturday Delivery NOT available.

06 ☐ FedEx First Overnight Earliest next business morning delivery to select locations.

03 ☐ FedEx 2Day Second business day. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver Third business day. Saturday Delivery NOT available.

## 4b Express Freight Service

\*\* To meet location.

Packages over 150 lbs.

70 ☐ FedEx 1Day Freight Next business day. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx 1Day Freight Booking No.

80 ☐ FedEx 2Day Freight Second business day. Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

83 ☐ FedEx 3Day Freight Third business day. Saturday Delivery NOT available.

## 5 Packaging \* Declared value limit \$500.

06 ☐ FedEx Envelope

02 ☐ FedEx Pak\* Includes FedEx Small Pak and FedEx Large Pak.

03 ☐ FedEx Box

04 ☐ FedEx Tube

01X ☒ Other *wood crate*

## 6 Special Handling and Delivery Signature Options

03 ☐ SATURDAY DELIVERY

☐ No Signature Required Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signature If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No 04 ☐ Yes As per attached Shipper's Declaration.

☐ Yes Shipper's Declaration not required.

06 ☐ Dry Ice Dry Ice, IL UN 1845

☐ Cargo Aircraft Only

## 7 Payment Bill to:

Obtain recip.  
Acct. No. ☐

1 ☒ Sender Acct. No. in Section 2 ☐ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

Total Packages

Total Weight

Credit Card Auth.

Your liability is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.

606



Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **20-Jul-16 09:30**

Work Order: **16071107**

Received by: **MEB**

Checklist completed by Meghan Broadbent  
eSignature

20-Jul-16  
Date

Reviewed by: Chad Whelton  
eSignature

20-Jul-16  
Date

Matrices: **soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.0/2.0</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/20/2016 1:45:34 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



17-Aug-2016

Jake Janicek  
Caerus Oil and Gas LLC  
120 N. Railroad Ave. Suite D  
Parachute, CO 81635

Re: **Unocal 1**

Work Order: **1608682**

Dear Jake,

ALS Environmental received 1 sample on 11-Aug-2016 08:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager



Certificate No: MN 998501

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

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**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**Work Order:** 1608682**Work Order Sample Summary**

---

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1608682-01	S-Base @ 22.5'	Soil		8/9/2016 09:54	8/11/2016 08:30	<input type="checkbox"/>

**Client:** Caerus Oil and Gas LLC  
**Project:** Unocal 1  
**WorkOrder:** 1608682

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

**ALS Group USA, Corp****Date:** 17-Aug-16**Client:** Caerus Oil and Gas LLC**Project:** Unocal 1**Work Order:** 1608682**Sample ID:** S-Base @ 22.5'**Lab ID:** 1608682-01**Collection Date:** 8/9/2016 09:54 AM**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>VOLATILE ORGANIC COMPOUNDS</b>			<b>SW8260B</b>		Prep: SW5035 / 8/12/16	Analyst: <b>AK</b>
Benzene	ND		0.053	mg/Kg-dry	1	8/12/2016 05:07 PM
Surr: 1,2-Dichloroethane-d4	96.6		70-130	%REC	1	8/12/2016 05:07 PM
Surr: 4-Bromofluorobenzene	100		70-130	%REC	1	8/12/2016 05:07 PM
Surr: Dibromofluoromethane	93.0		70-130	%REC	1	8/12/2016 05:07 PM
Surr: Toluene-d8	99.6		70-130	%REC	1	8/12/2016 05:07 PM
<b>MOISTURE</b>			<b>SW3550C</b>			Analyst: <b>EDL</b>
Moisture	28		0.050	% of sample	1	8/12/2016 07:19 PM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 17-Aug-16

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1608682  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **90009** Instrument ID **VMS7** Method: **SW8260B**

MBLK				Sample ID: MBLK-90009-90009				Units: µg/Kg-dry			Analysis Date: 8/12/2016 10:26 AM		
Client ID:			Run ID: VMS7_160812A				SeqNo: 3975841			Prep Date: 8/12/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Benzene	ND	30											
Surr: 1,2-Dichloroethane-d4	963.5	0	1000	0	96.4	70-130		0					
Surr: 4-Bromofluorobenzene	988.5	0	1000	0	98.8	70-130		0					
Surr: Dibromofluoromethane	908	0	1000	0	90.8	70-130		0					
Surr: Toluene-d8	1001	0	1000	0	100	70-130		0					

LCS				Sample ID: LCS-90009-90009				Units: µg/Kg-dry		Analysis Date: 8/12/2016 09:16 AM	
Client ID:			Run ID: VMS7_160812A			SeqNo: 3975840		Prep Date: 8/12/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	989.5	30	1000	0	99	75-125	0				
Surr: 1,2-Dichloroethane-d4	973	0	1000	0	97.3	70-130	0				
Surr: 4-Bromofluorobenzene	1015	0	1000	0	102	70-130	0				
Surr: Dibromofluoromethane	997.5	0	1000	0	99.8	70-130	0				
Surr: Toluene-d8	987.5	0	1000	0	98.8	70-130	0				

MS				Sample ID: 1608680-01A MS				Units: µg/Kg-dry		Analysis Date: 8/12/2016 11:11 PM	
Client ID:			Run ID: VMS9_160812A			SeqNo: 3976767		Prep Date: 8/12/2016		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	20290	480	15970	2013	114	75-125	0				
Surr: 1,2-Dichloroethane-d4	15370	0	15970	0	96.2	70-130	0				
Surr: 4-Bromofluorobenzene	15830	0	15970	0	99.1	70-130	0				
Surr: Dibromofluoromethane	14980	0	15970	0	93.8	70-130	0				
Surr: Toluene-d8	17460	0	15970	0	109	70-130	0				

MSD				Sample ID: 1608680-01A MSD				Units: µg/Kg-dry		Analysis Date: 8/12/2016 11:36 PM	
Client ID:			Run ID: VMS9_160812A			SeqNo: 3976768		Prep Date: 8/12/2016		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	17680	480	15970	2013	98.1	75-125	20290	13.7	30		
Surr: 1,2-Dichloroethane-d4	15000	0	15970	0	93.9	70-130	15370	2.42	30		
Surr: 4-Bromofluorobenzene	16380	0	15970	0	103	70-130	15830	3.42	30		
Surr: Dibromofluoromethane	14920	0	15970	0	93.4	70-130	14980	0.374	30		
Surr: Toluene-d8	17730	0	15970	0	111	70-130	17460	1.54	30		

The following samples were analyzed in this batch:

1608682-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** Caerus Oil and Gas LLC  
**Work Order:** 1608682  
**Project:** Unocal 1

## QC BATCH REPORT

Batch ID: **R193681** Instrument ID **MOIST** Method: **SW3550C**

MBLK				Sample ID: WBLKS-R193681				Units: % of sample			Analysis Date: 8/12/2016 07:19 PM			
Client ID:				Run ID: MOIST_160812B				SeqNo: 3976273			Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Moisture		0.03	0.050								J			

LCS		Sample ID: LCS-R193681				Units: % of sample		Analysis Date: 8/12/2016 07:19 PM		
Client ID:		Run ID: MOIST_160812B			SeqNo: 3976272		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP				Sample ID: 1608624-01B DUP				Units: % of sample			Analysis Date: 8/12/2016 07:19 PM			
Client ID:				Run ID: MOIST_160812B				SeqNo: 3976252			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	16.35	0.050	0	0	0		16.28	0.429	20					

DUP		Sample ID: 1608723-02A DUP					Units: % of sample		Analysis Date: 8/12/2016 07:19 PM		
Client ID:		Run ID: MOIST_160812B			SeqNo: 3976269		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	17.78	0.050	0	0	0		17.84	0.337	20		

The following samples were analyzed in this batch:

