

# NARRATIVE ATTACHMENT

## FORM 4 (SUNDRY NOTICE)

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### Culvert Pit Closure (North Dragon Trail Unit 5002)

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Document Date-10/10/2013

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#### Introduction

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 Sundry Notice to request final closure status for the culvert pit associated with the North Dragon Trail Unit #5002 (COGCC facility #314333, COGCC remediation #TBD). The site investigation was conducted by a third party contractor as authorized by Encana personnel and in accordance with the approved Form 27 previously submitted for this location. All samples were collected in accordance with Encana's Environmental Compliance Group's Sampling Procedures. The analytical results for the respective soil samples are provided in Table 1 and Attachment A of this submittal. The text below provides the details of the site investigation. For a visual description of the site please refer to Figures 1, 2, and 3 – Site Maps.

#### Assessment Activities

June 27, 2013 - The excavated soil surrounding the culvert pit was screened utilizing a photoionization detector (PID) prior to collecting soil samples for laboratory analysis. The culvert pit (steel ring, soil, no cement bottom) was carefully removed using a trackhoe and placed onsite for later recycling or disposal. It should be noted that there was no liquid/sludge associated with the bottom of the culvert pit during the time of removal. A grab sample was collected directly from the lowest point of the culvert pit after excavation. In addition, four (4) grab samples were collected, one from each excavated sidewall. Approximately 100 cubic yards of excavated material was removed from the pit and laid out in 1.5 foot tall (70' x 22') lift for evaluation of impacts. The excavated material was sampled by way of a nine (9) point composite sample. Four (4) background samples were collected from approximately six (6) inches beneath the grounds surface for analysis with regards to arsenic.

#### Analytical Review

Sample results indicate that soil within the culvert pit footprint on Encana's North Dragon Trail Unit #5002 well pad, had organic constituent concentrations of the excavated area below or within COGCC Table 910-1 except for Total Petroleum Hydrocarbons (TPH) (1,700 ppm – base and east sidewall – 4,100 ppm). Analytical results indicated the excavated material exceeded COGCC Table 910-1 allowable concentrations for arsenic (2.1 ppm). Though the arsenic concentration in the soil is above the allowable concentration identified in Table 910-1, the concentration is within the range of arsenic background values (2.1 – 9.1 ppm) in this area. Based on these results and footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic value(s) as the allowable concentration for this constituent. Please see Table 1 and Attachment A for the analytical results.

The two locations (base and east sidewall) that exceeded COGCC Table 910-1 analytical value for TPH were resampled September 26, 2013 and analytical values indicated that the east sidewall was below or within COGCC Table 910-1 allowable concentrations. The 2<sup>nd</sup> base sample (1,400 ppm) exceeded the COGCC Table 910-1 allowable concentration however; impenetrable bedrock was reached at 7 feet bgs.



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The 2<sup>nd</sup> base sample also shows a reduction from 1,700 ppm to 1,400 ppm which reflects the natural attenuation process.

Though the elevated arsenic level of the returned spoil material within the excavated footprint area is above the allowable levels identified in Table 910-1; it will be buried greater than three feet bgs of existing pad footprint material to assure that material with an elevated level of arsenic will have no adverse effect on future re-vegetation efforts and receptors in the area. Please see Table 1 and Attachment A for analytical results.

#### **Conclusion**

Based on the site investigation and analytical results, the culvert pit associated with the North Dragon Trail Unit #5002 is in compliance with the standards specified within COGCC Table 910-1 with regards to the sidewall samples and excavated material. The base sample exceeds Table 910-1 allowable concentrations however; further removal by excavation could not be completed due to reaching impenetrable bedrock at the base of the pit. We believe the source area has been removed and that the process of natural attenuation will reduce the base concentrations. Groundwater was not encountered during excavation and this location is not within a sensitive area (according to Rule 901e). Encana respectfully requests that final closure be granted for the respective pit, COGCC remediation #TBD.