1608682-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



# ALS Laboratory Group

ALS Holland 3352 128th Ave, Holland MI  
616-572-1944 616-399-6070

## Chain-of-Custody

Form 202r8

WORKORDER #

1608682

PROJECT NAME		Unocal 1		SAMPLER		Jake Janicek		DATE		8-9-16		PAGE		1 of 1	
PROJECT No.				SITE ID				TURNAROUND		STD 5-day		DISPOSAL		By Lab or Return to Client	
COMPANY NAME		Caerus Piceance, LLC		EDD FORMAT											
SEND REPORT TO		Jake Janicek		PURCHASE ORDER											
ADDRESS		120 N. Railroad, suite D		BILL TO COMPANY		Caerus Piceance, LLC									
CITY / STATE / ZIP		Parachute Co, 81835		INVOICE ATTN TO		Jake Janicek									
PHONE		970-285-9608		ADDRESS		120 N. Railroad, suite D									
FAX				CITY / STATE / ZIP		Parachute Co, 81835									
E-MAIL		jjanicek@caerusoilandgas.com		PHONE		970-285-9608									
				FAX											
				E-MAIL		invoices@caerusoilandgas.com									
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH/GRO/DRO	BTEX	Table 910 PAH's	EC	PH	SAR	Benzene	Table 910 Metals
1	S-Base @ 22.5'	SOIL	8-9-16	0954	1	-								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

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)
	<input checked="" type="checkbox"/> LEVEL II (Standard QC)
	<input type="checkbox"/> LEVEL III (Std QC + forms)
	<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035	

SIGNATURE	PRINTED NAME	DATE	TIME
	Jake Janicek	8-9-16	1255
	N/A	8-9-16	1255
	Keith W. Lawrence	8/11/16	0830



ORIGIN ID: RILA (816) 298-1033  
 NICK MARTINEZ  
 ALS ENVIRONMENTAL PARACHUTE  
 PARACHUTE SERVICE CENTER  
 127 EAST 1ST ST  
 PARACHUTE, CO 81635  
 UNITED STATES US

SHIP DATE: 09AUG16  
 ACTWGT: 30.00 LB  
 CAD: 2284840/NET3790  
 DIMS: 13x10x15 IN

BILL SENDER

TO **SAMPLE RECEIVING**  
**ALS ENVIRONMENTAL HOLLAND LAB**  
**3352 128TH AVE**

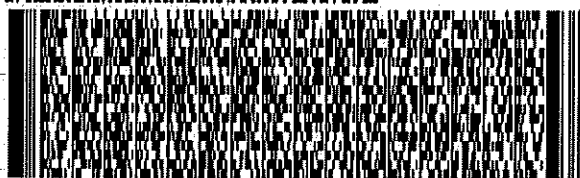
**HOLLAND MI 49424**

(816) 398-6070  
 INV  
 PO: PARACHUTE

REF: 080915-1

DEPT:

544J1137044EB



**FedEx**  
 Express



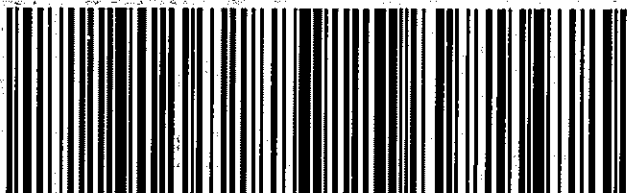
REL#  
 3785346

TRK#  
 0201 **7769 5704 5595**

**WED - 10 AUG 10:30A**  
**PRIORITY OVERNIGHT**

**XX HLMA**

**49424**  
**MI-US GRR**



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number. Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **11-Aug-16 08:30**

Work Order: **1608682**

Received by: **KRW**

Checklist completed by Keith Wurenga  
eSignature

11-Aug-16  
Date

Reviewed by: Chad Whelton  
eSignature

11-Aug-16  
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.0/3.0 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>8/11/2016 4:05:49 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

-----

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



30-Jul-2013

Herman Lucero  
HRL Compliance Solutions  
2385 F 1/2 Road  
Grand Junction, CO 81505

Re: **Caerus Chevron 41-8D 13-199 7/22/13**

Work Order: **1307799**

Dear Herman,

ALS Environmental received 3 samples on 23-Jul-2013 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 14.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston  
Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** HRL Compliance Solutions  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13  
**Work Order:** 1307799

**Work Order Sample Summary**

---

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1307799-01	BKGD 1	Soil		7/22/2013 13:45	7/23/2013 10:00	<input type="checkbox"/>
1307799-02	BKGD 2	Soil		7/22/2013 13:35	7/23/2013 10:00	<input type="checkbox"/>
1307799-03	BKGD 3	Soil		7/22/2013 13:30	7/23/2013 10:00	<input type="checkbox"/>

**Client:** HRL Compliance Solutions  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13  
**WorkOrder:** 1307799

## **QUALIFIERS, ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

**ALS Group USA, Corp**

Date: 30-Jul-13

Client: HRL Compliance Solutions

Project: Caerus Chevron 41-8D 13-199 7/22/13

Sample ID: BKGD 1

Collection Date: 7/22/2013 01:45 PM

Work Order: 1307799

Lab ID: 1307799-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>			<b>SW6020A</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>ML</b>
Arsenic	39		9.2	mg/Kg-dry	5	7/27/2013 02:20 AM
<b>SOLUBLE CATIONS FOR SAR</b>			<b>SW6020A</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>RH</b>
Calcium	81		10	mg/L	20	7/26/2013 03:49 PM
Magnesium	28		4.0	mg/L	20	7/26/2013 03:49 PM
Sodium	120		4.0	mg/L	20	7/26/2013 03:49 PM
<b>SODIUM ADSORPTION RATIO</b>			<b>USDA H60 METHO</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>RH</b>
Sodium Adsorption Ratio	2.8		0.010	none	1	7/26/2013
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			<b>USDA H60 METHO</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.2		0.050	mmhos/cm @25	10	7/25/2013 03:10 PM
<b>MOISTURE</b>			<b>A2540 G</b>			Analyst: <b>BD</b>
Moisture	82		0.050	% of sample	1	7/23/2013 12:40 PM
<b>PH</b>			<b>SW9045D</b>		Prep Date: <b>7/23/2013</b>	Analyst: <b>JB</b>
pH	9.1			s.u.	1	7/23/2013 11:00 AM

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 30-Jul-13

**Client:** HRL Compliance Solutions

**Project:** Caerus Chevron 41-8D 13-199 7/22/13

**Sample ID:** BKGD 2

**Collection Date:** 7/22/2013 01:35 PM

**Work Order:** 1307799

**Lab ID:** 1307799-02

**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>			<b>SW6020A</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>ML</b>
Arsenic	8.3		2.0	mg/Kg-dry	5	7/27/2013 02:44 AM
<b>MOISTURE</b>			<b>A2540 G</b>			Analyst: <b>BD</b>
Moisture	7.3		0.050	% of sample	1	7/23/2013

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

Date: 30-Jul-13

**Client:** HRL Compliance Solutions

**Project:** Caerus Chevron 41-8D 13-199 7/22/13

**Sample ID:** BKGD 3

**Collection Date:** 7/22/2013 01:30 PM

**Work Order:** 1307799

**Lab ID:** 1307799-03

**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS BY ICP-MS</b>			<b>SW6020A</b>		Prep Date: <b>7/25/2013</b>	Analyst: <b>ML</b>
Arsenic	8.6		1.8	mg/Kg-dry	5	7/27/2013 02:50 AM
<b>MOISTURE</b>			<b>A2540 G</b>			Analyst: <b>BD</b>
Moisture	5.2		0.050	% of sample	1	7/23/2013

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



Client: HRL Compliance Solutions

Work Order: 1307799

Project: Caerus Chevron 41-8D 13-199 7/22/13

## QC BATCH REPORT

Batch ID: 50013

Instrument ID ICPMS1

Method: SW6020A

<b>MBLK</b>	Sample ID: <b>MBLK-50013-50013</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2013 02:01 PM</b>		
Client ID:	Run ID: <b>ICPMS1_130726A</b>				SeqNo: <b>2392468</b>		Prep Date: <b>7/25/2013</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.03916	0.25								J

<b>LCS</b>	Sample ID: <b>LCS-50013-50013</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2013 02:07 PM</b>		
Client ID:	Run ID: <b>ICPMS1_130726A</b>				SeqNo: <b>2392469</b>		Prep Date: <b>7/25/2013</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.799	0.25	5	0	96	80-120	0			

<b>MS</b>	Sample ID: <b>1307769-02BMS</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2013 02:19 PM</b>		
Client ID:	Run ID: <b>ICPMS1_130726A</b>				SeqNo: <b>2392471</b>		Prep Date: <b>7/25/2013</b>		DF: <b>5</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.8	1.9	7.418	5.276	101	75-125	0			

<b>MSD</b>	Sample ID: <b>1307769-02BMSD</b>					Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2013 02:25 PM</b>		
Client ID:	Run ID: <b>ICPMS1_130726A</b>				SeqNo: <b>2392472</b>		Prep Date: <b>7/25/2013</b>		DF: <b>5</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.82	1.9	7.645	5.276	112	75-125	12.8	7.68	25	

The following samples were analyzed in this batch:

1307799-01A	1307799-02A	1307799-03A
-------------	-------------	-------------

**Client:** HRL Compliance Solutions  
**Work Order:** 1307799  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13

## QC BATCH REPORT

Batch ID: **49915** Instrument ID **WETCHEM** Method: **USDA H60 Method**

<b>DUP</b>		Sample ID: <b>1307634-01B DUP</b>				Units: <b>mmhos/cm @25°C</b>		Analysis Date: <b>7/25/2013 03:10 PM</b>		
Client ID:		Run ID: <b>WETCHEM_130725J</b>				SeqNo: <b>2390794</b>		Prep Date: <b>7/25/2013</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.583	0.050	0	0	0		1.847	15.4	50	

The following samples were analyzed in this batch:

1307799-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions  
**Work Order:** 1307799  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13

## QC BATCH REPORT

Batch ID: **49934** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-49934-49934				Units: s.u.			Analysis Date: 7/23/2013 11:00 AM			
Client ID:				Run ID: WETCHEM_130723L				SeqNo: 2388161			Prep Date: 7/23/2013		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		4.53	0	4.4	0	103	90-110	0						

DUP					Sample ID: 1307798-01B DUP					Units: s.u.			Analysis Date: 7/23/2013 11:00 AM		
Client ID:					Run ID: WETCHEM_130723L					SeqNo: 2388163		Prep Date: 7/23/2013		DF: 1	
Analyte					Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
pH					9.13	0	0	0	0	0-0	9.13	0	20		

The following samples were analyzed in this batch:

1307799-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions  
**Work Order:** 1307799  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13

## QC BATCH REPORT

Batch ID: **R124049** Instrument ID **MOIST** Method: **A2540 G**

MBLK	Sample ID: WBLKS-R124049					Units: % of sample			Analysis Date: 7/23/2013 12:40 PM		
Client ID:		Run ID: MOIST_130723A			SeqNo: 2388372			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

LCS		Sample ID: LCS-R124049					Units: % of sample			Analysis Date: 7/23/2013 12:40 PM		
Client ID:		Run ID: MOIST_130723A			SeqNo: 2388371			Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1307776-06A DUP					Units: % of sample		Analysis Date: 7/23/2013 12:40 PM		
Client ID:		Run ID: MOIST_130723A			SeqNo: 2388357		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 48.63 0.050 0 0 0 0-0 49.35 1.47 20

DUP		Sample ID: 1307798-01B DUP					Units: % of sample		Analysis Date: 7/23/2013 12:40 PM		
Client ID:			Run ID: MOIST_130723A			SeqNo: 2388365		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 19.99 0.050 0 0 0 0-0 20.28 1.44 20

The following samples were analyzed in this batch:

1307799-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions  
**Work Order:** 1307799  
**Project:** Caerus Chevron 41-8D 13-199 7/22/13

## QC BATCH REPORT

Batch ID: **R124058** Instrument ID **MOIST** Method: **A2540 G**

<b>MBLK</b>		Sample ID: <b>WBLKS-R124058</b>				Units: % of sample			Analysis Date: <b>7/23/2013</b>		
Client ID:		Run ID: <b>MOIST_130723C</b>				SeqNo: <b>2388576</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

<b>LCS</b>		Sample ID: <b>LCS-R124058</b>				Units: % of sample			Analysis Date: <b>7/23/2013</b>		
Client ID:		Run ID: <b>MOIST_130723C</b>				SeqNo: <b>2388574</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

<b>DUP</b>		Sample ID: <b>1307794-01B DUP</b>				Units: % of sample			Analysis Date: <b>7/23/2013</b>		
Client ID:		Run ID: <b>MOIST_130723C</b>				SeqNo: <b>2388528</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 15.1 0.050 0 0 0 0-0 15.45 2.29 20

<b>DUP</b>		Sample ID: <b>1307801-04A DUP</b>				Units: % of sample			Analysis Date: <b>7/23/2013</b>		
Client ID:		Run ID: <b>MOIST_130723C</b>				SeqNo: <b>2388551</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 32.26 0.050 0 0 0 0-0 31.81 1.4 20

The following samples were analyzed in this batch:

1307799-02A 1307799-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.



# ALS Laboratory Group

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

## Chain-of-Custody

Form 202r8

WORKORDER  
#

1307799

PAGE

1 of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME

CAERUS CHEVRON 41-8D

SAMPLER

Casey Richardson

DATE

7-22-13

TURNAROUND

5 DAY

PROJECT No.

13-199

SITE ID

EDD FORMAT

PURCHASE ORDER

COMPANY NAME

HCSI

BILL TO COMPANY

PDC Energy

SEND REPORT TO

Herman Lucero

INVOICE ATTN TO

Ed Winters

ADDRESS

2385 F 1/2 Road

ADDRESS

120 Railroad Ave. Suite D

CITY / STATE / ZIP

Grand Junction, CO. 81505

CITY / STATE / ZIP

Parachute, CO 81635

PHONE

970-243-3271

PHONE

970-285-9606

FAX

970-243-3280

FAX

E-MAIL

hlucero@hrlcomp.com

E-MAIL

ewinters@peld.com

Lab ID

Field ID

Matrix

Sample  
Date

Sample  
Time

#  
Bottles

Pres.

QC

SAR/EC/PH  
ARSENIC

1

BKGD 1

SOIL

7-22-13

1345

2

8

X

X

2

BKGD 2

SOIL

7-22-13

1335

1

8

X

3

BKGD 3

SOIL

7-22-13

1330

1

8

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

For metals or anions, please detail analytes below.

Comments:

QC PACKAGE (check below)

x

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms  
+ raw data)

Preservative Key:

1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE

PRINTED NAME

DATE

TIME

RELINQUISHED BY

Casey Richardson

Casey Richardson

7-22-13

1625

RECEIVED BY

Colby Koerner

Colby Koerner

7/22/13

1625

RELINQUISHED BY

Colby Koerner

Colby Koerner

7/22/13

1625

RECEIVED BY

Fed Ex

RELINQUISHED BY

Diane F Shaw

Diane F Shaw

7/23/13

1000

Sample Receipt Checklist

Client Name: HRL

Date/Time Received: 23-Jul-13 10:00

Work Order: 1307799

Received by: DS

Checklist completed by Diane Shaw 23-Jul-13  
eSignature Date

Reviewed by: Ann Preston 28-Jul-13  
eSignature Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>7/23/2013 10:56:26 AM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

From: (970) 424-4749  
Lab Hub, LLC

Origin ID: RILA



127 E First Street

PARACHUTE, CO 81635



J13111302120326

Ship Date: 22JUL13  
ActWgt: 80.0 LB  
CAD: 103923490/INET3370

Dims: 25 X 14 X 15 IN

Delivery Address Bar Code



SHIP TO: (616) 399-6070

BILL RECIPIENT

Sample recieving  
ALS Holland  
3352 128TH AVE

HOLLAND, MI 49424

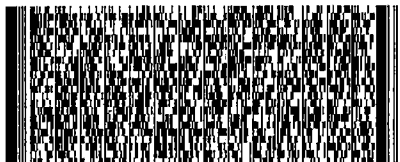
Ref # 1001-072213-3  
Invoice #  
PO #  
Dept #