#### **Notification of Completion**

This Sundry Notice is also being submitted as the Notification of Completion for Remediation #TBD. If the information provided here is satisfactory, please provide documentation of the closure of this remediation project.

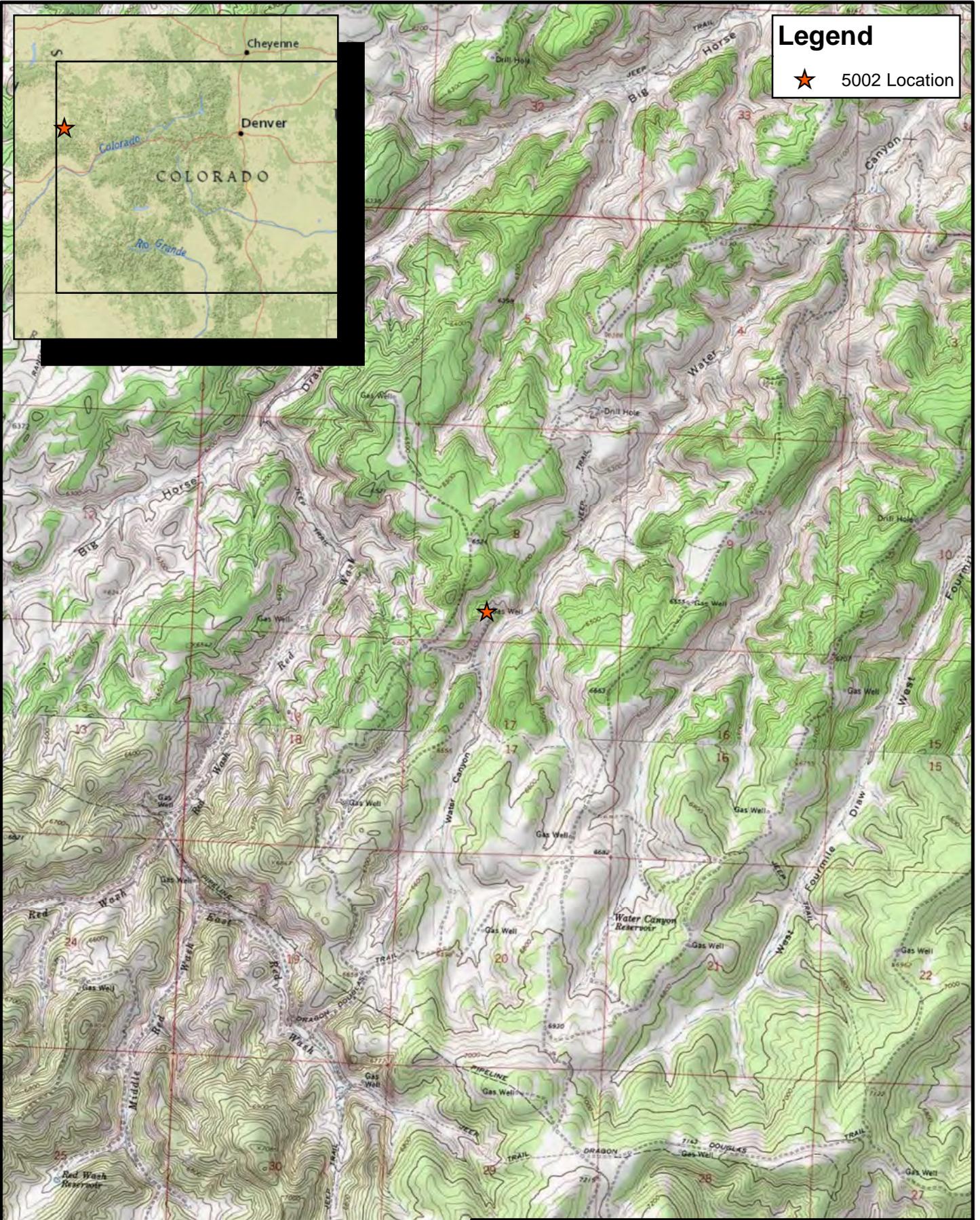
#### **Attachments**

Topographic Location Map (Figure 1)  
5002 Aerial map with sample locations (Figure 2)  
5002 Site Diagram of Excavation and sample locations (Figure 3)  
Laboratory Results Summary Table 1 – 5002 Site Investigation (Table 1)  
Attachment A- Laboratory Reports