TUE - 23 JUL 3:00P  
STANDARD OVERNIGHT

TRK# 7962 8879 8431  
0201

**XX GRRR**

**49424**  
MI-US  
GRR



518G1/AA04/63AB

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



APPENDIX A

LOCATION PLAT

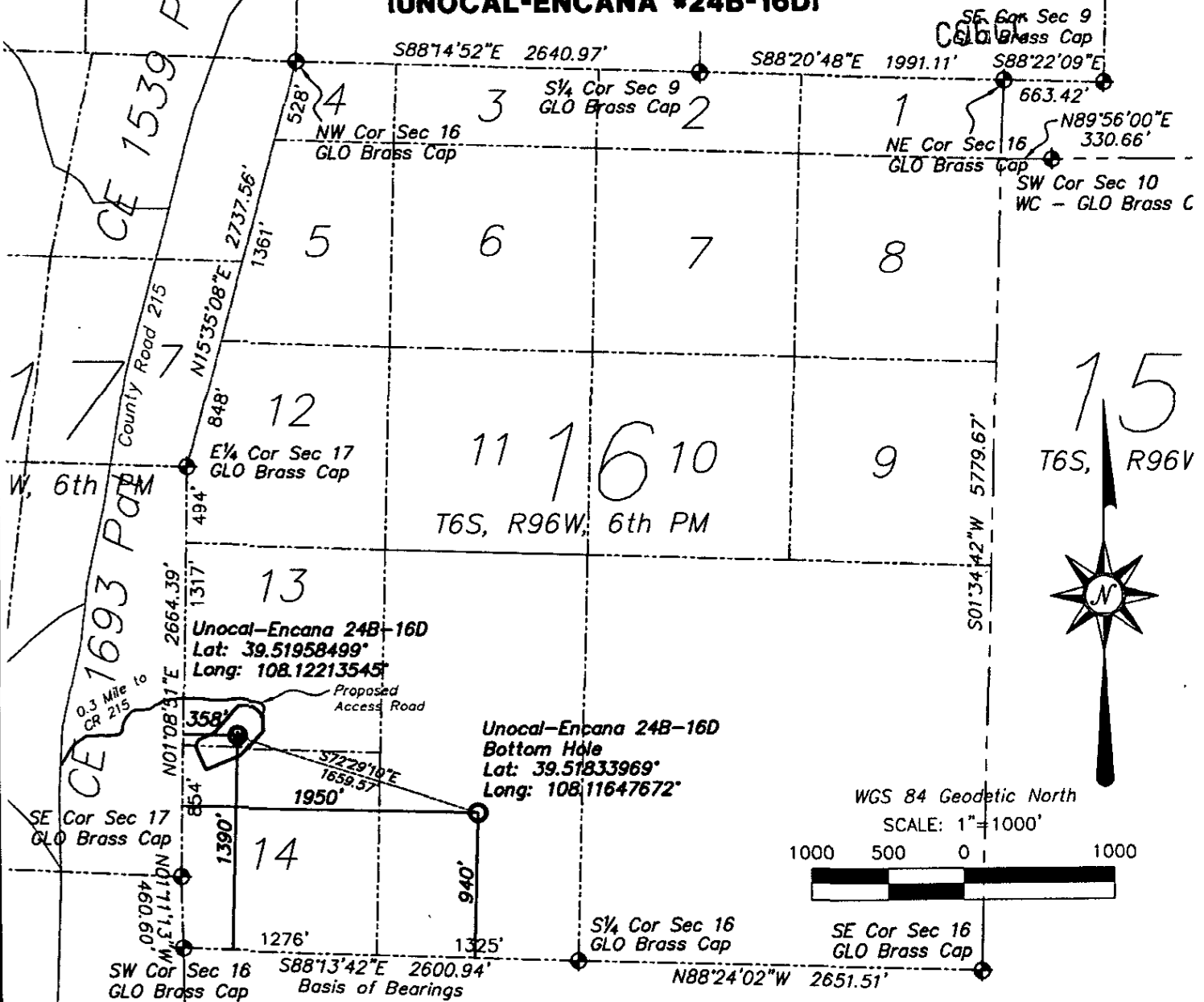
COGCC DOCUMENT ID 1752263



# LOCATION EXHIBIT - PLAT 1 OF PARCEL LOCATED IN SECTION 16, T6S, R96W, 6th P.M. (UNOCAL-ENCANA #24B-16D)

RECEIVED

FEB-2 07



Date of Survey: December 15, 2006  
Date of Drawing: January 15, 2007

1. This Well Location Plat was prepared for Petroleum Development Company to show the location of UNOCAL-ENCANA #24B-16D, which is located 358 feet East and 1390 feet North of the Southwest Corner of Section 16, T6S, R96W, 6th PM, based on the Southwest Corner and South Quarter Corner of said Section 16, and the East Quarter Corner of adjoining Section 17, T6S, R96W, 6th PM.
2. Latitude and Longitude are based on NAD 83.
3. Elevations are based on NAVD 88. Site elev.= 5855.
4. Well ties measured at 90' from Section line.
5. Improvements: Unocal 23-16D 60' from well head.
6. Surface use: Natural ground and scrub oak.
7. PDOP=3.9

## LEGEND

- ⊕ FOUND GLO SURVEY MARKER, UNLESS NOTED OTHERWISE
- ⊙ STAKED WELL SITE

NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY

## SURVEYOR'S CERTIFICATION

I hereby certify that this plat represents a field survey completed under my direct supervision during December 2006, and that both have been completed according to the standards of practice and the laws of the State of Colorado, and are correct to the best of my knowledge.

CERTIFIED THIS 16 DAY OF JAN 2007



## LOCATION EXHIBIT - PLAT 1

SECTION 16  
T6S, R96W, 6th P.M.  
GARFIELD COUNTY, COLORADO

LANDesign

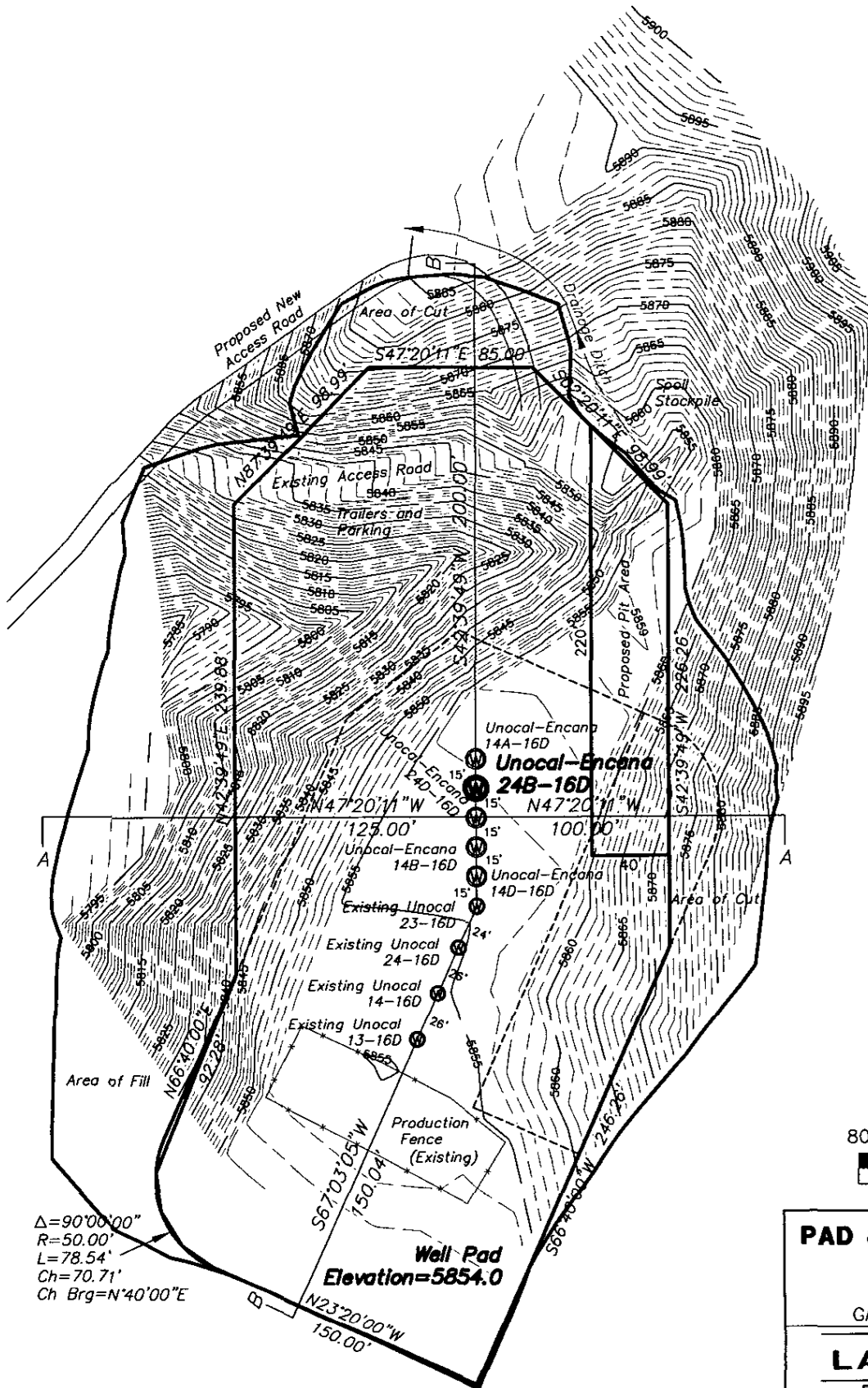
ENGINEERS • SURVEYORS • PLANNERS  
326 Main Street, Suite 100  
GRAND JUNCTION, COLORADO 81501 (970) 244-4000