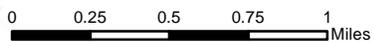


# Legend

★ 5002 Location



**Rule Engineering, LLC**  
Solutions to Regulations for Industry



Location: 5002  
QtrQtr, SESW Sec, 8 Twp, 2S Rng, 102W  
Site Map

Date: 7/2/2013

File: \\Encana\Rangely 328\2013 Sites\Field Investigations\5002\Form 27\130702 Site Map.pdf

Figure: 1



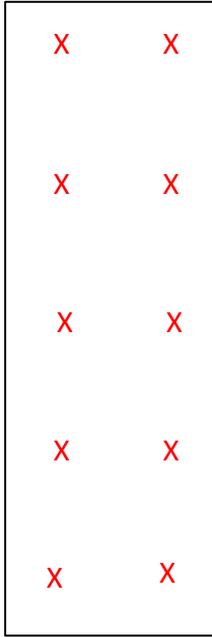
### Legend

★ Soil Sample Location



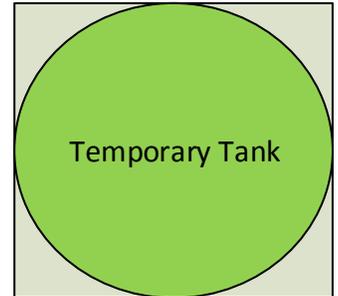


062713-5002(ETS); 3-9"

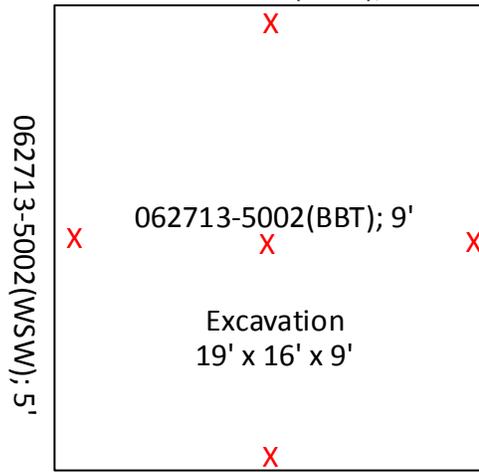


Lift  
70' x 22' x 1.5'

Direction of  
Flow



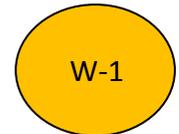
062713-5002(NSW); 5'



062713-5002(WSW); 5'

062713-5002(ESW); 8'

062713-5002(SSW); 6'



Legend  
X-Sample



Well: Figure 3. 5002 Site Diagram

Area: Dragon Trail Unit

Legal: SESW, Sec 08, 02S, 102W, 6<sup>th</sup> PM

Date: 07/03/13

Drawn By: Brad Ward

Revision Date:

Scale: None



# Appendix A



12065 Lebanon Rd.  
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1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Thursday July 11, 2013

Report Number: L644229

Samples Received: 06/29/13

Client Project: 5002

Description: 5002 - Site Clearance

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

July 11, 2013

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(NSW)-5FT  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 10:15

ESC Sample # : L644229-01  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	07/03/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/03/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/03/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/03/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/03/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	07/03/13	5
a,a,a-Trifluorotoluene(PID)	98.2		% Rec.	8021/8015	07/03/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	07/11/13	1
Surrogate recovery(%)						
o-Terphenyl	56.9		% Rec.	3546/DRO	07/11/13	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
 The reported analytical results relate only to the sample submitted.  
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Est. 1970

REPORT OF ANALYSIS

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

July 11, 2013

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(ESW)-8FT  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 10:24

ESC Sample # : L644229-02  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	07/03/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/03/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/03/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/03/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/03/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.4		% Rec.	8021/8015	07/03/13	5
a,a,a-Trifluorotoluene(PID)	97.4		% Rec.	8021/8015	07/03/13	5
TPH (GC/FID) High Fraction	4100	200	mg/kg	3546/DRO	07/11/13	50
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	07/11/13	50

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REPORT OF ANALYSIS

July 11, 2013

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(SSW)-6FT  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 10:32

ESC Sample # : L644229-03  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/04/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/04/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/04/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.9		% Rec.	8021/8015	07/04/13	5
a,a,a-Trifluorotoluene(PID)	97.0		% Rec.	8021/8015	07/04/13	5
TPH (GC/FID) High Fraction	7.7	4.0	mg/kg	3546/DRO	07/11/13	1
Surrogate recovery(%)						
o-Terphenyl	64.5		% Rec.	3546/DRO	07/11/13	1

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 Det. Limit - Practical Quantitation Limit(PQL)  
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REPORT OF ANALYSIS

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 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

July 11, 2013

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(WSW)-5FT  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 10:43

ESC Sample # : L644229-04  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/04/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/04/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/04/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.0		% Rec.	8021/8015	07/04/13	5
a,a,a-Trifluorotoluene(PID)	96.6		% Rec.	8021/8015	07/04/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	07/11/13	1
Surrogate recovery(%)						
o-Terphenyl	61.8		% Rec.	3546/DRO	07/11/13	1

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REPORT OF ANALYSIS

July 11, 2013

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EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

ESC Sample # : L644229-05

Date Received : June 29, 2013  
Description : 5002 - Site Clearance

Site ID : 5002

Sample ID : 062713-5002(BBT)-9FT

Project # : 5002

Collected By : Brad Ward  
Collection Date : 06/27/13 10:51

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.039	0.025	mg/kg	8021/8015	07/06/13	50
Toluene	0.37	0.25	mg/kg	8021/8015	07/06/13	50
Ethylbenzene	0.046	0.025	mg/kg	8021/8015	07/06/13	50
Total Xylene	0.32	0.075	mg/kg	8021/8015	07/06/13	50
TPH (GC/FID) Low Fraction	120	5.0	mg/kg	GRO	07/06/13	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.2		% Rec.	8021/8015	07/06/13	50
a,a,a-Trifluorotoluene(PID)	96.5		% Rec.	8021/8015	07/06/13	50
TPH (GC/FID) High Fraction	1700	80.	mg/kg	3546/DRO	07/11/13	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	07/11/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

July 11, 2013

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(ETS)-3-9IN  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 15:41

ESC Sample # : L644229-06  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/03/13	1
Chromium,Trivalent	11.	0.50	mg/kg	Calc.	07/10/13	1
ORP	150		mV	2580 B-2011	07/03/13	1
pH	8.8		su	9045D	07/05/13	1
Sodium Adsorption Ratio	4.0			Calc.	07/03/13	1
Specific Conductance	590		umhos/cm	9050AMod	07/02/13	1
Mercury	0.026	0.020	mg/kg	7471	07/03/13	1
Arsenic	2.1	1.0	mg/kg	6010B	07/09/13	1
Barium	60.	0.25	mg/kg	6010B	07/09/13	1
Cadmium	BDL	0.25	mg/kg	6010B	07/09/13	1
Chromium	11.	0.50	mg/kg	6010B	07/10/13	1
Copper	6.9	1.0	mg/kg	6010B	07/09/13	1
Lead	7.9	0.25	mg/kg	6010B	07/09/13	1
Nickel	7.5	1.0	mg/kg	6010B	07/10/13	1
Selenium	1.0	1.0	mg/kg	6010B	07/09/13	1
Silver	BDL	0.50	mg/kg	6010B	07/09/13	1
Zinc	51.	1.5	mg/kg	6010B	07/09/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/04/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/04/13	5
Total Xylene	0.016	0.0075	mg/kg	8021/8015	07/04/13	5
TPH (GC/FID) Low Fraction	3.2	0.50	mg/kg	GRO	07/04/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.4		% Rec.	8021/8015	07/04/13	5
a,a,a-Trifluorotoluene(PID)	96.3		% Rec.	8021/8015	07/04/13	5
TPH (GC/FID) High Fraction	110	4.0	mg/kg	3546/DRO	07/11/13	1
Surrogate recovery(%)						
o-Terphenyl	78.1		% Rec.	3546/DRO	07/11/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Acenaphthene	0.0087	0.0060	mg/kg	8270C-SIM	07/05/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 L644229-06 (PH) - 8.8@21.5c