**PAD & PIT LAYOUT - PLAT 2**  
**OF PARCEL LOCATED IN**  
**SECTION 16, T6S, R96W, 6th P.M.**  
**(UNOCAL-ENCANA #24B-16D)**

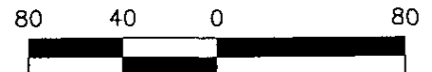
RECEIVED

FEB-2 07

COGCC



WGS 84 Geodetic North  
 SCALE: 1"=80'



**PAD & PIT LAYOUT - PLAT 2**

SECTION 16  
 T6S, R96W, 6th P.M.  
 GARFIELD COUNTY, COLORADO

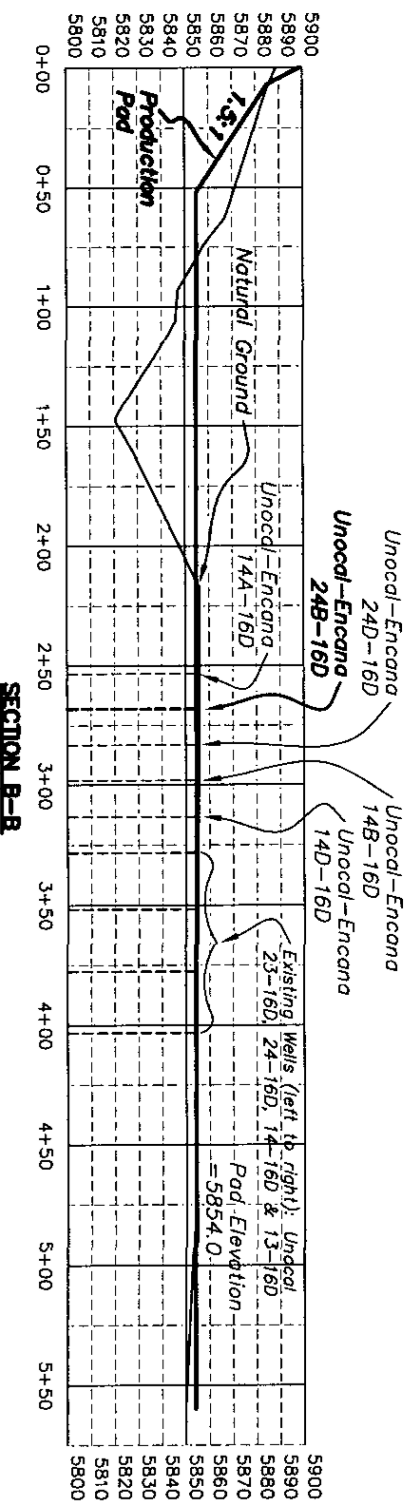
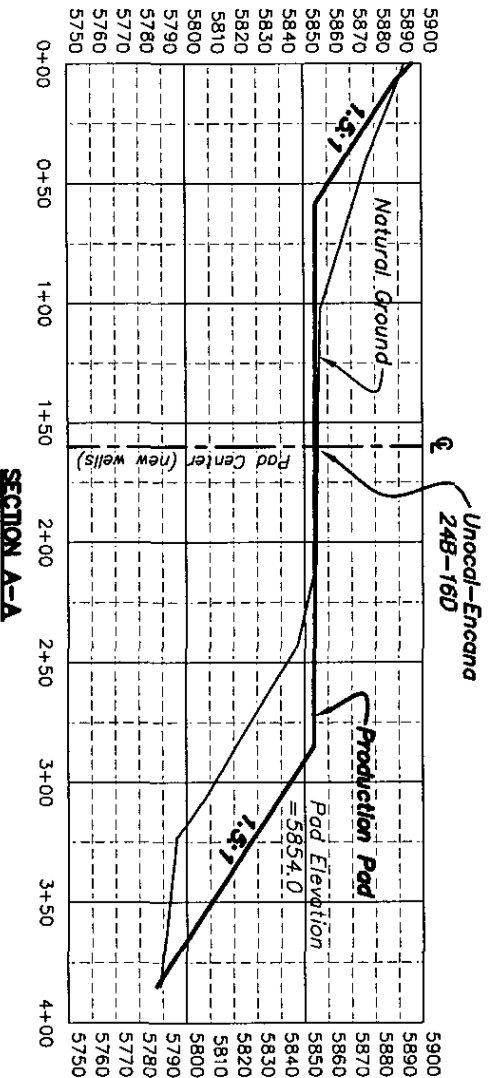
**LANDesign**

ENGINEERS • SURVEYORS • PLANNERS

326 Main Street, Suite 100  
 GRAND JUNCTION, COLORADO 81501 (970) 245-4099

--- Existing Pad

# **PAD & PIT CROSS SECTION - PLAT 3** **OF PARCEL LOCATED IN** **SECTION 16, T6S, R96W, 6th P.M.** **(UNOCAL-ENCANA #24B-16D)**



RECEIVED  
FEB - 2 07  
COGCC

SCALE: 1"=80'



**PAD & PIT CROSS SECTION**  
**PLAT 3**  
 SECTION 16  
 T6S, R96W, 6th P.M.  
 GARFIELD COUNTY, COLORADO

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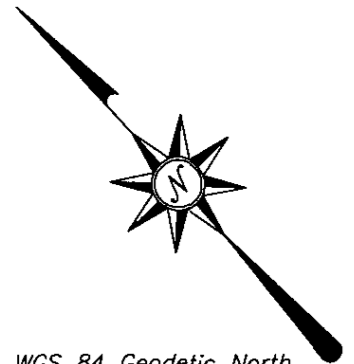
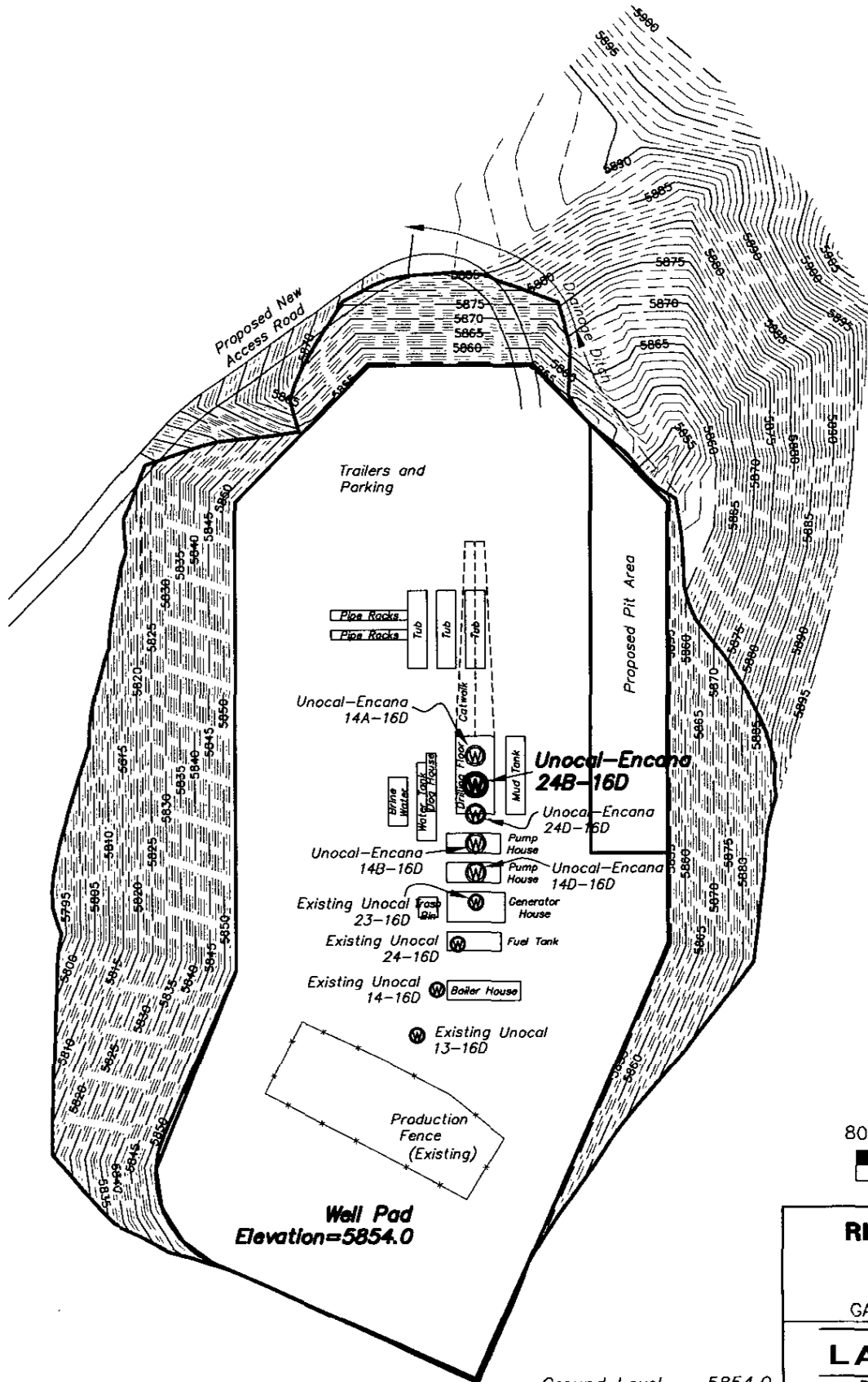
**LANDesign**  
 ENGINEERS • SURVEYORS • PLANNERS  
 326 North Street, Suite 100  
 GRAND JUNCTION, COLORADO 81501 (970) 245-4099  
 PROJ. NO. 206016.126 SURVEYED DRAWN/CHECKED SHEET OF  
 DATE: January, 2007 RAD/COR SLB PRC 1 1