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REPORT OF ANALYSIS

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 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

July 11, 2013

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002(ETS)-3-91N  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 15:41

ESC Sample # : L644229-06  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Fluorene	0.011	0.0060	mg/kg	8270C-SIM	07/05/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	07/05/13	1
Phenanthrene	0.024	0.0060	mg/kg	8270C-SIM	07/05/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/05/13	1
1-Methylnaphthalene	0.044	0.020	mg/kg	8270C-SIM	07/05/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/05/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/05/13	1
Surrogate Recovery						
Nitrobenzene-d5	102.		% Rec.	8270C-SIM	07/05/13	1
2-Fluorobiphenyl	92.7		% Rec.	8270C-SIM	07/05/13	1
p-Terphenyl-d14	95.6		% Rec.	8270C-SIM	07/05/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/11/13 17:18 Printed: 07/11/13 17:19  
 L644229-06 (PH) - 8.8@21.5c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L644229-02	WG670346	SAMP	o-Terphenyl	R2741441	J7
L644229-05	WG670346	SAMP	o-Terphenyl	R2741441	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
07/11/13 at 17:19:15

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L644229-01 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18  
Sample: L644229-02 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18  
Sample: L644229-03 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18  
Sample: L644229-04 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18  
Sample: L644229-05 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18  
Sample: L644229-06 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/09/13 00:00 RPT Date: 07/11/13 17:18

Company Name/Address  
**\*ENCANRCO-RULEENG\***  
**Encana Oil & Gas**  
**143 DIAMOND AVE**  
**PARACHUTE, CO 81635**  
**\*ENCANRCO-RULEENG\***

Billing Information  
 Charlie Jensen  
 143 Diamond Ave  
 Parachute, CO 81635  
 Report to: Charlie Jensen  
 E-mail to: Charlie Jensen, Shad Johnson, Brad Ward

Analysis/Container/Preservative

BTEXGRO / DRO - 8260/8015	SV8270PAHSIM - 8270SIM	SPCON - 9050AMod	SAR - Calc.	RCRA8 Metals + Cu, Ni, and Zn - 6010/7470	CR6SS - 3060A/7196	CR3 - Calc.	As
---------------------------	------------------------	------------------	-------------	---	--------------------	-------------	----

Chain of Custody  
 Page 1 of 1  
 Prepared by: **E041**  
 **ENVIRONMENTAL SCIENCE CORP**  
 12065 Lebanon Road  
 Mt. Juliet TN 37122  
 Phone (615)758-5858  
 Phone (800) 767-5859  
 FAX (615)758-5859

Project Description: **5002 - SITE CLEARANCE**  
 PHONE: 970-285-2735  
 FAX:  
 Client Project No. **5002**  
 Site/Facility ID# **5002**  
 P.O.#  
 Collected by: **Brad Ward**  
 Collected by (signature):   
 Rush? (Lab MUST be Notified)  
 Same Day.....200%  
 Next Day.....100%  
 Two Day.....50%  
 Date Results Needed  
 Email?  No  Yes  
 FAX?  No  Yes  
 Immediately Packed on Ice N  Y  X

ENCANRCO-RULEENG  
 CoCode (lab use only)  
**\*ENCANRCO-RULEENG\***  
 Template/Prelogin  
 Shipped Via:

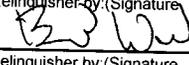
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs	BTEXGRO / DRO - 8260/8015	SV8270PAHSIM - 8270SIM	SPCON - 9050AMod	SAR - Calc.	RCRA8 Metals + Cu, Ni, and Zn - 6010/7470	CR6SS - 3060A/7196	CR3 - Calc.	As	Remarks/contaminant	Sample # (lab only)
062713-5002(NSW); 5'	GRAB	SS	5'	06/27/13	1015	2	X									644229-01
062713-5002(ESW); 8'	GRAB	SS	8'		1024	2	X									-02
062713-5002(SSW); 6'	GRAB	SS	6'		1032	2	X									-03
062713-5002(WSW); 5'	GRAB	SS	5'		1043	2	X									-04
062713-5002(BBT); 9'	GRAB	SS	9'		1051	2	X									-05
062713-5002(ETS); 3-9"	COMP	SS	3-9"		1541	3	X	X	X	X	X	X	X			-06

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks:

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquisher by: (Signature) 	Date: 6/28/13	Time: 0715	Received by: (Signature) 	Samples returned via: FedEx <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other _____	Condition (lab use only) NCF
Relinquisher by: (Signature) 	Date:	Time:	Received by: (Signature)	Temp: 3.6 °C	Bottles Received: 13-402
Relinquisher by: (Signature)	Date:	Time:	Received for lab by: (Signature) 	Date: 6/29/13	Time: 0900

COC Seats Intact  Y  N  NA  
 pH Checked: \_\_\_\_\_



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(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Monday July 08, 2013

Report Number: L644234

Samples Received: 06/29/13

Client Project: 5002

Description: 5002 - Site Clearance

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

July 08, 2013

Date Received : June 29, 2013  
Description : 5002 - Site Clearance  
Sample ID : 062713-5002-(BG1N)-6IN  
Collected By : Brad Ward  
Collection Date : 06/27/13 08:52

ESC Sample # : L644234-01  
Site ID : 5002  
Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.3	1.0	mg/kg	6010B	07/05/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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Reported: 07/08/13 11:19 Printed: 07/08/13 11:19



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REPORT OF ANALYSIS

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

July 08, 2013

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002-(BG2E)-6IN  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 09:01

ESC Sample # : L644234-02  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.1	1.0	mg/kg	6010B	07/05/13	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
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Reported: 07/08/13 11:19 Printed: 07/08/13 11:19



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REPORT OF ANALYSIS

July 08, 2013

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Date Received : June 29, 2013  
 Description : 5002 - Site Clearance  
 Sample ID : 062713-5002-(BG4W)-6IN  
 Collected By : Brad Ward  
 Collection Date : 06/27/13 09:19

ESC Sample # : L644234-03  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.1	1.0	mg/kg	6010B	07/05/13	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 Note:  
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Reported: 07/08/13 11:19 Printed: 07/08/13 11:19



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REPORT OF ANALYSIS

July 08, 2013

Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

Date Received : June 29, 2013  
Description : 5002 - Site Clearance  
Sample ID : 062713-5002-(BG3S)-6IN  
Collected By : Brad Ward  
Collection Date : 06/27/13 09:10

ESC Sample # : L644234-04  
Site ID : 5002  
Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.8	1.0	mg/kg	6010B	07/07/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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Reported: 07/08/13 11:19 Printed: 07/08/13 11:19

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L644234-04	WG670455	SAMP	Arsenic	R2735864	J3

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.