**RIG LAYOUT - PLAT 4**  
**OF PARCEL LOCATED IN**  
**SECTION 16, T6S, R96W, 6th P.M.**  
**(UNOCAL-ENCANA #24B-16D)**

RECEIVED

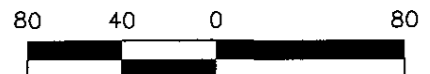
FEB -2 07

COGCC



WGS 84 Geodetic North

SCALE: 1"=80'



**RIG LAYOUT - PLAT 4**

SECTION 16  
T6S, R96W, 6th P.M.  
GARFIELD COUNTY, COLORADO

**LANDesign**

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326 Main Street, Suite 100  
GRAND JUNCTION, COLORADO 81501 (970) 245-4099

Ground Level = 5854.0  
Drilling Floor = 5867.0

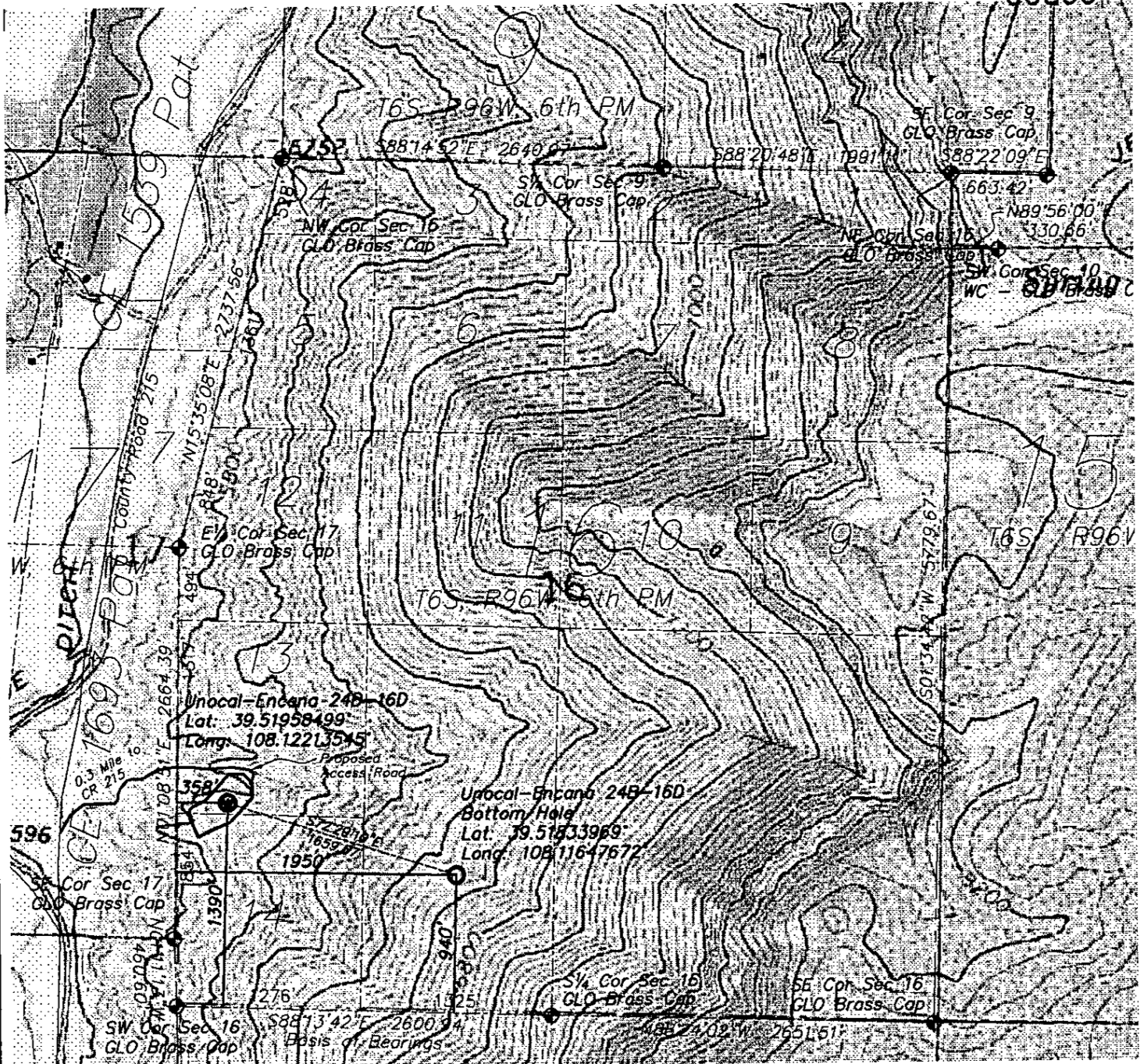
# TOPOGRAPHY & ACCESS EXHIBIT - PLAT 5

OF PARCEL LOCATED IN  
SECTION 16, T6S, R96W, 6th P.M.  
(UNOCAL-ENCANA #24B-16D)

RECEIVED

FEB-2 07

COGCC



WGS 84 Geodetic North

SCALE: 1"=1000'

1000 500 0 1000



## TOPOGRAPHY & ACCESS EXHIBIT - PLAT 5

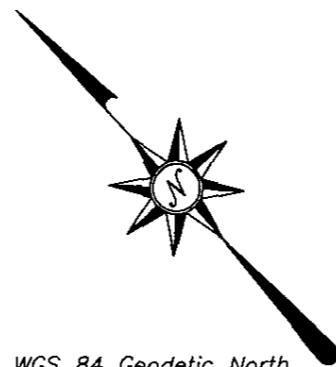
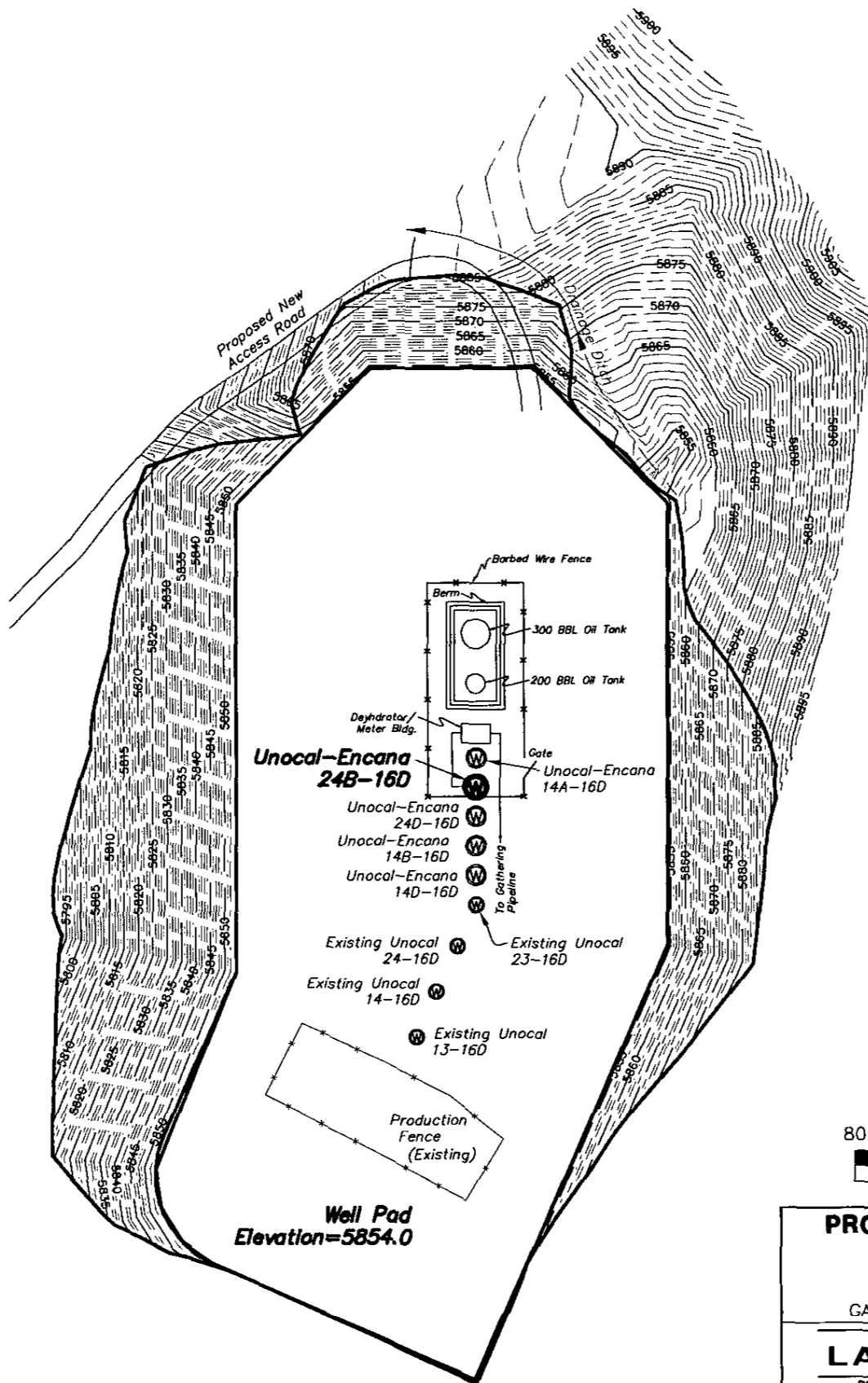
SECTION 16  
T6S, R96W, 6th P.M.  
GARFIELD COUNTY, COLORADO

**LANDesign**

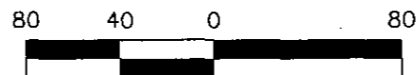
ENGINEERS • SURVEYORS • PLANNERS  
326 Main Street, Suite 100  
GRAND JUNCTION, COLORADO 81501 (970) 245-4099

# **PRODUCTION EQUIPMENT LAYOUT - PLAT 6** **OF PARCEL LOCATED IN** **SECTION 16, T6S, R96W, 6th P.M.** **(UNOCAL-ENCANA #24B-16D)**

RECEIVED  
 FEB-2 07  
 COGCC



WGS 84 Geodetic North  
 SCALE: 1"=80'



**PRODUCTION EQUIPMENT  
 LAYOUT - PLAT 6**  
 SECTION 16  
 T6S, R96W, 6th P.M.  
 GARFIELD COUNTY, COLORADO

**LANDesign**

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 GRAND JUNCTION, COLORADO 81501 (970) 245-4099



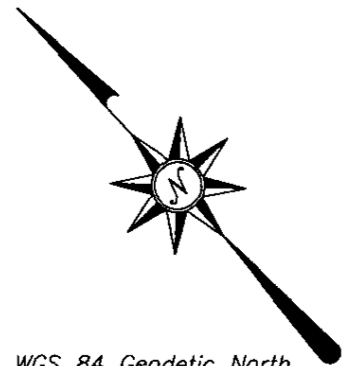
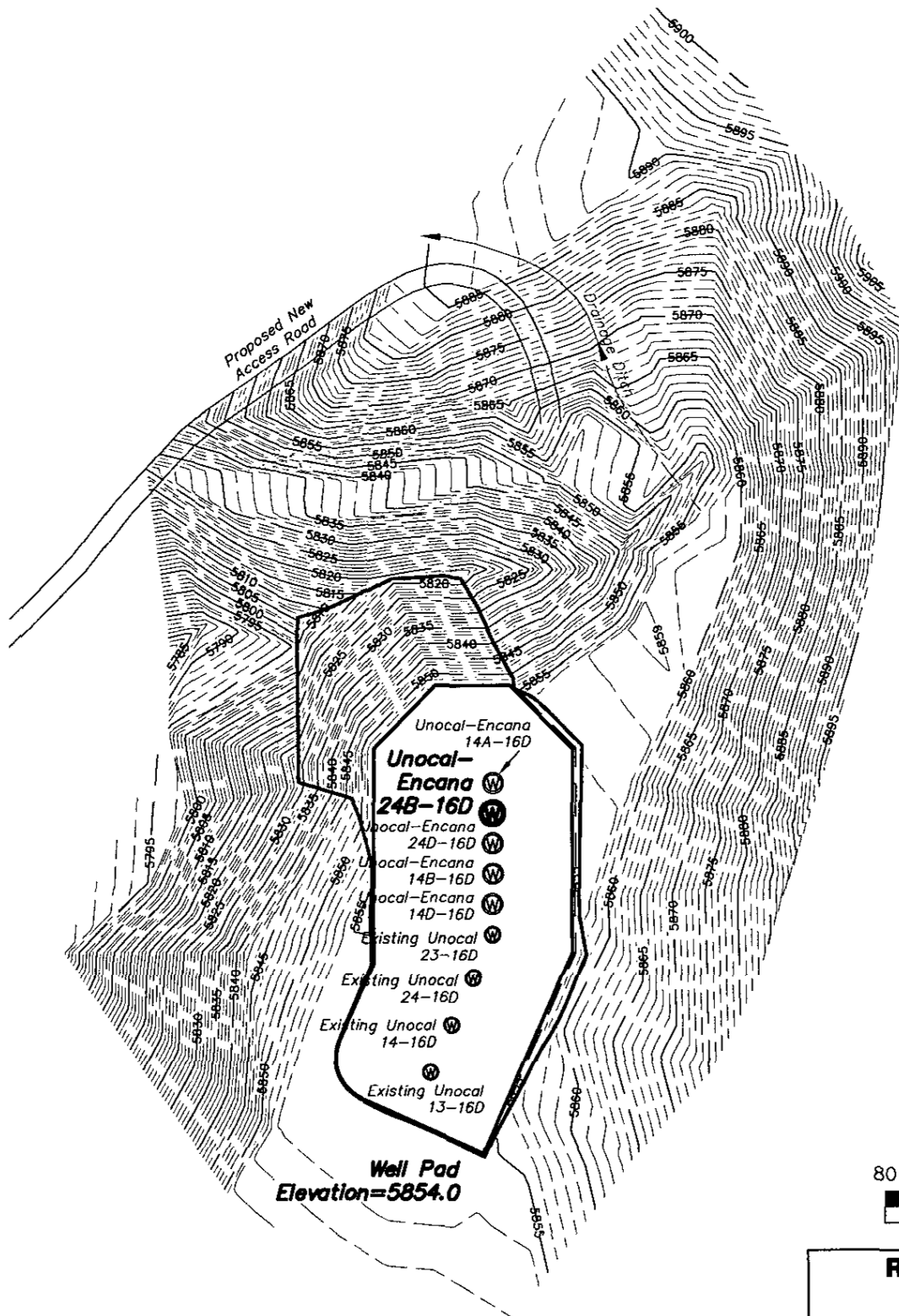
# RECLAMATION PLAN LAYOUT - PLAT 7

## OF PARCEL LOCATED IN

### SECTION 16, T6S, R96W, 6th P.M.

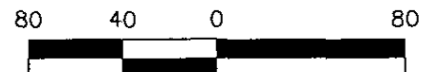
### (UNOCAL-ENCANA #24B-16D)

RECEIVED  
FEB-2 07  
COGCC



WGS 84 Geodetic North

SCALE: 1"=80'



## RECLAMATION PLAN LAYOUT - PLAT 7

SECTION 16  
T6S, R96W, 6th P.M.  
GARFIELD COUNTY, COLORADO

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GRAND JUNCTION, COLORADO 81501 (970) 245-4099

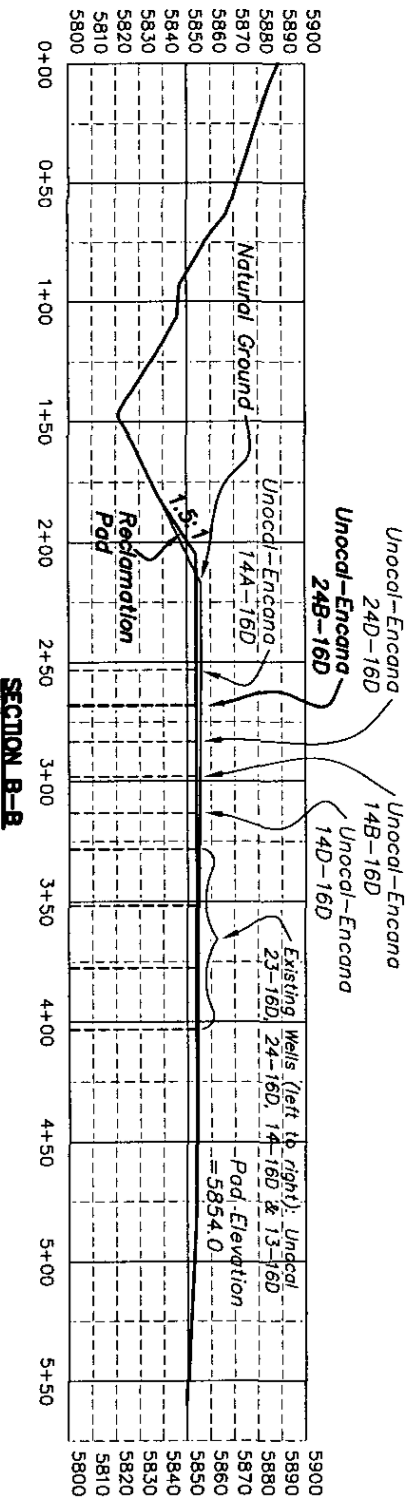
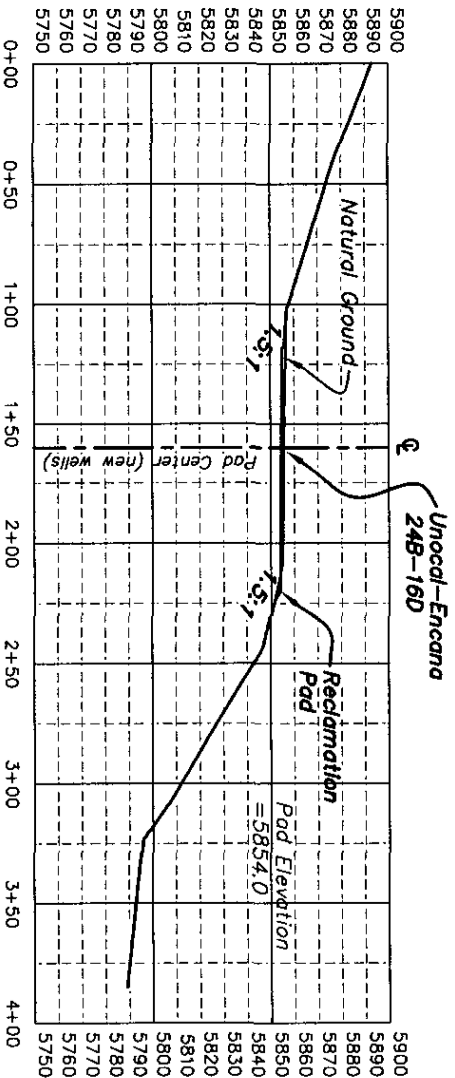


# RECLAMATION PLAN CROSS SECTION - PLAT 8

## OF PARCEL LOCATED IN

### SECTION 16, T6S, R96W, 6th P.M.

#### (UNOCAL-ENCANA #24B-16D)



RECEIVED  
FEB - 2 07  
COGCC

SCALE: 1"=80'



## RECLAMATION PLAN CROSS SECTION - PLAT 8

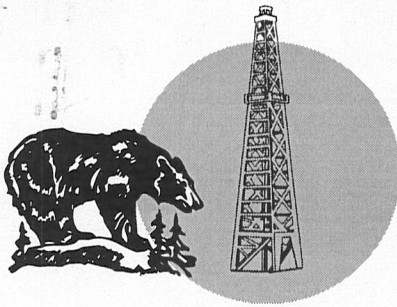
SECTION 16  
T6S, R96W, 6th P.M.  
GARFIELD COUNTY, COLORADO

LANDesign

ENGINEERS • SURVEYORS • PLANNERS  
328 Main Street, Suite 100  
GRAND JUNCTION, COLORADO 81501 (970) 245-4099  
PROJ. NO. 206016.136 SURVEYED DRAWN CHECKED SHEET OF  
DATE: January, 2007 RAD/COR SLB PRG 1 1

APPENDIX B  
WATER HAULING INVOICES





# Bear Country Water Service

**BOB ROBBINS**

P.O. BOX 83  
PARACHUTE, COLORADO 81635  
OFFICE: 970-285-7417  
CELL: 970-250-2796 -or- CELL: 970-216-9444

## INVOICE

NO 5400

DATE: 3/15/07

Bill To: PDC

To: ENSIGN 68

Location: UNOCAL-ENCANA 240-160

From: MUD STORAGE TANK / CREEK

P.O. #:

Driver: RANDY

BBLS.	ITEMS	DESCRIPTION OF WORK
400	MUD	TRANSFER TO MUDTANKS FROM STORAGE TANK
80	WATER	SUCKED 1 LOAD FROM RES. PIT TO RINSE-OUT MUD STORAGE TANK - DUMPED IN MUDTANKS
160	WATER	PUT IN MUDTANKS - FROM CREEK
80	WATER	FILLED BOILER TANK
240	WATER	PUT IN UPRIGHT STORAGE TANK
Water Fee		
Road Permits Fee		
Disposal Fee		

Truck No. 104

Loads 12

Start Hr. 8:00A / 6:30P M.

Stop Hr. 5:30P / 7:30P M.

Total 10 1/2 Hrs.

Per Hr. \$80.00

Surcharge

Customer's Signature: [Signature]

TOTAL \$840.00







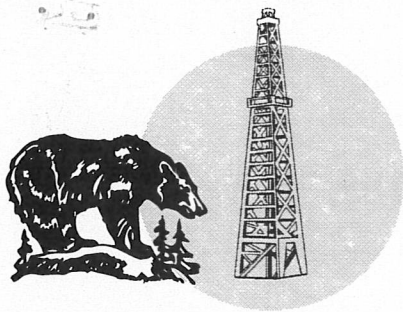
TOTAL 440











# Bear Country Water Service

**BOB ROBBINS**

P.O. BOX 83  
PARACHUTE, COLORADO 81635  
OFFICE: 970-285-7417  
CELL: 970-250-2796 -or- CELL: 970-216-9444

## INVOICE

NO 4796

DATE: 3-31-07

Bill To: PAC

To: Ensign #68

Location: UNOCAL ENCHUA 14B-160

From: Parachute Creek

P.O. #:

Reserve At

Driver: Ron

BBLs.	ITEMS	DESCRIPTION OF WORK
80	WATER	Hauled water from creek to Day Tank
200	WATER	TRANSFERED WATER FROM RESERVE PIT TO UPRIGHT mud tank
240	WATER	Hauled water from creek to fill Day Tank
Water Fee		
Road Permits Fee		
Disposal Fee		

Truck No. 103

Loads 3 1/2 / 3

Start Hr. 8 AM / 3 P M.

Stop Hr. 12:30 AM / 6:30 P M.

Total 8 Hrs.

Per Hr. \$80

Surcharge

Customer's Signature: [Signature]

TOTAL \$640