Qualifier Report Information

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Summary of Remarks For Samples Printed  
07/08/13 at 11:19:36

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L644234-01 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/08/13 00:00 RPT Date: 07/08/13 11:19

Sample: L644234-02 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/08/13 00:00 RPT Date: 07/08/13 11:19

Sample: L644234-03 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/08/13 00:00 RPT Date: 07/08/13 11:19

Sample: L644234-04 Account: ENCANRCO Received: 06/29/13 09:00 Due Date: 07/08/13 00:00 RPT Date: 07/08/13 11:19

Company Name/Address <b>*ENCANRCO-RULEENG*</b> Encana Oil & Gas 143 DIAMOND AVE PARACHUTE, CO 81635 <b>*ENCANRCO-RULEENG*</b>		Billing Information Charlie Jensen 143 Diamond Ave Parachute, CO 81635 Report to: Charlie Jensen E-mail to: Charlie Jensen, Shad Johnson, Brad Ward		Analysis/Container/Preservative BTEXGRO / DRO - 8260/8015 SV8270PAHSIM - 8270SIM SPCON - 9050AMod SAR - Calc. RCRA8 Metals + Cu, Ni, and Zn - 6010/7470 CR6SS - 3060A/7196 CR3 - Calc. AS							Chain of Custody Page 1 of 1 Prepared by: <b>E038</b> <b>ENVIRONMENTAL SCIENCE CORP</b> 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859 CoCode (lab use only) <b>*ENCANRCO-RULEENG*</b> Template/Prelogin Shipped Via:		
Project Description: <b>5002 - SITE CLEARANCE</b>		Client Project No. <b>ENCANRCO-RULEENG</b>		PHONE: 970-285-2735		Client Project No. <b>5002</b>		FAX:		Site/Facility ID# <b>5002</b>		P.O.#	
Collected by: <b>Brad Ward</b>		Collected by (signature):		<b>Rush?</b> (Lab MUST be Notified) Same Day.....200% Next Day.....100% Two Day.....50%		Date Results Needed		No		Email? ___ No ___ X ___ Yes		of	
Immediately Packed on Ice N ___ Y ___ X ___		Email? ___ No ___ X ___ Yes		FAX? ___ No ___ Yes		Cntrs							
Sample ID	Comp/Grab	Matrix	Depth	Date	Time	Cntrs						Remarks/contaminant	Sample # (lab only)
062713-5002-(BG1N)-6"	GRAB	SS	6"	6/27/13	0852	1						X	L644234-01
062713-5002-(BG2E)-6"	GRAB	SS	6"	6/27/13	0901	1						X	-02
<del>132713-5002-(BG3N)-6"</del>	<del>GRAB</del>	<del>SS</del>	<del>6"</del>			<del>1</del>						<del>X</del>	
062713-5002-(BG4W)-6"	GRAB	SS	6"	6/27/13	0919	1						X	-03
062713-5002-(BG5S)-6"	Grab	SS	6"	6/27/13	0910	1						X	-04

\*Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks:

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquisher by: (Signature)	Date: 6/28/13	Time: 0715	Received by: (Signature)	Samples returned via: FedEx <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other _____	Condition (lab use only)
Relinquisher by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 5.6°C	Bottles Received: 4-402
Relinquisher by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6/29/13	Time: 0900
				COC Seals Intact <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
				pH Checked: NCF	



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Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Monday October 07, 2013

Report Number: L660207

Samples Received: 09/27/13

Client Project: 5002

Description: 5002-Site Clearance

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

Charles Jensen  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

October 07, 2013

Date Received : September 27, 2013  
Description : 5002-Site Clearance  
Sample ID : 092613-5002 ESW-8 FT  
Collected By : Shad Johnson  
Collection Date : 09/26/13 12:40

ESC Sample # : L660207-01  
Site ID : 5002  
Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/02/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/02/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/02/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/02/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/02/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.9		% Rec.	8021/8015	10/02/13	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	10/02/13	5
TPH (GC/FID) High Fraction	28.	4.0	mg/kg	3546/DRO	10/05/13	1
Surrogate recovery(%)						
o-Terphenyl	87.6		% Rec.	3546/DRO	10/05/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 10/07/13 20:06 Printed: 10/07/13 20:06



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 Mt. Juliet, TN 37122  
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Charles Jensen  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

October 07, 2013

Date Received : September 27, 2013  
 Description : 5002-Site Clearance  
 Sample ID : 092613-5002 BBT-9 FT  
 Collected By : Shad Johnson  
 Collection Date : 09/26/13 12:50

ESC Sample # : L660207-02  
 Site ID : 5002  
 Project # : 5002

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/02/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/02/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/02/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/02/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/02/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.0		% Rec.	8021/8015	10/02/13	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	10/02/13	5
TPH (GC/FID) High Fraction	1400	80.	mg/kg	3546/DRO	10/05/13	20
Surrogate recovery(%)						
o-Terphenyl	87.7		% Rec.	3546/DRO	10/05/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 10/07/13 20:06 Printed: 10/07/13 20:06

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L660207-02	WG684882	SAMP	o-Terphenyl	R2837380	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

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- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
10/07/13 at 20:06:53

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L660207-01 Account: ENCANRCO Received: 09/27/13 09:30 Due Date: 10/04/13 00:00 RPT Date: 10/07/13 20:06

Sample: L660207-02 Account: ENCANRCO Received: 09/27/13 09:30 Due Date: 10/04/13 00:00 RPT Date: 10/07/13 20:06

**\*ENCANRCO-RULEENG\***  
**Encana Oil & Gas**  
**143 Diamond Avenue**  
**Parachute, CO 81635**  
**\*ENCANRCO-RULEENG\***

Billing Information:  
 Charles Jensen  
 143 Diamond Ave  
 Parachute, CO 81635

Report to: Charles Jensen

Email to: Charles Jensen, Shad Johnson

Analysis/Container/Preservative

BTEXGRO / DRO - 8260/8015	SV8270PAHSIM - 8270SIM	SPCON - 9050AMod	SAR - Calc.	RCRA8 Metals + Cu, Ni, and Zn - 6010/7470	CR6SS - 3060A/7196	CR3 - Calc.
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Chain of Custody  
 Page 1 of 1



**ESC**  
 L · A · B · S · C · I · E · N · C · E · S

12065 Lebanon Road  
 Mt. Juliet, TN 37122

Phone: (800) 767-5859  
 Phone: (615) 758-5858  
 Fax: (615) 758-5859

**E148**

Project Description: 5002-Site Clearance City/State Collected: CO

Phone: 970-285-2735 Client Project #: 5002 ESC Key: ENCANRCO-RULEENG

FAX: Collected by: *Shad Johnson* Site/Facility ID#: 5002 P.O.#:

Collected by (signature): *[Signature]*

Immediately Packed on Ice:  N

**Rush?** ( Lab MUST Be Notified )

\_\_\_ Same Day.....200%  
 \_\_\_ Next Day.....100%  
 \_\_\_ Two Day.....50%  
 \_\_\_ Three Day.....25%

Date Results Needed:  
 Email? \_\_\_ No \_\_\_ Yes  
 FAX? \_\_\_ No \_\_\_ Yes

CoCode ENCRCO (lab use only)  
 Template/Prelogin  
 Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Remarks/Contaminant	Sample # (lab only)
092613-5002(ESW)-8FT	Grab	SS	8'	9/26/13	1240	2 X		166520701
092613-5002(BBT)-9FT	Grab	SS	9'	9/26/13	1250	2 X		a

\*Matrix: **SS** - Soil/Solid **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other \_\_\_\_\_

Remarks: \_\_\_\_\_

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by: (Signature) <i>[Signature]</i>	Date: 7-26-13	Time: 1500	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>TD</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 39.0	Bottles Received: 402
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 9/27/13	Time: 0930
				pH Checked:	NCE: