

Analytes (BDL = Below Detection Limit; ND = Non Detect)

Allowable Concentration →				Organic Compounds in Soil (mg/kg [ppm])																		Inorganics in Soil		Metals in Soil (mg/kg [ppm])															
Location	Sample Date:	Sample Matrix	Matrix Notes	500	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
				<12				(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000																			
PH16	05/27/09	Pit		1780	180	1600	BDL	BDL	BDL	0.38	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.76	BDL	0.96	BDL	0.0043	73	9.3	3		0.53	20	BDL	20	7.5	BDL	36	BDL	1.1	42	
PH16	10/08/09	Pit	pit bottom	213.97	6.97	207	ND	ND	ND	ND	ND	0.005	ND	ND	ND	ND	ND	ND	ND	0.003	0.0499	ND	0.006	0.0061	1.31	13.2	9.2	5.9		0.067	19.7	1.4	22.6	8.5	0.0061	36	0.16	0.21	46.7
PH16	10/08/09	Pit	pit spoil	408.4	27.4	381	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0035	ND	0.005	0.0595	ND	0.006	0.0122	1.83	23.1	9.3	6.1		0.069	20.8	0.88	24.2	8.8	0.016	36.9	0.17	0.25	47.8	
PH16	11/12/09	Pit	pit bottom	102	ND	102	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0031	ND	ND	ND	ND	ND	ND	2.06	30.6	8.7	5.9		0.56	20.6	1	24.9	7.9	0.057	40.7	0.29	0.29	49.2	
PH16	11/12/09	Pit	pit spoil	544.37	6.37	538	ND	ND	ND	ND	ND	0.003	0.0046	ND	ND	ND	0.0062	ND	0.003	ND	ND	0.011	0.0108	1.22	20.3	8.9	6.2		0.56	20.5	1.3	23.3	8.6	0.1	37.5	0.31	0.28	50.5	
PH16	03/17/10	Pit	pit spoil	75.7	2.7	73																																	



ENVIRONMENTAL  
SCIENCE CORP.

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Brad Kieding  
Encana  
2717 Co. Rd 215 Ste 100

Parachute, CO 81635

Report Summary

Friday June 05, 2009

Report Number: L404970

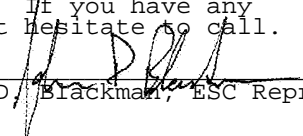
Samples Received: 05/29/09

Client Project:

Description: JB-052709-0680493 8720.382

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:

  
John D. Blackman, ESC Representative

*Laboratory Certification Numbers*

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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

This report may not be reproduced, except in full, without written approval from Environmental Science Corp.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



# ENVIRONMENTAL SCIENCE CORP.

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

## REPORT OF ANALYSIS

Brad Kieding  
Encana  
2717 Co. Rd 215 Ste 100  
Parachute, CO 81635

June 05, 2009

Date Received : May 29, 2009  
Description : JB-052709-0680493 8720.382

ESC Sample # : L404970-01

Sample ID : PH16 PIT SAMPLE

Site ID :

Collected By : BWK  
Collection Date : 05/27/09 16:30

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/02/09	1
Chromium, Trivalent	20.	0.50	mg/kg	Calc.	06/03/09	1
ORP	150		mV	2580	06/03/09	1
pH	9.3		su	9045D	06/03/09	1
Sodium Adsorption Ratio	73.			Calc.	06/04/09	1
Specific Conductance	4.3		umhos/cm	9050AMod	06/03/09	1
Mercury	BDL	0.020	mg/kg	7471	06/03/09	1
Arsenic	3.0	1.0	mg/kg	6010B	06/03/09	1
Barium	2500	0.25	mg/kg	6010B	06/03/09	1
Boron	BDL	10.	mg/kg	6010B	06/03/09	1
Cadmium	0.53	0.25	mg/kg	6010B	06/03/09	1
Chromium	20.	0.50	mg/kg	6010B	06/03/09	1
Copper	20.	1.0	mg/kg	6010B	06/03/09	1
Lead	7.5	0.25	mg/kg	6010B	06/03/09	1
Nickel	36.	1.0	mg/kg	6010B	06/03/09	1
Selenium	BDL	1.0	mg/kg	6010B	06/03/09	1
Silver	1.1	0.50	mg/kg	6010B	06/03/09	1
Zinc	42.	1.5	mg/kg	6010B	06/03/09	1
TPH (GC/FID) Low Fraction	180	5.0	mg/kg	8015D/GRO	06/03/09	50
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	91.1		% Rec.	602/8015	06/03/09	50
Benzene	BDL	0.050	mg/kg	8260B	06/05/09	50
Toluene	BDL	0.25	mg/kg	8260B	06/05/09	50
Ethylbenzene	BDL	0.050	mg/kg	8260B	06/05/09	50
Total Xylenes	0.38	0.15	mg/kg	8260B	06/05/09	50
Surrogate Recovery						
Toluene-d8	98.0		% Rec.	8260B	06/05/09	50
Dibromofluoromethane	92.4		% Rec.	8260B	06/05/09	50
a,a,a-Trifluorotoluene	96.5		% Rec.	8260B	06/05/09	50
4-Bromofluorobenzene	115.		% Rec.	8260B	06/05/09	50
TPH (GC/FID) High Fraction	1600	80.	mg/kg	3546/DRO	06/02/09	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	06/02/09	20

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L404970-01 (PH) - 9.3@20.9c



ENVIRONMENTAL  
SCIENCE CORP.

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Brad Kieding  
Encana  
2717 Co. Rd 215 Ste 100  
Parachute, CO 81635

June 05, 2009

Date Received : May 29, 2009  
Description : JB-052709-0680493 8720.382

Sample ID : PH16 PIT SAMPLE

Collected By : BWK  
Collection Date : 05/27/09 16:30

ESC Sample # : L404970-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.66	mg/kg	8270C	06/03/09	20
Acenaphthene	BDL	0.66	mg/kg	8270C	06/03/09	20
Acenaphthylene	BDL	0.66	mg/kg	8270C	06/03/09	20
Benzo(a)anthracene	BDL	0.66	mg/kg	8270C	06/03/09	20
Benzo(a)pyrene	BDL	0.66	mg/kg	8270C	06/03/09	20
Benzo(b)fluoranthene	BDL	0.66	mg/kg	8270C	06/03/09	20
Benzo(g,h,i)perylene	BDL	0.66	mg/kg	8270C	06/03/09	20
Benzo(k)fluoranthene	BDL	0.66	mg/kg	8270C	06/03/09	20
Chrysene	BDL	0.66	mg/kg	8270C	06/03/09	20
Dibenz(a,h)anthracene	BDL	0.66	mg/kg	8270C	06/03/09	20
Fluoranthene	BDL	0.66	mg/kg	8270C	06/03/09	20
Fluorene	0.76	0.66	mg/kg	8270C	06/03/09	20
Indeno(1,2,3-cd)pyrene	BDL	0.66	mg/kg	8270C	06/03/09	20
Naphthalene	0.96	0.66	mg/kg	8270C	06/03/09	20
Phenanthrene	0.68	0.66	mg/kg	8270C	06/03/09	20
Pyrene	BDL	0.66	mg/kg	8270C	06/03/09	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C	06/03/09	20
2-Fluorobiphenyl	0.00		% Rec.	8270C	06/03/09	20
p-Terphenyl-d14	0.00		% Rec.	8270C	06/03/09	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: 06/05/09 13:21 Printed: 06/05/09 13:21  
L404970-01 (PH) - 9.3@20.9c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L404970-01	WG424283	SAMP	Naphthalene	R769246	J3
	WG424283	SAMP	Nitrobenzene-d5	R769246	J7
	WG424283	SAMP	2-Fluorobiphenyl	R769246	J7
	WG424283	SAMP	p-Terphenyl-d14	R769246	J7
	WG424171	SAMP	o-Terphenyl	R766308	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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  
06/05/09 at 13:21:48

TSR Signing Reports: 151  
R5 - Desired TAT

AFE - 4021929; JDE - 8715.692. Put AFE or JDE after sample ids. 10/4/07 JB. Run Out of Hold  
Per Brett Middleton.

Sample: L404970-01 Account: ENCRCO Received: 05/29/09 09:00 Due Date: 06/05/09 00:00 RPT Date: 06/05/09 13:21  
Refer to L404969, L404971



10/14/09

## Technical Report for

ENCANA

EnCana Oil & Gas (USA) Inc.

PH16 Pit Samples

Accutest Job Number: T39625

Sampling Date: 10/08/09

### Report to:

EnCana  
2717 Co. Rd. 215  
Parachute, CO 81635  
brett.middleton@encana.com; christopher.hines@encana.com  
ATTN: Chris Hines

Total number of pages in report: 75



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

*Paul K Canevaro*

Paul Canevaro  
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004)  
OK (9103) UT(7132714700)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.



# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Sample Results .....</b>	<b>9</b>
<b>3.1:</b> T39625-1: PH16-PIT BOTTOM-100809 .....	10
<b>3.2:</b> T39625-1A: PH16-PIT BOTTOM-100809 .....	16
<b>3.3:</b> T39625-1B: PH16-PIT BOTTOM-100809 .....	17
<b>3.4:</b> T39625-1C: PH16-PIT BOTTOM-100809 .....	18
<b>3.5:</b> T39625-2: PH16-PIT SPOIL-100809 .....	20
<b>3.6:</b> T39625-2A: PH16-PIT SPOIL-100809 .....	26
<b>3.7:</b> T39625-2B: PH16-PIT SPOIL-100809 .....	27
<b>3.8:</b> T39625-2C: PH16-PIT SPOIL-100809 .....	28
<b>Section 4: Misc. Forms .....</b>	<b>30</b>
<b>4.1:</b> Chain of Custody .....	31
<b>Section 5: GC/MS Volatiles - QC Data Summaries .....</b>	<b>34</b>
<b>5.1:</b> Method Blank Summary .....	35
<b>5.2:</b> Blank Spike Summary .....	36
<b>5.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	37
<b>Section 6: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>38</b>
<b>6.1:</b> Method Blank Summary .....	39
<b>6.2:</b> Blank Spike Summary .....	40
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	41
<b>Section 7: GC Volatiles - QC Data Summaries .....</b>	<b>42</b>
<b>7.1:</b> Method Blank Summary .....	43
<b>7.2:</b> Blank Spike/Blank Spike Duplicate Summary .....	44
<b>7.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	45
<b>Section 8: GC Semi-volatiles - QC Data Summaries .....</b>	<b>46</b>
<b>8.1:</b> Method Blank Summary .....	47
<b>8.2:</b> Blank Spike Summary .....	48
<b>8.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	49
<b>Section 9: Metals Analysis - QC Data Summaries .....</b>	<b>50</b>
<b>9.1:</b> Prep QC MP10435: Ca,Mg,Na,Sodium Adsorption Ratio .....	51
<b>9.2:</b> Prep QC MP10440: B .....	53
<b>9.3:</b> Prep QC MP10441: Ba .....	58
<b>9.4:</b> Prep QC MP10442: As,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn .....	63
<b>9.5:</b> Prep QC MP10443: Hg .....	68
<b>Section 10: General Chemistry - QC Data Summaries .....</b>	<b>72</b>
<b>10.1:</b> Method Blank and Spike Results Summary .....	73
<b>10.2:</b> Duplicate Results Summary .....	74
<b>10.3:</b> Matrix Spike Results Summary .....	75



Sample Summary

ENCANA

Job No: T39625

EnCana Oil & Gas (USA) Inc.  
Project No: PH16 Pit Samples

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
T39625-1	10/08/09	13:00	CH	10/09/09	SO	Soil	PH16-PIT BOTTOM-100809
T39625-1A	10/08/09	13:00	CH	10/09/09	SO	Soil	PH16-PIT BOTTOM-100809
T39625-1B	10/08/09	13:00	CH	10/09/09	SO	Soil	PH16-PIT BOTTOM-100809
T39625-1C	10/08/09	13:00	CH	10/09/09	SO	Soil	PH16-PIT BOTTOM-100809
T39625-2	10/08/09	13:30	CH	10/09/09	SO	Soil	PH16-PIT SPOIL-100809
T39625-2A	10/08/09	13:30	CH	10/09/09	SO	Soil	PH16-PIT SPOIL-100809
T39625-2B	10/08/09	13:30	CH	10/09/09	SO	Soil	PH16-PIT SPOIL-100809
T39625-2C	10/08/09	13:30	CH	10/09/09	SO	Soil	PH16-PIT SPOIL-100809

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** ENCANA

**Job No** T39625

**Site:** EnCana Oil & Gas (USA) Inc.

**Report Date** 10/14/2009 4:36:38 PM

2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 10/08/2009 and were received at Accutest on 10/09/2009 properly preserved, at 4.8 Deg. C and intact. These Samples received an Accutest job number of T39625. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

<b>Matrix</b> SO	<b>Batch ID:</b> VX312
------------------	------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39421-1MS, T39421-1MSD were used as the QC samples indicated.

### Extractables by GCMS By Method SW846 8270C BY SIM

<b>Matrix</b> SO	<b>Batch ID:</b> OP13235
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39625-1MS, T39625-1MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Acenaphthene are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Acenaphthene, Fluorene are outside control limits. Probable cause due to matrix interference.
- Sample(s) OP13235-MS, OP13235-MSD, T39625-1, T39625-2 have surrogates outside control limits. Probable cause due to matrix interference.
- T39625-2: Internal standards are not within the advisory limits due to matrix interference. Confirmed by reanalysis.
- T39625-1: Internal standards are not within the advisory limits due to matrix interference. Confirmed by associated ms/msd samples.

### Volatiles by GC By Method SW846 8015

<b>Matrix</b> SO	<b>Batch ID:</b> GEE2457
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) T39625-1MS, T39625-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39625-2 have surrogates outside control limits. Probable cause due to matrix interference.

## Extractables by GC By Method SW846 8015 M

**Matrix** SO

**Batch ID:** OP13234

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) T39625-1MSD, T39625-1MS, T39625-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for TPH (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Sample(s) OP13234-MS, OP13234-MSD, T39625-1, T39625-2 have surrogates outside control limits. Probable cause due to matrix interference.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP10435

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39188-1CDUP were used as the QC samples for metals.

**Matrix** AQ

**Batch ID:** MP10440

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39625-1ADUP, T39625-1AMS, T39625-1AMSD, T39625-1ASDL were used as the QC samples for metals.

**Matrix** SO

**Batch ID:** MP10441

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39626-1BDUP, T39626-1BMSD, T39626-1BSDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

**Matrix** SO

**Batch ID:** MP10442

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T38497-1DUP, T38497-1MS, T38497-1MSD, T38497-1SDL, T38497-1DUP were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Arsenic, Cadmium, Selenium are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Arsenic, Cadmium, Nickel, Selenium, Lead are outside control limits. High RPD due to possible matrix interference.
- Matrix Spike Recovery(s) for Zinc are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- RPD(s) for Duplicate for Lead, Silver are outside control limits for sample MP10442-D1. High RPD due to possible sample nonhomogeneity.
- RPD(s) for MSD for Lead are outside control limits for sample MP10442-S2. High RPD due to possible matrix interference.
- RPD(s) for Serial Dilution for Arsenic, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP10442-SD1. Probable cause due to sample homogeneity.
- MP10442-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP10442-SD1 for Lead: Serial dilution indicates possible matrix interference.
- MP10442-SD1 for Arsenic: Serial dilution indicates possible matrix interference.
- MP10442-D1 for Silver: RPD acceptable due to low duplicate and sample concentrations.
- MP10442-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP10442-SD1 for Nickel: Serial dilution indicates possible matrix interference.

## Metals By Method SW846 7471A

<b>Matrix</b> SO	<b>Batch ID:</b> MP10443
------------------	--------------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T38729-1DUP, T38729-1MS, T38729-1MSD were used as the QC samples for metals.

## Wet Chemistry By Method EPA 120.1

<b>Matrix</b> AQ	<b>Batch ID:</b> GN18318
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T39188-1DUP were used as the QC samples for Specific Conductivity.

## Wet Chemistry By Method LADNR29B

<b>Matrix</b> SO	<b>Batch ID:</b> MP10435
------------------	--------------------------

- T39625-1C for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- T39625-2C for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

## Wet Chemistry By Method SM 2540 G

<b>Matrix</b> SO	<b>Batch ID:</b> GN18305
------------------	--------------------------

- Sample(s) T39504-1DUP were used as the QC samples for Solids, Percent.

## Wet Chemistry By Method SW846 3060/7196A

<b>Matrix</b> SO	<b>Batch ID:</b> GN18307
------------------	--------------------------

- All method blanks for this batch meet method specific criteria.
- Sample(s) T39188-1DUP, T39188-1MS were used as the QC samples for Chromium, Hexavalent.
- The following samples were run outside of holding time for method SW846 3060/7196A: T39625-1, T39625-2

## Wet Chemistry By Method SW846 6010/7196A M

<b>Matrix</b> SO	<b>Batch ID:</b> R19390
------------------	-------------------------

- The following samples were run outside of holding time for method SW846 6010/7196A M: T39625-1
- T39625-1 for Chromium, Trivalent: Calculated as:  $(\text{Chromium}) - (\text{Chromium, Hexavalent})$

<b>Matrix</b> SO	<b>Batch ID:</b> R19391
------------------	-------------------------

- The following samples were run outside of holding time for method SW846 6010/7196A M: T39625-2
- T39625-2 for Chromium, Trivalent: Calculated as:  $(\text{Chromium}) - (\text{Chromium, Hexavalent})$

## Wet Chemistry By Method SW846 9045C

<b>Matrix</b> SO	<b>Batch ID:</b> GN18313
------------------	--------------------------

- Sample(s) T39626-1DUP were used as the QC samples for pH.
- The following samples were run outside of holding time for method SW846 9045C: T39625-1, T39625-2

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



## Sample Results

## Report of Analysis



## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0056073.D	1	10/12/09	AH	n/a	n/a	VX312
Run #2							

	Initial Weight	Final Volume
Run #1	5.28 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.5	0.77	ug/kg	
108-88-3	Toluene	ND	5.5	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.5	0.99	ug/kg	
1330-20-7	Xylene (total)	ND	17	2.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-121%
2037-26-5	Toluene-D8	93%		76-132%
460-00-4	4-Bromofluorobenzene	119%		73-165%
17060-07-0	1,2-Dichloroethane-D4	92%		57-122%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Method:</b>	SW846 8270C BY SIM SW846 3550B		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	P06527.D	1	10/13/09	GJ	10/13/09	OP13235	EP319
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	7.7	1.3	ug/kg	
208-96-8	Acenaphthylene	ND	7.7	2.7	ug/kg	
120-12-7	Anthracene	5.0	7.7	1.5	ug/kg	J
56-55-3	Benzo(a)anthracene	ND	7.7	1.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	7.7	4.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	7.7	4.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	7.7	7.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	7.7	5.0	ug/kg	
218-01-9	Chrysene	ND	7.7	1.9	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	7.7	7.4	ug/kg	
206-44-0	Fluoranthene	2.6	7.7	1.7	ug/kg	J
86-73-7	Fluorene	49.9	7.7	2.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	7.7	5.7	ug/kg	
90-12-0	1-Methylnaphthalene	ND	7.7	1.4	ug/kg	
91-57-6	2-Methylnaphthalene	3.9	7.7	1.3	ug/kg	J
91-20-3	Naphthalene	6.0	7.7	1.2	ug/kg	J
85-01-8	Phenanthrene	10.5	7.7	1.1	ug/kg	
129-00-0	Pyrene	6.1	7.7	2.6	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	51%		10-127%
321-60-8	2-Fluorobiphenyl	374% <sup>b</sup>		11-133%
1718-51-0	Terphenyl-d14	86%		15-187%

(a) Internal standards are not within the advisory limits due to matrix interference. Confirmed by associated ms/msd samples.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Method:</b>	SW846 8015		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE048439.D	1	10/12/09	FI	n/a	n/a	GEE2457
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.39 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	6.97	6.2	0.37	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	119%		46-127%
98-08-8	aaa-Trifluorotoluene	107%		44-120%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809			<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1			<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	86.0
<b>Method:</b>	SW846 8015 M SW846 3550B				
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC215721.D	10	10/13/09	SS	10/13/09	OP13234	GCC977
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	207	95	31	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	0% <sup>a</sup>		33-115%		

(a) Outside control limits due to dilution.

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** PH16-PIT BOTTOM-100809**Lab Sample ID:** T39625-1**Date Sampled:** 10/08/09**Matrix:** SO - Soil**Date Received:** 10/09/09**Percent Solids:** 86.0**Project:** EnCana Oil & Gas (USA) Inc.

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.9	0.67	0.13	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.067 U	0.34	0.067	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	21.1	0.67	0.047	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	22.6	1.7	0.088	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	8.5	0.67	0.27	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.0061 B	0.018	0.00072	mg/kg	1	10/12/09	10/13/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	36.0	2.7	0.088	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.16 U	0.67	0.16	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.21 B	0.67	0.054	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	46.7	1.3	0.27	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4333

(2) Instrument QC Batch: MA4334

(3) Prep QC Batch: MP10442

(4) Prep QC Batch: MP10443

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result &lt; MDL

B = Indicates a result &gt; = MDL but &lt; RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.4 B	2.0	mg/kg	1	10/14/09 12:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	19.7	2.7	mg/kg	1	10/14/09 12:00	KD	SW846 6010/7196A M
Solids, Percent	86		%	1	10/12/09	AA	SM 2540 G
Specific Conductivity	1310	1.0	umhos/cm	1	10/14/09 15:30	KD	EPA 120.1
pH	9.2		su	1	10/13/09 15:10	EV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1A	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	0.781	0.20	0.0041	mg/l	1	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4332  
(2) Prep QC Batch: MP10440

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1B	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	536	11	0.033	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4332  
(2) Prep QC Batch: MP10441

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL



Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-1C	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.0
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	167	25	0.18	mg/l	5	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Magnesium	19.9 B	25	0.039	mg/l	5	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Sodium	679	25	0.67	mg/l	5	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4334  
(2) Prep QC Batch: MP10435

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT BOTTOM-100809		
<b>Lab Sample ID:</b>	T39625-1C	<b>Date Sampled:</b>	10/08/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	10/09/09
		<b>Percent Solids:</b>	86.0
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	13.2		ratio	1	10/13/09 18:34	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X0056074.D	1	10/12/09	AH	n/a	n/a	VX312
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.8	0.81	ug/kg	
108-88-3	Toluene	ND	5.8	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	5.8	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	17	2.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		70-121%
2037-26-5	Toluene-D8	94%		76-132%
460-00-4	4-Bromofluorobenzene	129%		73-165%
17060-07-0	1,2-Dichloroethane-D4	92%		57-122%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Method:</b>	SW846 8270C BY SIM SW846 3550B		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	P06530.D	1	10/13/09	GJ	10/13/09	OP13235	EP319
Run #2	P06525.D	5	10/13/09	GJ	10/13/09	OP13235	EP319

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	7.7	1.3	ug/kg	
208-96-8	Acenaphthylene	ND	7.7	2.7	ug/kg	
120-12-7	Anthracene	ND	7.7	1.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	7.7	1.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	7.7	4.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	7.7	4.1	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	7.7	7.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	7.7	5.0	ug/kg	
218-01-9	Chrysene	3.5	7.7	1.9	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	7.7	7.4	ug/kg	
206-44-0	Fluoranthene	4.7	7.7	1.7	ug/kg	J
86-73-7	Fluorene	59.5	7.7	2.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	7.7	5.7	ug/kg	
90-12-0	1-Methylnaphthalene	9.4	7.7	1.4	ug/kg	
91-57-6	2-Methylnaphthalene	15.9	7.7	1.3	ug/kg	
91-20-3	Naphthalene	6.4	7.7	1.2	ug/kg	J
85-01-8	Phenanthrene	26.6	7.7	1.1	ug/kg	
129-00-0	Pyrene	12.2	7.7	2.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%	43%	10-127%
321-60-8	2-Fluorobiphenyl	221% <sup>b</sup>	117%	11-133%
1718-51-0	Terphenyl-d14	107%	90%	15-187%

(a) Internal standards are not within the advisory limits due to matrix interference. Confirmed by reanalysis.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Method:</b>	SW846 8015		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE048440.D	1	10/12/09	FI	n/a	n/a	GEE2457
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.11 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	27.4	6.5	0.39	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	145% <sup>a</sup>		46-127%
98-08-8	aaa-Trifluorotoluene	111%		44-120%

(a) Outside control limits due to matrix interference.

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	
<b>Lab Sample ID:</b>	T39625-2	<b>Date Sampled:</b> 10/08/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 10/09/09
<b>Method:</b>	SW846 8015 M SW846 3550B	<b>Percent Solids:</b> 86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC215722.D	10	10/13/09	SS	10/13/09	OP13234	GCC977
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	381	94	31	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	0% <sup>a</sup>		33-115%		

(a) Outside control limits due to dilution.

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: PH16-PIT SPOIL-100809

Lab Sample ID: T39625-2

Date Sampled: 10/08/09

Matrix: SO - Soil

Date Received: 10/09/09

Percent Solids: 86.2

Project: EnCana Oil &amp; Gas (USA) Inc.

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.1	0.69	0.14	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.069 U	0.35	0.069	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	21.7	0.69	0.049	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	24.2	1.7	0.090	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	8.8	0.69	0.28	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.016 B	0.018	0.00073	mg/kg	1	10/12/09	10/13/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	36.9	2.8	0.090	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.17 U	0.69	0.17	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.25 B	0.69	0.056	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	47.8	1.4	0.28	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4333

(2) Instrument QC Batch: MA4334

(3) Prep QC Batch: MP10442

(4) Prep QC Batch: MP10443

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result &lt; MDL

B = Indicates a result &gt; = MDL but &lt; RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.88 B	2.0	mg/kg	1	10/14/09 12:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	20.8	2.7	mg/kg	1	10/14/09 12:00	KD	SW846 6010/7196A M
Solids, Percent	86.2		%	1	10/12/09	AA	SM 2540 G
Specific Conductivity	1830	1.0	umhos/cm	1	10/14/09 15:30	KD	EPA 120.1
pH	9.3		su	1	10/13/09 15:10	EV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2A	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	0.719	0.20	0.0042	mg/l	1	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4332  
(2) Prep QC Batch: MP10440

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2B	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	750	12	0.035	mg/kg	1	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4332  
(2) Prep QC Batch: MP10441

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2C	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	162	25	0.18	mg/l	5	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>3</sup>
Magnesium	19.1 B	25	0.039	mg/l	5	10/12/09	10/13/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>3</sup>
Sodium	1170	50	1.3	mg/l	10	10/12/09	10/14/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

- (1) Instrument QC Batch: MA4334  
(2) Instrument QC Batch: MA4336  
(3) Prep QC Batch: MP10435

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-100809	<b>Date Sampled:</b>	10/08/09
<b>Lab Sample ID:</b>	T39625-2C	<b>Date Received:</b>	10/09/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.2
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	23.1		ratio	1	10/14/09 14:16	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit



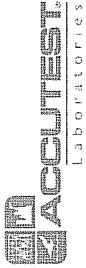
## Misc. Forms

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

Company Name Cana Oil & Gas (USA) Inc.		Client / Reporting Information		Project Name / No. PH16 Pit Samples		Project Information		Matrix Codes	
Project Contact Chris Hines		E-Mail chris@hines.com		Bill to Chris Hines		Invoice Attn. Chris Hines		DW - Drinking Water GW - Ground Water WW - Wastewater SL - Sludge OI - Oil LIQ - Other Liquid SOL - Other Solid	
Address 17 County Road 215, Suite 100		City Parachute, CO		State CO		Zip 81635			
Phone No. 970.285.2653		Fax No. 970.285.2653		Client Purchase Order #					
Impiler's Name Chris Hines		Field ID / Point of Collection		Collection		Date			
Sample #		PH16 - Pit Bottom - 100809		Date		10/08/2009			
		PH16 - Pit Spoil - 100809		Date		10/08/2009			
				Time		SO			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			
				Time		1330			
				Date		10/08/2009			
				Matrix		SO			
				# of bottles		2			
				Number of preserved bottles					
				Matrix		SO			

# SAMPLE INSPECTION FORM

Accutest Job Number: 739003 Client: Seneca OHSU Date/Time Received: 12-29-1303

# of Coolers Received: 1 Thermometer #: DR-1 Temperature Adjustment Factor: 4.4

Cooler Temps: #1: 4.8<sup>2</sup> #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_ #5: \_\_\_\_\_ #6: \_\_\_\_\_ #7: \_\_\_\_\_ #8: \_\_\_\_\_

Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other

Airbill Numbers: \_\_\_\_\_

### COOLER INFORMATION

	Custody seal missing or not intact
	Temperature criteria not met
	Wet ice received in cooler

## CHAIN OF CUSTODY

	Chain of Custody not received
	Sample D/T unclear or missing
	Analyses unclear or missing
	COC not properly executed

### SAMPLE INFORMATION

	Sample containers received broken
	VOC vials have headspace
	Sample labels missing or illegible
	ID on COC does not match label(s)
	D/T on COC does not match label(s)
	Sample/Bottles recvd but no analysis on COC
	Sample listed on COC, but not received
	Bottles missing for requested analysis
	Insufficient volume for analysis
	Sample received improperly preserved

**TRIP BLANK INFORMATION**

	Trip Blank on COC but not received
	Trip Blank received but not on COC
	Trip Blank not intact
	Received Water Trip Blank
	Received Soil TB

Number of Encores?  
Number of 5035 kits?  
Number of lab-filtered metals?

### Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE: \_\_\_\_\_

INFORMATION AND SAMPLE LABELING VERIFIED BY:

## CORRECTIVE ACTIONS

**Client Representative Notified:**

**By Accutest Representative:**

**Client Instructions:**

Date:

Via: Phone:

Email

**T39625: Chain of Custody**  
**Page 2 of 3**

# SAMPLE RECEIPT LOG

JOB #:

DATE/TIME RECEIVED:

10-59 1500

**CLIENT:**

**INITIALS:**

u  
a

[illegible]

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NaOH 6: DI 7: MeOH 8: Other  
 LOCATION: 1: Walk-In #1 (Wetters) 2: Walk-In #2 (Solis) VR: Votatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 EWR

Page 3 of 3





## GC/MS Volatiles

5

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** T39625  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX312-MB	X0056066.D	1	10/12/09	AH	n/a	n/a	VX312

The QC reported here applies to the following samples:

Method: SW846 8260B

T39625-1, T39625-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.0	0.70	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.90	ug/kg	
108-88-3	Toluene	ND	5.0	0.95	ug/kg	
1330-20-7	Xylene (total)	ND	15	2.1	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	97% 70-121%
2037-26-5	Toluene-D8	90% 76-132%
460-00-4	4-Bromofluorobenzene	93% 73-165%
17060-07-0	1,2-Dichloroethane-D4	94% 57-122%

## Blank Spike Summary

Page 1 of 1

**Job Number:** T39625  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX312-BS	X0056064.D	1	10/12/09	AH	n/a	n/a	VX312

The QC reported here applies to the following samples:

Method: SW846 8260B

T39625-1, T39625-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.6	103	70-114
100-41-4	Ethylbenzene	50	51.8	104	60-119
108-88-3	Toluene	50	50.8	102	68-115
1330-20-7	Xylene (total)	150	160	107	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-121%
2037-26-5	Toluene-D8	93%	76-132%
460-00-4	4-Bromofluorobenzene	99%	73-165%
17060-07-0	1,2-Dichloroethane-D4	94%	57-122%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T39421-1MS	X0056069.D	1	10/12/09	AH	n/a	n/a	VX312
T39421-1MSD	X0056070.D	1	10/12/09	AH	n/a	n/a	VX312
T39421-1	X0056068.D	1	10/12/09	AH	n/a	n/a	VX312

The QC reported here applies to the following samples:

Method: SW846 8260B

T39625-1, T39625-2

CAS No.	Compound	T39421-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3590	2960	82	3120	87	5	70-114/38
100-41-4	Ethylbenzene	796		3590	3660	80	3780	83	3	60-119/40
108-88-3	Toluene	ND		3590	2890	80	3070	85	6	68-115/38
1330-20-7	Xylene (total)	3160		10800	12300	85	12600	88	2	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T39421-1	Limits
1868-53-7	Dibromofluoromethane	96%	97%	99%	70-121%
2037-26-5	Toluene-D8	94%	95%	92%	76-132%
460-00-4	4-Bromofluorobenzene	100%	101%	100%	73-165%
17060-07-0	1,2-Dichloroethane-D4	92%	93%	99%	57-122%



## GC/MS Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** T39625  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13235-MB	P06522.D	1	10/13/09	GJ	10/13/09	OP13235	EP319

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T39625-1, T39625-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	1.1	ug/kg	
208-96-8	Acenaphthylene	ND	6.7	2.3	ug/kg	
120-12-7	Anthracene	ND	6.7	1.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	1.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	3.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	3.5	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	6.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	4.3	ug/kg	
218-01-9	Chrysene	ND	6.7	1.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	6.4	ug/kg	
206-44-0	Fluoranthene	ND	6.7	1.5	ug/kg	
86-73-7	Fluorene	ND	6.7	2.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	5.0	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6.7	1.2	ug/kg	
91-57-6	2-Methylnaphthalene	ND	6.7	1.2	ug/kg	
91-20-3	Naphthalene	ND	6.7	1.0	ug/kg	
85-01-8	Phenanthrene	ND	6.7	0.93	ug/kg	
129-00-0	Pyrene	ND	6.7	2.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	60% 10-127%
321-60-8	2-Fluorobiphenyl	56% 11-133%
1718-51-0	Terphenyl-d14	73% 15-187%

## Blank Spike Summary

Page 1 of 1

**Job Number:** T39625

**Account:** ENCACOP ENCANA

**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13235-BS	P06523.D	1	10/13/09	GJ	10/13/09	OP13235	EP319

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T39625-1, T39625-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	167	67.8	41	18-118
208-96-8	Acenaphthylene	167	97.0	58	35-125
120-12-7	Anthracene	167	128	77	24-116
56-55-3	Benzo(a)anthracene	167	130	78	32-132
50-32-8	Benzo(a)pyrene	167	117	70	36-130
205-99-2	Benzo(b)fluoranthene	167	116	70	35-134
191-24-2	Benzo(g,h,i)perylene	167	128	77	18-149
207-08-9	Benzo(k)fluoranthene	167	137	82	30-131
218-01-9	Chrysene	167	137	82	37-124
53-70-3	Dibenzo(a,h)anthracene	167	121	73	23-150
206-44-0	Fluoranthene	167	134	80	28-118
86-73-7	Fluorene	167	132	79	32-106
193-39-5	Indeno(1,2,3-cd)pyrene	167	124	74	18-150
90-12-0	1-Methylnaphthalene	167	57.6	35	10-128
91-57-6	2-Methylnaphthalene	167	98.9	59	28-113
91-20-3	Naphthalene	167	53.8	32	31-106
85-01-8	Phenanthrene	167	127	76	37-112
129-00-0	Pyrene	167	129	77	24-132

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	59%	10-127%
321-60-8	2-Fluorobiphenyl	51%	11-133%
1718-51-0	Terphenyl-d14	74%	15-187%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T39625  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13235-MS	P06528.D	1	10/13/09	GJ	10/13/09	OP13235	EP319
OP13235-MSD	P06529.D	1	10/13/09	GJ	10/13/09	OP13235	EP319
T39625-1 <sup>a</sup>	P06527.D	1	10/13/09	GJ	10/13/09	OP13235	EP319

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T39625-1, T39625-2

CAS No.	Compound	T39625-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		193	376	195*	467	245*	22	10-153/80
208-96-8	Acenaphthylene	ND		193	167	86	162	85	3	10-144/71
120-12-7	Anthracene	5.0	J	193	160	80	154	78	4	10-176/57
56-55-3	Benzo(a)anthracene	ND		193	160	83	165	87	3	10-174/73
50-32-8	Benzo(a)pyrene	ND		193	134	69	138	72	3	10-182/74
205-99-2	Benzo(b)fluoranthene	ND		193	136	70	145	76	6	10-188/86
191-24-2	Benzo(g,h,i)perylene	ND		193	128	66	125	66	2	10-150/62
207-08-9	Benzo(k)fluoranthene	ND		193	154	80	157	82	2	10-170/94
218-01-9	Chrysene	ND		193	151	78	156	82	3	10-165/73
53-70-3	Dibenzo(a,h)anthracene	ND		193	133	69	131	69	2	10-192/74
206-44-0	Fluoranthene	2.6	J	193	173	88	179	93	3	10-141/73
86-73-7	Fluorene	49.9		193	263	110	379	173*	36	10-164/72
193-39-5	Indeno(1,2,3-cd)pyrene	ND		193	131	68	130	68	1	10-150/73
90-12-0	1-Methylnaphthalene	ND		193	24.0	12	20.1	11	18	10-154/82
91-57-6	2-Methylnaphthalene	3.9	J	193	73.0	36	80.9	40	10	10-171/75
91-20-3	Naphthalene	6.0	J	193	45.7	21	38.9	17	16	10-138/82
85-01-8	Phenanthrene	10.5		193	182	89	180	89	1	10-191/77
129-00-0	Pyrene	6.1	J	193	184	92	184	93	0	10-150/66

CAS No.	Surrogate Recoveries	MS	MSD	T39625-1	Limits
4165-60-0	Nitrobenzene-d5	61%	66%	51%	10-127%
321-60-8	2-Fluorobiphenyl	436% *	436% *	374% * <sup>b</sup>	11-133%
1718-51-0	Terphenyl-d14	96%	95%	86%	15-187%

(a) Internal standards are not within the advisory limits due to matrix interference. Confirmed by associated ms/msd samples.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis.





## GC Volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2457-MB	EE048429.D	1	10/12/09	FI	n/a	n/a	GEE2457

The QC reported here applies to the following samples: Method: SW846 8015

T39625-1, T39625-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	0.30	mg/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	111%
98-08-8	aaa-Trifluorotoluene	109%

Blank Spike/Blank Spike Duplicate Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2457-BS	EE048425.D	1	10/12/09	FI	n/a	n/a	GEE2457
GEE2457-BSD	EE048426.D	1	10/12/09	FI	n/a	n/a	GEE2457

The QC reported here applies to the following samples: Method: SW846 8015

T39625-1, T39625-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	0.4	0.379	95	0.372	93	2	78-115/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	111%	110%	46-127%
98-08-8	aaa-Trifluorotoluene	113%	111%	44-120%

7.2.1  
7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T39625-1MS	EE048442.D	1	10/12/09	FI	n/a	n/a	GEE2457
T39625-1MSD	EE048443.D	1	10/12/09	FI	n/a	n/a	GEE2457
T39625-1	EE048439.D	1	10/12/09	FI	n/a	n/a	GEE2457

The QC reported here applies to the following samples: Method: SW846 8015

T39625-1, T39625-2

CAS No.	Compound	T39625-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	6.97		24.8	33.7	108	32.7	104	3	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T39625-1	Limits
460-00-4	4-Bromofluorobenzene	123%	122%	119%	46-127%
98-08-8	aaa-Trifluorotoluene	116%	120%	107%	44-120%



## GC Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13234-MB	CC215717.D 1		10/13/09	SS	10/13/09	OP13234	GCC977

The QC reported here applies to the following samples: Method: SW846 8015 M

T39625-1, T39625-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	8.3	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	48% 33-115%

Blank Spike Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13234-BS	CC215718.D 1		10/13/09	SS	10/13/09	OP13234	GCC977

The QC reported here applies to the following samples: Method: SW846 8015 M

T39625-1, T39625-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.3	22.3	67	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	50%	33-115%

8.2.1  
8

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T39625  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13234-MS	CC215719.D	10	10/13/09	SS	10/13/09	OP13234	GCC977
OP13234-MSD	CC215724.D	10	10/13/09	SS	10/13/09	OP13234	GCC977
T39625-1	CC215721.D	10	10/13/09	SS	10/13/09	OP13234	GCC977

The QC reported here applies to the following samples: Method: SW846 8015 M

T39625-1, T39625-2

CAS No.	Compound	T39625-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	207		38.5	259	135* a	279	187* a	7	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T39625-1	Limits
84-15-1	o-Terphenyl	0% * b	0% * b	0% * b	33-115%

- (a) Outside control limits due to high level in sample relative to spike amount.  
(b) Outside control limits due to dilution.





## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10435  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 10/12/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	17		
Antimony	5.0	2.3	3		
Arsenic	5.0	1.8	2		
Barium	200	.14	2.7		
Beryllium	5.0	.11	.2		
Boron	100	1.1	2.1		
Cadmium	4.0	.25	.3		
Calcium	5000	5.4	35	1040	<5000
Chromium	10	1.1	1.9		
Cobalt	50	.5	.8		
Copper	25	.58	5.9		
Iron	100	13	13		
Lead	3.0	1.6	1.7		
Magnesium	5000	6.7	7.8	290	<5000
Manganese	15	.2	7.6		
Molybdenum	10	.96	1.3		
Nickel	40	.95	3.2		
Potassium	5000	53	53		
Selenium	5.0	3.2	3.2		
Silver	10	.85	.8		
Sodium	5000	130	130	4390	<5000
Strontium	20	.17	.4		
Thallium	10	3.2	2.6		
Tin	20	1.8	2.9		
Titanium	20	.3	.3		
Vanadium	50	.6	.6		
Zinc	20	.49	4.1		

Associated samples MP10435: T39625-1C, T39625-2C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10435  
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
 Units: ug/l

Prep Date: 10/12/09

Metal	T39188-1C Original DUP		RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	255000	254000	0.4	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium	9400	9360	0.4	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	1670000	1730000	0.0	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10435: T39625-1C, T39625-2C

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10440  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/12/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	400	33	34		
Antimony	10	4.5	6		
Arsenic	10	3.5	4		
Barium	400	.28	5.4		
Beryllium	10	.22	.4		
Boron	200	2.2	4.2	71.8	<200
Cadmium	8.0	.5	.6		
Calcium	10000	11	70		
Chromium	20	2.2	3.8		
Cobalt	100	1	1.6		
Copper	50	1.2	12		
Iron	200	26	26		
Lead	6.0	3.2	3.4		
Magnesium	10000	13	16		
Manganese	30	.4	15		
Molybdenum	20	1.9	2.6		
Nickel	80	1.9	6.4		
Potassium	10000	110	110		
Selenium	10	6.5	6.4		
Silver	20	1.7	1.6		
Sodium	10000	260	270		
Strontium	40	.34	.8		
Thallium	20	6.5	5.2		
Tin	40	3.6	5.8		
Titanium	40	.6	.6		
Vanadium	100	1.2	1.2		
Zinc	40	.98	8.2		

Associated samples MP10440: T39625-1A, T39625-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10440  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

10/12/09

10/12/09

Metal	T39625-1A			QC	T39625-1A		Spikelot		QC
	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	781	795	1.8	0-20	781	2940	1000	108.6	80-120
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10440: T39625-1A, T39625-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10440  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/12/09

Metal	T39625-1A Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	781	2740	1000	99.6	7.0	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10440: T39625-1A, T39625-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 6010B  
Units: ug/l

Metal	LCS Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	2280	1000	114.1	80-120
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10440  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 10/12/09

Metal	T39625-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	398	385	3.3	0-10
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10440: T39625-1A, T39625-2A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

9.2.4  
 9



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10441  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/12/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1		
Barium	10	.007	.03	0.088	<10
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05		
Calcium	250	.27	.86		
Chromium	0.50	.055	.035		
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065		
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2		
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065		
Potassium	250	2.7	16		
Selenium	0.50	.16	.12		
Silver	0.50	.043	.04		
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2		

Associated samples MP10441: T39625-1B, T39625-2B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10441  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

10/12/09

10/12/09

Metal	T39626-1B Original DUP		RPD	QC Limits	T39626-1B Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	2720	2550	6.5	0-20	2720	2700	23.2	-86.3(a)	80-120
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10441: T39625-1B, T39625-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10441  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/12/09

Metal	T39626-1B Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	2720	2430	23.3	-1246.9a	10.5	20
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10441: T39625-1B, T39625-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 6010B  
Units: mg/kg

Metal	LCS Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10441  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 10/12/09

Metal	T39626-1B			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic					
Barium	47600	51000	7.1	0-10	
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP10441: T39625-1B, T39625-2B

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10442  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/12/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	-0.050	<0.50
Barium	10	.007	.03		
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05	0.00050	<0.25
Calcium	250	.27	.86		
Chromium	0.50	.055	.035	0.0010	<0.50
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065	0.0010	<1.3
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2	0.075	<0.50
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065	-0.026	<2.0
Potassium	250	2.7	16		
Selenium	0.50	.16	.12	-0.011	<0.50
Silver	0.50	.043	.04	-0.012	<0.50
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2	0.0060	<1.0

Associated samples MP10442: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10442  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

10/12/09

10/12/09

	T38497-1			QC	T38497-1		Spikelot		QC
Metal	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic	20.5	19.9	3.0	0-20	20.5	38.2	25.7	68.8N	80-120
Barium	anr								
Beryllium									
Boron									
Cadmium	0.0	0.0 (a)	NC	0-20	0.0	20.3	25.7	78.9N	80-120
Calcium									
Chromium	11.1	12.2	9.4	0-20	11.1	33.2	25.7	85.8	80-120
Cobalt									
Copper	73.5	73.8	0.4	0-20	73.5	101	25.7	106.8	80-120
Iron									
Lead	19.1	14.0	30.8* (a)	0-20	19.1	45.8	25.7	103.7	80-120
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	7.4	8.4	12.7	0-20	7.4	28.9	25.7	83.5	80-120
Potassium	anr								
Selenium	0.0	0.0	NC	0-20	0.0	20.2	25.7	78.5N	80-120
Silver	0.67	0.86	24.8 (b)	0-20	0.67	22.6	25.7	85.2	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	283	286	1.1	0-20	283	316	25.7	128.2 (c)	80-120

Associated samples MP10442: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible sample nonhomogeneity.

(b) RPD acceptable due to low duplicate and sample concentrations.

(c) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10442  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/12/09

Metal	T38497-1 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	20.5	32.8	24.5	50.1N	15.2	20
Barium	anr					
Beryllium						
Boron						
Cadmium	0.0	18.7	24.5	76.2N	8.2	20
Calcium						
Chromium	11.1	31.7	24.5	84.0	4.6	20
Cobalt						
Copper	73.5	91.5	24.5	73.4N	9.9	20
Iron						
Lead	19.1	34.6	24.5	63.2N	27.9 (a)	20
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	7.4	26.0	24.5	75.8N	10.6	20
Potassium	anr					
Selenium	0.0	18.5	24.5	75.4N	8.8	20
Silver	0.67	20.8	24.5	82.1	8.3	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	283	381	24.5	399.5(b)	18.7	20

Associated samples MP10442: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible matrix interference.

(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10442  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: mg/kg

Prep Date: 10/12/09

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	138	158	87.3	82-118
Barium	anr			
Beryllium				
Boron				
Cadmium	154	187	82.4	82-118
Calcium				
Chromium	77.8	89.5	86.9	79-121
Cobalt				
Copper	120	129	93.0	84-117
Iron				
Lead	147	172	85.5	79-120
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	85.8	99	86.7	81-119
Potassium	anr			
Selenium	125	148	84.5	78-121
Silver	57.1	66	86.5	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	334	394	84.8	80-119

Associated samples MP10442: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested

# SERIAL DILUTION RESULTS SUMMARY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10442  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/12/09

Metal	T38497-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	308	358	16.3*(a)	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	167	191	14.0*(a)	0-10
Cobalt				
Copper	1110	1190	7.3	0-10
Iron				
Lead	288	348	20.8*(a)	0-10
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	111	128	15.7*(a)	0-10
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silver	10.1	9.78	3.2	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	4260	5280	23.9*(a)	0-10

Associated samples MP10442: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested  
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10443  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 10/12/09

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.017	.0041	.00066	-0.0048	<0.017

Associated samples MP10443: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10443  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date:

10/12/09

10/12/09

Metal	T38729-1		QC	Limits	T38729-1		Spikelot	% Rec	QC
	Original	DUP			Original	MS			
Mercury	0.049	0.049	0.0	0-20	0.049	0.35	0.26	115.9	75-125

Associated samples MP10443: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T39625  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10443  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 10/12/09

Metal	T38729-1 Original	MSD	Spikelot HGTXWS1	% Rec	MSD RPD	QC Limit
-------	----------------------	-----	---------------------	-------	------------	-------------

Mercury	0.049	0.35	0.29	103.9	0.0	
---------	-------	------	------	-------	-----	--

Associated samples MP10443: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 10/12/09

Metal	LCS Result	Spikelot HGLCD054 % Rec	QC Limits
Mercury	7.1	7.34	96.7 72-128

Associated samples MP10443: T39625-1, T39625-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



## General Chemistry

### QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN18307	2.0	<2.0	mg/kg	40	39.7	99.8	80-120%
Specific Conductivity	GN18318	1.0	<1.0	umhos/cm				

Associated Samples:  
Batch GN18307: T39625-1, T39625-2  
Batch GN18318: T39625-1, T39625-2  
(\*) Outside of QC limits



DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN18307	T39188-1	mg/kg	1.1	<2.0	0.9	0-20%
Solids, Percent	GN18305	T39504-1	%	69	71.4	3.4	0-5%
Specific Conductivity	GN18318	T39188-1	umhos/cm	1950	1950	0.0	0-20%
pH	GN18313	T39626-1	su	8.7	8.7	0.0	0-20%

Associated Samples:

Batch GN18305: T39625-1, T39625-2

Batch GN18307: T39625-1, T39625-2

Batch GN18313: T39625-1, T39625-2

Batch GN18318: T39625-1, T39625-2

Batch MP10435: T39625-1C

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T39625  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN18307	T39188-1	mg/kg	1.1	40	35.7	86.6	75-125%

Associated Samples:

Batch GN18307: T39625-1, T39625-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



11/24/09

## Technical Report for

ENCANA

EnCana Oil & Gas (USA) Inc.

PH16 Pit Clearance

Accutest Job Number: T42172

Sampling Date: 11/12/09

Report to:

EnCana  
2717 Co. Rd. 215  
Parachute, CO 81635  
brett.middleton@encana.com; christopher.hines@encana.com  
  
ATTN: Chris Hines

Total number of pages in report: **75**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

*Paul K Canevaro*

Paul Canevaro  
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004)  
OK (9103) UT(7132714700)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Sample Results .....</b>	<b>7</b>
<b>3.1:</b> T42172-1: PH16-PIT-111209 .....	8
<b>3.2:</b> T42172-1A: PH16-PIT-111209 .....	14
<b>3.3:</b> T42172-1B: PH16-PIT-111209 .....	15
<b>3.4:</b> T42172-1C: PH16-PIT-111209 .....	16
<b>3.5:</b> T42172-2: PH16-PIT SPOIL-111209 .....	18
<b>3.6:</b> T42172-2A: PH16-PIT SPOIL-111209 .....	24
<b>3.7:</b> T42172-2B: PH16-PIT SPOIL-111209 .....	25
<b>3.8:</b> T42172-2C: PH16-PIT SPOIL-111209 .....	26
<b>Section 4: Misc. Forms .....</b>	<b>28</b>
<b>4.1:</b> Chain of Custody .....	29
<b>Section 5: GC/MS Volatiles - QC Data Summaries .....</b>	<b>33</b>
<b>5.1:</b> Method Blank Summary .....	34
<b>5.2:</b> Blank Spike Summary .....	35
<b>5.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	36
<b>Section 6: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>37</b>
<b>6.1:</b> Method Blank Summary .....	38
<b>6.2:</b> Blank Spike Summary .....	39
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	40
<b>Section 7: GC Volatiles - QC Data Summaries .....</b>	<b>41</b>
<b>7.1:</b> Method Blank Summary .....	42
<b>7.2:</b> Blank Spike Summary .....	43
<b>7.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	44
<b>Section 8: GC Semi-volatiles - QC Data Summaries .....</b>	<b>45</b>
<b>8.1:</b> Method Blank Summary .....	46
<b>8.2:</b> Blank Spike Summary .....	47
<b>8.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	48
<b>Section 9: Metals Analysis - QC Data Summaries .....</b>	<b>49</b>
<b>9.1:</b> Prep QC MP10652: As,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn .....	50
<b>9.2:</b> Prep QC MP10668: Hg .....	55
<b>9.3:</b> Prep QC MP10701: B .....	59
<b>9.4:</b> Prep QC MP10704: Ca,Mg,Na,Sodium Adsorption Ratio .....	64
<b>9.5:</b> Prep QC MP10705: Ba .....	67
<b>Section 10: General Chemistry - QC Data Summaries .....</b>	<b>72</b>
<b>10.1:</b> Method Blank and Spike Results Summary .....	73
<b>10.2:</b> Duplicate Results Summary .....	74
<b>10.3:</b> Matrix Spike Results Summary .....	75



Sample Summary

ENCANA

Job No: T42172

EnCana Oil & Gas (USA) Inc.  
Project No: PH16 Pit Clearance

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T42172-1	11/12/09	08:35 BK	11/13/09	SO	Soil	PH16-PIT-111209
T42172-1A	11/12/09	08:35 BK	11/13/09	SO	Soil	PH16-PIT-111209
T42172-1B	11/12/09	08:35 BK	11/13/09	SO	Soil	PH16-PIT-111209
T42172-1C	11/12/09	08:35 BK	11/13/09	SO	Soil	PH16-PIT-111209
T42172-2	11/12/09	08:50 BK	11/13/09	SO	Soil	PH16-PIT SPOIL-111209
T42172-2A	11/12/09	08:50 BK	11/13/09	SO	Soil	PH16-PIT SPOIL-111209
T42172-2B	11/12/09	08:50 BK	11/13/09	SO	Soil	PH16-PIT SPOIL-111209
T42172-2C	11/12/09	08:50 BK	11/13/09	SO	Soil	PH16-PIT SPOIL-111209

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** ENCANA

**Job No** T42172

**Site:** EnCana Oil & Gas (USA) Inc.

**Report Date** 11/23/2009 4:40:50 PM

2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/12/2009 and were received at Accutest on 11/13/2009 properly preserved, at 1 Deg. C and intact. These Samples received an Accutest job number of T42172. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

<b>Matrix</b> SO	<b>Batch ID:</b> VZ2666
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) T42139-1MS, T42139-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Xylene (total) are outside control limits. Probable cause due to matrix interference.
- Sample(s) T42139-1MS, T42139-1MSD have surrogates outside control limits. Probable cause due to matrix interference.

### Extractables by GCMS By Method SW846 8270C BY SIM

<b>Matrix</b> SO	<b>Batch ID:</b> OP13478
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42172-1MS, T42172-1MSD were used as the QC samples indicated.
- T42172-2: Internal standards are not within the advisory limits due to a matrix interference. Confirmed by reanalysis.

### Volatiles by GC By Method SW846 8015

<b>Matrix</b> SO	<b>Batch ID:</b> GEE2504
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42176-18MS, T42176-18MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846 8015 M

<b>Matrix</b> SO	<b>Batch ID:</b> OP13476
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) T42176-39MS, T42176-39MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

## Metals By Method SW846 6010B

**Matrix** AQ

**Batch ID:** MP10701

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42139-2ADUP, T42139-2AMS, T42139-2AMSD, T42139-2ASDL were used as the QC samples for metals.

**Matrix** AQ

**Batch ID:** MP10704

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42139-1CDUP, T42139-1CSDL were used as the QC samples for metals.

**Matrix** SO

**Batch ID:** MP10652

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T41328-1RDUP, T41328-1RMS, T41328-1RMSD, T41328-1RSDL, T41328-1RDUP were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Chromium, Nickel are outside control limits. Probable cause due to matrix interference.
- RPD(s) for Duplicate for Chromium are outside control limits for sample MP10652-D1. High RPD due to possible sample nonhomogeneity.
- RPD(s) for Serial Dilution for Cadmium, Selenium, Silver, Arsenic, Chromium, Lead, Nickel, Zinc are outside control limits for sample MP10652-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

**Matrix** SO

**Batch ID:** MP10705

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42172-1BDUP, T42172-1BMSD, T42172-1BSDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- RPD(s) for Serial Dilution for Barium are outside control limits for sample MP10705-SD1. Probable cause due to sample homogeneity.

## Metals By Method SW846 7471A

**Matrix** SO

**Batch ID:** MP10668

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T37853-1MS, T37853-1MSD, T37853-1DUP were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Mercury are outside control limits. Probable cause due to matrix interference.
- RPD(s) for Duplicate for Mercury are outside control limits for sample MP10668-D1. High RPD due to possible sample nonhomogeneity.

### Wet Chemistry By Method EPA 120.1

<b>Matrix</b> AQ	<b>Batch ID:</b> GN18938
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42039-1DUP were used as the QC samples for Specific Conductivity.

### Wet Chemistry By Method LADNR29B

<b>Matrix</b> SO	<b>Batch ID:</b> MP10704
------------------	--------------------------

- T42172-1C for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$
- T42172-2C for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

### Wet Chemistry By Method SM 2540 G

<b>Matrix</b> SO	<b>Batch ID:</b> GN18730
------------------	--------------------------

- Sample(s) T42037-1DUP were used as the QC samples for Solids, Percent.

<b>Matrix</b> SO	<b>Batch ID:</b> GN18742
------------------	--------------------------

- Sample(s) T42172-2DUP were used as the QC samples for Solids, Percent.

### Wet Chemistry By Method SW846 3060/7196A

<b>Matrix</b> SO	<b>Batch ID:</b> GN18901
------------------	--------------------------

- All method blanks for this batch meet method specific criteria.
- Sample(s) T42139-1DUP, T42139-1MS were used as the QC samples for Chromium, Hexavalent.

### Wet Chemistry By Method SW846 6010/7196A M

<b>Matrix</b> SO	<b>Batch ID:</b> R19716
------------------	-------------------------

- T42172-1 for Chromium, Trivalent: Calculated as:  $(\text{Chromium}) - (\text{Chromium, Hexavalent})$

<b>Matrix</b> SO	<b>Batch ID:</b> R19717
------------------	-------------------------

- T42172-2 for Chromium, Trivalent: Calculated as:  $(\text{Chromium}) - (\text{Chromium, Hexavalent})$

### Wet Chemistry By Method SW846 9045C

<b>Matrix</b> SO	<b>Batch ID:</b> GN18836
------------------	--------------------------

- Sample(s) T41578-2RDUP were used as the QC samples for pH.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used





## Sample Results

## Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209		
<b>Lab Sample ID:</b>	T42172-1	<b>Date Sampled:</b>	11/12/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	11/13/09
<b>Method:</b>	SW846 8260B	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z0053747.D	1	11/17/09	JL	n/a	n/a	VZ2666
Run #2							

	Initial Weight	Final Volume
Run #1	5.10 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.6	0.78	ug/kg	
108-88-3	Toluene	ND	5.6	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	5.6	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	17	2.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		70-121%
2037-26-5	Toluene-D8	127%		76-132%
460-00-4	4-Bromofluorobenzene	101%		73-165%
17060-07-0	1,2-Dichloroethane-D4	108%		57-122%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209		
<b>Lab Sample ID:</b>	T42172-1	<b>Date Sampled:</b>	11/12/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	11/13/09
<b>Method:</b>	SW846 8270C BY SIM SW846 3550B	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H36044.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	7.5	1.3	ug/kg	
208-96-8	Acenaphthylene	ND	7.5	2.6	ug/kg	
120-12-7	Anthracene	ND	7.5	1.4	ug/kg	
56-55-3	Benzo(a)anthracene	ND	7.5	1.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	7.5	4.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	7.5	4.0	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	7.5	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	7.5	4.9	ug/kg	
218-01-9	Chrysene	3.1	7.5	1.8	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	7.5	7.2	ug/kg	
206-44-0	Fluoranthene	ND	7.5	1.6	ug/kg	
86-73-7	Fluorene	ND	7.5	2.6	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	7.5	5.6	ug/kg	
90-12-0	1-Methylnaphthalene	4.6	7.5	1.4	ug/kg	J
91-57-6	2-Methylnaphthalene	13.2	7.5	1.3	ug/kg	
91-20-3	Naphthalene	ND	7.5	1.1	ug/kg	
85-01-8	Phenanthrene	7.3	7.5	1.0	ug/kg	J
129-00-0	Pyrene	ND	7.5	2.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	103%		10-127%
321-60-8	2-Fluorobiphenyl	48%		11-133%
1718-51-0	Terphenyl-d14	108%		15-187%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-1	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.9
<b>Method:</b>	SW846 8015		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE049503.D	1	11/15/09	FI	n/a	n/a	GEE2504
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	6.3	0.38	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		46-127%
98-08-8	aaa-Trifluorotoluene	109%		44-120%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209		
<b>Lab Sample ID:</b>	T42172-1	<b>Date Sampled:</b>	11/12/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	11/13/09
<b>Method:</b>	SW846 8015 M SW846 3550B	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC216548.D	1	11/18/09	SS	11/14/09	OP13476	GCC1007
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	102	9.5	3.1	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	75%		33-115%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** PH16-PIT-111209  
**Lab Sample ID:** T42172-1  
**Matrix:** SO - Soil  
**Project:** EnCana Oil & Gas (USA) Inc.

**Date Sampled:** 11/12/09  
**Date Received:** 11/13/09  
**Percent Solids:** 87.9

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.9	0.59	0.12	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.56	0.29	0.059	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	21.6	0.59	0.041	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	24.9	1.5	0.076	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	7.9	0.59	0.23	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.057	0.018	0.00072	mg/kg	1	11/17/09	11/17/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	40.7	2.3	0.076	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.29 B	0.59	0.14	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.29 B	0.59	0.047	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	49.2	1.2	0.23	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4399

(2) Instrument QC Batch: MA4401

(3) Prep QC Batch: MP10652

(4) Prep QC Batch: MP10668

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-1	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.0 B	2.0	mg/kg	1	11/20/09 09:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	20.6	2.6	mg/kg	1	11/20/09 09:00	KD	SW846 6010/7196A M
Solids, Percent	87.9		%	1	11/13/09	AA	SM 2540 G
Specific Conductivity	2060	1.0	umhos/cm	1	11/20/09 15:00	KD	EPA 120.1
pH	8.7		su	1	11/17/09 12:30	EV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-1A	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	1.25	0.19	0.0041	mg/l	1	11/21/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10701

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL



Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-1B	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Total True Barium Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	502	11	0.033	mg/kg	1	11/22/09	11/23/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10705

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-1C	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	159	25	0.18	mg/l	5	11/22/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	37.4	25	0.039	mg/l	5	11/22/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	1650	50	1.3	mg/l	10	11/22/09	11/23/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10704

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT-111209	
<b>Lab Sample ID:</b>	T42172-1C	<b>Date Sampled:</b> 11/12/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 11/13/09
		<b>Percent Solids:</b> 87.9
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	30.6		ratio	1	11/23/09 00:26	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

## Report of Analysis

**Client Sample ID:** PH16-PIT SPOIL-111209  
**Lab Sample ID:** T42172-2  
**Matrix:** SO - Soil  
**Method:** SW846 8260B  
**Project:** EnCana Oil & Gas (USA) Inc.

**Date Sampled:** 11/12/09  
**Date Received:** 11/13/09  
**Percent Solids:** 87.6

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z0053748.D	1	11/17/09	JL	n/a	n/a	VZ2666
Run #2							

	Initial Weight	Final Volume
Run #1	5.24 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.4	0.76	ug/kg	
108-88-3	Toluene	ND	5.4	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.4	0.98	ug/kg	
1330-20-7	Xylene (total)	ND	16	2.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%		70-121%
2037-26-5	Toluene-D8	130%		76-132%
460-00-4	4-Bromofluorobenzene	123%		73-165%
17060-07-0	1,2-Dichloroethane-D4	111%		57-122%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Method:</b>	SW846 8270C BY SIM SW846 3550B		
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	H36047.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938
Run #2 <sup>a</sup>	H36100.D	1	11/18/09	SC	11/14/09	OP13478	EH1940

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2	30.2 g	1.0 ml

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	7.5	1.3	ug/kg	
208-96-8	Acenaphthylene	ND	7.5	2.6	ug/kg	
120-12-7	Anthracene	2.8	7.5	1.4	ug/kg	J
56-55-3	Benzo(a)anthracene	4.6	7.5	1.2	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	7.5	4.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	7.5	4.0	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	7.5	7.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	7.5	4.9	ug/kg	
218-01-9	Chrysene	6.2	7.5	1.9	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	7.5	7.3	ug/kg	
206-44-0	Fluoranthene	3.3	7.5	1.7	ug/kg	J
86-73-7	Fluorene	ND	7.5	2.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	7.5	5.7	ug/kg	
90-12-0	1-Methylnaphthalene	45.4	7.5	1.4	ug/kg	
91-57-6	2-Methylnaphthalene	84.3	7.5	1.3	ug/kg	
91-20-3	Naphthalene	11.4	7.5	1.2	ug/kg	
85-01-8	Phenanthrene	33.5	7.5	1.1	ug/kg	
129-00-0	Pyrene	10.8	7.5	2.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	85%	94%	10-127%
321-60-8	2-Fluorobiphenyl	38%	60%	11-133%
1718-51-0	Terphenyl-d14	159%	148%	15-187%

(a) Internal standards are not within the advisory limits due to a matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** PH16-PIT SPOIL-111209  
**Lab Sample ID:** T42172-2  
**Matrix:** SO - Soil  
**Method:** SW846 8015  
**Project:** EnCana Oil & Gas (USA) Inc.

**Date Sampled:** 11/12/09  
**Date Received:** 11/13/09  
**Percent Solids:** 87.6

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE049504.D	1	11/15/09	FI	n/a	n/a	GEE2504
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.16 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	6.37	6.2	0.37	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	109%		46-127%
98-08-8	aaa-Trifluorotoluene	108%		44-120%

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** PH16-PIT SPOIL-111209  
**Lab Sample ID:** T42172-2  
**Matrix:** SO - Soil  
**Method:** SW846 8015 M SW846 3550B  
**Project:** EnCana Oil & Gas (USA) Inc.

**Date Sampled:** 11/12/09  
**Date Received:** 11/13/09  
**Percent Solids:** 87.6

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC216549.D	5	11/18/09	SS	11/14/09	OP13476	GCC1007
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	538	48	16	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	65%		33-115%		

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: PH16-PIT SPOIL-111209

Lab Sample ID: T42172-2

Date Sampled: 11/12/09

Matrix: SO - Soil

Date Received: 11/13/09

Percent Solids: 87.6

Project: EnCana Oil &amp; Gas (USA) Inc.

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.2	0.58	0.12	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.56	0.29	0.058	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	21.8	0.58	0.040	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	23.3	1.4	0.075	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	8.6	0.58	0.23	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.10	0.018	0.00071	mg/kg	1	11/17/09	11/17/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	37.5	2.3	0.075	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.31 B	0.58	0.14	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.28 B	0.58	0.046	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	50.5	1.2	0.23	mg/kg	1	11/14/09	11/19/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4399

(2) Instrument QC Batch: MA4401

(3) Prep QC Batch: MP10652

(4) Prep QC Batch: MP10668

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result &lt; MDL

B = Indicates a result &gt; = MDL but &lt; RL



Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3 B	2.0	mg/kg	1	11/20/09 09:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	20.5	2.6	mg/kg	1	11/20/09 09:00	KD	SW846 6010/7196A M
Solids, Percent	87.6		%	1	11/14/09	AA	SM 2540 G
Specific Conductivity	1220	1.0	umhos/cm	1	11/20/09 15:00	KD	EPA 120.1
pH	8.9		su	1	11/17/09 12:30	EV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2A	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	1.15	0.20	0.0042	mg/l	1	11/21/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10701

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2B	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Total True Barium Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	658	11	0.033	mg/kg	1	11/22/09	11/23/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10705

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2C	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	127	25	0.18	mg/l	5	11/22/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Magnesium	28.7	25	0.039	mg/l	5	11/22/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>
Sodium	976	25	0.67	mg/l	5	11/22/09	11/22/09 NS	SW846 6010B <sup>1</sup>	LADNR 29B <sup>2</sup>

(1) Instrument QC Batch: MA4409  
(2) Prep QC Batch: MP10704

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	PH16-PIT SPOIL-111209	<b>Date Sampled:</b>	11/12/09
<b>Lab Sample ID:</b>	T42172-2C	<b>Date Received:</b>	11/13/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	20.3		ratio	1	11/22/09 23:27	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit



## Misc. Forms

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

## CHAIN OF CUSTODY

[illegible]

## T42172: Chain of Custody

Page 1 of 4

**Table 1:**  
Contaminants of Concern: Allowable Concentrations and Sampling Methods (COGCC Table 910-1)

CONTAMINANT OF CONCERN	CONCENTRATIONS <sup>1</sup>	ANALYTICAL METHOD (SW846)
<i>Organic Compounds in Soil</i>		
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg	
Benzene	0.17 mg/kg <sup>2</sup>	8015
Toluene	85 mg/kg <sup>2</sup>	8260B
Ethylbenzene	100 mg/kg <sup>2</sup>	8260B
Xylenes (total)	175 mg/kg <sup>2</sup>	8260B
Acenaphthene	1,000 mg/kg <sup>2</sup>	8270C
Anthracene	1,000 mg/kg <sup>2</sup>	8270C
Benzo(A)anthracene	0.22 mg/kg <sup>2</sup>	8270C
Benzo(B)fluoranthene	0.22 mg/kg <sup>2</sup>	8270C
Benzo(K)fluoranthene	2.2 mg/kg <sup>2</sup>	8270C
Benzo(A)pyrene	0.022 mg/kg <sup>2</sup>	8270C
Chrysene	22 mg/kg <sup>2</sup>	8270C
Dibenz(A,H)anthracene	0.022 mg/kg <sup>2</sup>	8270C
Fluoranthene	1,000 mg/kg <sup>2</sup>	8270C
Fluorene	1,000 mg/kg <sup>2</sup>	8270C
Indeno(1,2,3-C,D)pyrene	0.22 mg/kg <sup>2</sup>	8270C
Naphthalene	23 mg/kg <sup>2</sup>	8270C
Pyrene	1,000 mg/kg <sup>2</sup>	8270C
<i>Inorganics in Soils</i>		
Electrical Conductivity (EC)	<4 mmhos/cm or 2x background	9050
Sodium Adsorption Ratio (SAR)	<12 <sup>3</sup>	LADNR28B
pH	6-9	9045C
<i>Metals in Soils</i>		
Arsenic	0.35 mg/kg <sup>2</sup>	6010B
Barium (LDNR True Total Barium)	15,000 mg/kg <sup>2</sup>	6010B
Boron (Hot Water Soluble)	2 mg/l <sup>3</sup>	6010B
Cadmium	70 mg/kg <sup>2,3</sup>	6010B
Chromium (III)	120,000 mg/kg <sup>2</sup>	6010B
Chromium (VI)	23 mg/kg <sup>2,3</sup>	6010B
Copper	3,100 mg/kg <sup>2</sup>	6010B
Lead (inorganic)	400 mg/kg <sup>2</sup>	6010B
Mercury	23 mg/kg <sup>2</sup>	6010B
Nickel (soluble salts)	1,600 mg/kg <sup>2,3</sup>	6010B
Selenium	390 mg/kg <sup>2,3</sup>	6010B
Silver	390 mg/kg <sup>2</sup>	6010B
Zinc	23,000 mg/kg <sup>2,3</sup>	6010B
<i>Liquid Hydrocarbons in Soils and Ground Water</i>		
Liquid hydrocarbons including condensate and oil	Below detection level	Visual

COGCC recommends that the latest version of EPA SW 846 analytical methods be used where possible and that analyses of samples be performed by laboratories that maintain state or national accreditation programs.

<sup>1</sup> COGCC allowable concentrations based on Table 910-1. Consideration shall be given to background levels in native soils.



# SAMPLE INSPECTION FORM

Accutest Job Number: T42172 Client: Encore Oil & Gas Date/Time Received: 11/13/05 0915  
# of Coolers Received: 1 Thermometer #: 1P-1 Temperature Adjustment Factor: +0.4  
Cooler Temps: #1: 1.0 #2:          #3:          #4:          #5:          #6:          #7:          #8:           
Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other  
Airbill Numbers:                                 

## COOLER INFORMATION

- ☐ Custody seal missing or not intact  
☐ Temperature criteria not met  
☐ Wet ice received in cooler

## CHAIN OF CUSTODY

- ☐ Chain of Custody not received  
☐ Sample D/T unclear or missing  
☐ Analyses unclear or missing  
☐ COC not properly executed

## SAMPLE INFORMATION

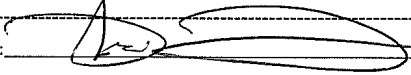
- ☐ Sample containers received broken  
☐ VOC vials have headspace  
☐ Sample labels missing or illegible  
☐ ID on COC does not match label(s)  
☐ D/T on COC does not match label(s)  
☐ Sample/Bottles rcvd but no analysis on COC  
☐ Sample listed on COC, but not received  
☐ Bottles missing for requested analysis  
☐ Insufficient volume for analysis  
☐ Sample received improperly preserved

## TRIP BLANK INFORMATION

- ☐ Trip Blank on COC but not received  
☐ Trip Blank received but not on COC  
☐ Trip Blank not intact  
☐ Received Water Trip Blank  
☐ Received Soil TB

Number of Encores?                       
Number of 5035 kits?                       
Number of lab-filtered metals?                     

Summary of Discrepancies:

TECHNICIAN SIGNATURE/DATE:  11/13/05

INFORMATION AND SAMPLE LABELING VERIFIED BY: GC 11-13-05

## CORRECTIVE ACTIONS

Client Representative Notified:                                                          Date:                     

By Accutest Representative:                                                          Via: Phone Email

Client Instructions:                                                                                 

i:\mwalker\form\samplemanagement

T42172: Chain of Custody

Page 3 of 4





## GC/MS Volatiles

5

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ2666-MB	Z0053730.D	1	11/16/09	JL	n/a	n/a	VZ2666

The QC reported here applies to the following samples:

Method: SW846 8260B

T42172-1, T42172-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.0	0.70	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.90	ug/kg	
108-88-3	Toluene	ND	5.0	0.95	ug/kg	
1330-20-7	Xylene (total)	ND	15	2.1	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	111% 70-121%
2037-26-5	Toluene-D8	125% 76-132%
460-00-4	4-Bromofluorobenzene	97% 73-165%
17060-07-0	1,2-Dichloroethane-D4	112% 57-122%

## Blank Spike Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ2666-BS	Z0053728.D	1	11/16/09	JL	n/a	n/a	VZ2666

The QC reported here applies to the following samples:

Method: SW846 8260B

T42172-1, T42172-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	50.5	101	70-114
100-41-4	Ethylbenzene	50	46.5	93	60-119
108-88-3	Toluene	50	47.7	95	68-115
1330-20-7	Xylene (total)	150	142	95	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	111%	70-121%
2037-26-5	Toluene-D8	120%	76-132%
460-00-4	4-Bromofluorobenzene	100%	73-165%
17060-07-0	1,2-Dichloroethane-D4	103%	57-122%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T42139-1MS	Z0053740.D	1	11/17/09	JL	n/a	n/a	VZ2666
T42139-1MSD	Z0053741.D	1	11/17/09	JL	n/a	n/a	VZ2666
T42139-1	Z0053739.D	1	11/17/09	JL	n/a	n/a	VZ2666

The QC reported here applies to the following samples:

Method: SW846 8260B

T42172-1, T42172-2

CAS No.	Compound	T42139-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		52.4	45.3	87	44.5	93	2	70-114/38
100-41-4	Ethylbenzene	ND		52.4	35.6	68	36.2	76	2	60-119/40
108-88-3	Toluene	ND		52.4	47.4	91	47.6	100	0	68-115/38
1330-20-7	Xylene (total)	ND		157	95.0	60*	97.6	68	3	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T42139-1	Limits
1868-53-7	Dibromofluoromethane	111%	109%	113%	70-121%
2037-26-5	Toluene-D8	133% * a	136% * a	139% * a	76-132%
460-00-4	4-Bromofluorobenzene	139%	144%	135%	73-165%
17060-07-0	1,2-Dichloroethane-D4	106%	103%	114%	57-122%

(a) Outside control limits due to matrix interference. Confirmed by MS/MSD.



## GC/MS Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13478-MB	H36041.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T42172-1, T42172-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.20	0.034	ug/kg	
208-96-8	Acenaphthylene	ND	0.20	0.070	ug/kg	
120-12-7	Anthracene	ND	0.20	0.038	ug/kg	
56-55-3	Benzo(a)anthracene	ND	0.20	0.032	ug/kg	
50-32-8	Benzo(a)pyrene	ND	0.20	0.11	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.11	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	0.20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.20	0.13	ug/kg	
218-01-9	Chrysene	ND	0.20	0.049	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	0.19	ug/kg	
206-44-0	Fluoranthene	ND	0.20	0.044	ug/kg	
86-73-7	Fluorene	ND	0.20	0.071	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	0.15	ug/kg	
90-12-0	1-Methylnaphthalene	ND	0.20	0.037	ug/kg	
91-57-6	2-Methylnaphthalene	ND	0.20	0.035	ug/kg	
91-20-3	Naphthalene	ND	0.20	0.031	ug/kg	
85-01-8	Phenanthrene	ND	0.20	0.028	ug/kg	
129-00-0	Pyrene	ND	0.20	0.068	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	106% 10-127%
321-60-8	2-Fluorobiphenyl	67% 11-133%
1718-51-0	Terphenyl-d14	86% 15-187%



## Blank Spike Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13478-BS	H36042.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T42172-1, T42172-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	5	4.3	86	18-118
208-96-8	Acenaphthylene	5	4.6	92	35-125
120-12-7	Anthracene	5	5.1	102	24-116
56-55-3	Benzo(a)anthracene	5	4.9	98	32-132
50-32-8	Benzo(a)pyrene	5	4.3	86	36-130
205-99-2	Benzo(b)fluoranthene	5	4.7	94	35-134
191-24-2	Benzo(g,h,i)perylene	5	4.3	86	18-149
207-08-9	Benzo(k)fluoranthene	5	4.7	94	30-131
218-01-9	Chrysene	5	4.9	98	37-124
53-70-3	Dibenzo(a,h)anthracene	5	5.0	100	23-150
206-44-0	Fluoranthene	5	4.8	96	28-118
86-73-7	Fluorene	5	4.9	98	32-106
193-39-5	Indeno(1,2,3-cd)pyrene	5	5.1	102	18-150
90-12-0	1-Methylnaphthalene	5	5.3	106	10-128
91-57-6	2-Methylnaphthalene	5	2.4	48	28-113
91-20-3	Naphthalene	5	3.3	66	31-106
85-01-8	Phenanthrene	5	4.4	88	37-112
129-00-0	Pyrene	5	4.4	88	24-132

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	75%	10-127%
321-60-8	2-Fluorobiphenyl	98%	11-133%
1718-51-0	Terphenyl-d14	104%	15-187%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T42172  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13478-MS	H36045.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938
OP13478-MSD	H36046.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938
T42172-1	H36044.D	1	11/16/09	GJ	11/14/09	OP13478	EH1938

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T42172-1, T42172-2

CAS No.	Compound	T42172-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		188	128	68	137	73	7	10-153/80
208-96-8	Acenaphthylene	ND		188	110	58	125	66	13	10-144/71
120-12-7	Anthracene	ND		188	218	116	201	107	8	10-176/57
56-55-3	Benzo(a)anthracene	ND		188	155	82	157	83	1	10-174/73
50-32-8	Benzo(a)pyrene	ND		188	157	83	156	83	1	10-182/74
205-99-2	Benzo(b)fluoranthene	ND		188	213	113	221	117	4	10-188/86
191-24-2	Benzo(g,h,i)perylene	ND		188	71.7	38	74.6	40	4	10-150/62
207-08-9	Benzo(k)fluoranthene	ND		188	232	123	218	116	6	10-170/94
218-01-9	Chrysene	3.1	J	188	158	82	156	81	1	10-165/73
53-70-3	Dibenzo(a,h)anthracene	ND		188	84.4	45	87.3	46	3	10-192/74
206-44-0	Fluoranthene	ND		188	179	95	178	94	1	10-141/73
86-73-7	Fluorene	ND		188	121	64	173	92	35	10-164/72
193-39-5	Indeno(1,2,3-cd)pyrene	ND		188	87.2	46	91.1	48	4	10-150/73
90-12-0	1-Methylnaphthalene	4.6	J	188	183	95	207	107	12	10-154/82
91-57-6	2-Methylnaphthalene	13.2		188	93.7	43	93.0	42	1	10-171/75
91-20-3	Naphthalene	ND		188	121	64	108	57	11	10-138/82
85-01-8	Phenanthrene	7.3	J	188	164	83	163	83	1	10-191/77
129-00-0	Pyrene	ND		188	167	89	156	83	7	10-150/66

CAS No.	Surrogate Recoveries	MS	MSD	T42172-1	Limits
4165-60-0	Nitrobenzene-d5	86%	80%	103%	10-127%
321-60-8	2-Fluorobiphenyl	42%	42%	48%	11-133%
1718-51-0	Terphenyl-d14	103%	98%	108%	15-187%



## GC Volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2504-MB	EE049490.D	1	11/15/09	FI	n/a	n/a	GEE2504

The QC reported here applies to the following samples: Method: SW846 8015

T42172-1, T42172-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	0.30	mg/kg	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	4-Bromofluorobenzene	97%	46-127%
98-08-8	aaa-Trifluorotoluene	108%	44-120%

Blank Spike Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2504-BS	EE049486.D	1	11/15/09	FI	n/a	n/a	GEE2504

The QC reported here applies to the following samples: Method: SW846 8015

T42172-1, T42172-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.335	84	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	100%	46-127%
98-08-8	aaa-Trifluorotoluene	113%	44-120%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T42176-18MS	EE049497.D	1	11/15/09	FI	n/a	n/a	GEE2504
T42176-18MSD	EE049498.D	1	11/15/09	FI	n/a	n/a	GEE2504
T42176-18	EE049492.D	1	11/15/09	FI	n/a	n/a	GEE2504

The QC reported here applies to the following samples: Method: SW846 8015

T42172-1, T42172-2

CAS No.	Compound	T42176-18 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		21.1	18.5	88	17.8	84	4	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T42176-18	Limits
460-00-4	4-Bromofluorobenzene	98%	98%	97%	46-127%
98-08-8	aaa-Trifluorotoluene	104%	103%	109%	44-120%



## GC Semi-volatiles

### QC Data Summaries



---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13476-MB	CC216526.D 1		11/18/09	SS	11/14/09	OP13476	GCC1007

The QC reported here applies to the following samples: Method: SW846 8015 M

T42172-1, T42172-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	8.3	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	57% 33-115%

8.1.1  
8



Blank Spike Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13476-BS	CC216527.D 1		11/18/09	SS	11/14/09	OP13476	GCC1007

The QC reported here applies to the following samples: Method: SW846 8015 M

T42172-1, T42172-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.3	20.7	62	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	50%	33-115%

8.2.1  
8

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T42172  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13476-MS	CC216528.D	1	11/18/09	SS	11/14/09	OP13476	GCC1007
OP13476-MSD	CC216532.D	1	11/18/09	SS	11/14/09	OP13476	GCC1007
T42176-39	CC216533.D	1	11/18/09	SS	11/14/09	OP13476	GCC1007

The QC reported here applies to the following samples: Method: SW846 8015 M

T42172-1, T42172-2

CAS No.	Compound	T42176-39 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	4.17	J	37.1	32.2	87	32.6	88	1	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T42176-39	Limits
84-15-1	o-Terphenyl	64%	60%	60%	33-115%



## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10652  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/14/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	0.035	<0.50
Barium	10	.007	.03		
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05	0.0	<0.25
Calcium	250	.27	.86		
Chromium	0.50	.055	.035	0.0070	<0.50
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065	-0.034	<1.3
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2	0.027	<0.50
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065	-0.030	<2.0
Potassium	250	2.7	16		
Selenium	0.50	.16	.12	0.0065	<0.50
Silver	0.50	.043	.04	0.0	<0.50
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2	0.022	<1.0

Associated samples MP10652: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10652  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

11/14/09

11/14/09

	T41328-1R			QC	T41328-1R		Spikelot		QC
Metal	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic	8.8	7.2	20.0	0-20	8.8	33.8	27.6	90.5	80-120
Barium	anr								
Beryllium									
Boron									
Cadmium	0.55	0.55	0.0	0-20	0.55	23.5	27.6	83.1	80-120
Calcium									
Chromium	25.0	18.3	30.9*(a)	0-20	25.0	43.8	27.6	68.1N	80-120
Cobalt									
Copper	15.8	13.3	17.2	0-20	15.8	43.4	27.6	99.9	80-120
Iron									
Lead	9.0	7.9	13.0	0-20	9.0	32.7	27.6	85.8	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel	17.8	14.9	17.7	0-20	17.8	39.2	27.6	77.5N	80-120
Potassium									
Selenium	0.66	0.68	3.0	0-20	0.66	25.2	27.6	88.8	80-120
Silver	0.14	0.12	15.4	0-20	0.14	27.3	27.6	98.3	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	41.2	33.7	20.0	0-20	41.2	66.8	27.6	92.7	80-120

Associated samples MP10652: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10652  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/14/09

Metal	T41328-1R Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.8	32.7	26.6	89.9	3.3	20
Barium	anr					
Beryllium						
Boron						
Cadmium	0.55	22.6	26.6	83.0	3.9	20
Calcium						
Chromium	25.0	46.4	26.6	80.5	5.8	20
Cobalt						
Copper	15.8	45.9	26.6	113.3	5.6	20
Iron						
Lead	9.0	33.0	26.6	90.3	0.9	20
Magnesium						
Manganese						
Molybdenum						
Nickel	17.8	40.6	26.6	85.8	3.5	20
Potassium						
Selenium	0.66	24.0	26.6	87.8	4.9	20
Silver	0.14	26.1	26.6	97.7	4.5	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	41.2	67.7	26.6	99.7	1.3	20

Associated samples MP10652: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10652  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/14/09

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	146	158	92.4	82-118
Barium	anr			
Beryllium				
Boron				
Cadmium	163	187	87.2	82-118
Calcium				
Chromium	79.9	89.5	89.3	79-121
Cobalt				
Copper	124	129	96.1	84-117
Iron				
Lead	150	172	87.2	79-120
Magnesium				
Manganese				
Molybdenum				
Nickel	86.9	99	87.8	81-119
Potassium				
Selenium	132	148	89.2	78-121
Silver	60.6	66	91.8	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	349	394	88.6	80-119

Associated samples MP10652: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

# SERIAL DILUTION RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10652  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/14/09

Metal	T41328-1R Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	124	136	10.3*(a)	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	7.71	6.39	17.1 (b)	0-10
Calcium				
Chromium	353	394	11.8*(a)	0-10
Cobalt				
Copper	223	224	0.4	0-10
Iron				
Lead	127	145	14.7*(a)	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	252	285	13.2*(a)	0-10
Potassium				
Selenium	9.30	20.1	115.9(b)	0-10
Silver	1.98	0.00	100.0(b)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	581	648	11.5*(a)	0-10

Associated samples MP10652: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10668  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 11/17/09

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.017	.0041	.00066	-0.0057	<0.017

Associated samples MP10668: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10668  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 11/17/09

11/17/09

Metal	T37853-1		QC	T37853-1		Spikelot	% Rec	MSD	QC
	Original	DUP	RPD	Original	MSD	HGTXWS1		RPD	Limit
Mercury	0.11	0.18	48.3*(a)	0-20	0.11	0.42	0.272	114.0	9.1

Associated samples MP10668: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10668  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 11/17/09

Metal	T37853-1 Original MS	Spikelot HGTXWS1	% Rec	QC Limits
-------	-------------------------	---------------------	-------	--------------

Mercury 0.11 0.46 0.276 126.9N 75-125

Associated samples MP10668: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10668  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 11/17/09

Metal	LCS Result	Spikelot HGLCD054 % Rec	QC Limits
-------	---------------	----------------------------	--------------

Mercury 8.1 7.34 110.4 72-128

Associated samples MP10668: T42172-1, T42172-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10701  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/21/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	400	33	34		
Antimony	10	4.5	6		
Arsenic	10	3.5	4		
Barium	400	.28	5.4		
Beryllium	10	.22	.4		
Boron	200	2.2	4.2	-43	<200
Cadmium	8.0	.5	.6		
Calcium	10000	11	70		
Chromium	20	2.2	3.8		
Cobalt	100	1	1.6		
Copper	50	1.2	12		
Iron	200	26	26		
Lead	6.0	3.2	3.4		
Magnesium	10000	13	16		
Manganese	30	.4	15		
Molybdenum	20	1.9	2.6		
Nickel	80	1.9	6.4		
Potassium	10000	110	110		
Selenium	10	6.5	6.4		
Silver	20	1.7	1.6		
Sodium	10000	260	270		
Strontium	40	.34	.8		
Thallium	20	6.5	5.2		
Tin	40	3.6	5.8		
Titanium	40	.6	.6		
Vanadium	100	1.2	1.2		
Zinc	40	.98	8.2		

Associated samples MP10701: T42172-1A, T42172-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10701  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

11/21/09

11/21/09

	T42139-2A			QC	T42139-2A		Spikelot		QC
Metal	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	805	723	10.7	0-20	805	2520	1000	85.8	80-120
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10701: T42172-1A, T42172-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10701  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/21/09

Metal	T42139-2A Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	805	2650	1000	116.1	5.0	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10701: T42172-1A, T42172-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10701  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/21/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	2040	1000	102.1	80-120
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10701: T42172-1A, T42172-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10701  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/21/09

Metal	T42139-2A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	404	400	1.0	0-10
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10701: T42172-1A, T42172-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10704  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 11/22/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	17		
Antimony	5.0	2.3	3		
Arsenic	5.0	1.8	2		
Barium	200	.14	2.7		
Beryllium	5.0	.11	.2		
Boron	100	1.1	2.1		
Cadmium	4.0	.25	.3		
Calcium	5000	5.4	35	185	<5000
Chromium	10	1.1	1.9		
Cobalt	50	.5	.8		
Copper	25	.58	5.9		
Iron	100	13	13		
Lead	3.0	1.6	1.7		
Magnesium	5000	6.7	7.8	18.0	<5000
Manganese	15	.2	7.6		
Molybdenum	10	.96	1.3		
Nickel	40	.95	3.2		
Potassium	5000	53	53		
Selenium	5.0	3.2	3.2		
Silver	10	.85	.8		
Sodium	5000	130	130	70.9	<5000
Strontium	20	.17	.4		
Thallium	10	3.2	2.6		
Tin	20	1.8	2.9		
Titanium	20	.3	.3		
Vanadium	50	.6	.6		
Zinc	20	.49	4.1		

Associated samples MP10704: T42172-1C, T42172-2C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10704  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 11/22/09

Metal	T42139-1C Original DUP		RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	264000	246000	6.7	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium	71900	65100	8.8	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	1100000	1020000	5.7	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10704: T42172-1C, T42172-2C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10704  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 11/22/09

T42139-1C		QC	
Metal	Original	SDL 5:25 %DIF	Limits
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Boron			
Cadmium			
Calcium	264000	266000	1.0 0-10
Chromium			
Cobalt			
Copper			
Iron			
Lead			
Magnesium	71900	71800	1.0 0-10
Manganese			
Molybdenum			
Nickel			
Potassium			
Selenium			
Silver			
Sodium	1100000	1040000	3.9 0-10
Strontium			
Thallium			
Tin			
Titanium			
Vanadium			
Zinc			

Associated samples MP10704: T42172-1C, T42172-2C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10705  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/22/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1		
Barium	10	.007	.03	0.13	<10
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05		
Calcium	250	.27	.86		
Chromium	0.50	.055	.035		
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065		
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2		
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065		
Potassium	250	2.7	16		
Selenium	0.50	.16	.12		
Silver	0.50	.043	.04		
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2		

Associated samples MP10705: T42172-1B, T42172-2B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10705  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

11/22/09

11/22/09

Metal	T42172-1B Original DUP		RPD	QC Limits	T42172-1B Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	502	499	0.6	0-20	502	491	21	-52.3(a)	80-120
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10705: T42172-1B, T42172-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10705  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 11/22/09

Metal	T42172-1B Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	502	507	21.8	23.0 (a)	3.2	20
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10705: T42172-1B, T42172-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Prep Date: 11/22/09

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10705  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 11/22/09

Metal	T42172-1B Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	9180	13000	41.5*(a)	0-10
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10705: T42172-1B, T42172-2B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested  
(a) Serial dilution indicates possible matrix interference.



## General Chemistry

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN18901	2.0	<2.0	mg/kg	40	43.7	109.0	80-120%
Specific Conductivity	GN18938	1.0	<1.0	umhos/cm				

Associated Samples:  
Batch GN18901: T42172-1, T42172-2  
Batch GN18938: T42172-1, T42172-2  
(\*) Outside of QC limits

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN18901	T42139-1	mg/kg	1.0 B	<2.0	14.6	0-20%
Solids, Percent	GN18730	T42037-1	%	84.8	84.1	0.8	0-5%
Solids, Percent	GN18742	T42172-2	%	87.6	88.1	0.6	0-5%
Specific Conductivity	GN18938	T42039-1	umhos/cm	4.5	4.5	0.0	0-20%
pH	GN18836	T41578-2R	su	8.9	8.9	0.0	0-20%

Associated Samples:

Batch GN18730: T42172-1

Batch GN18742: T42172-2

Batch GN18836: T42172-1, T42172-2

Batch GN18901: T42172-1, T42172-2

Batch GN18938: T42172-1, T42172-2

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T42172  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN18901	T42139-1	mg/kg	1.0 B	40	35.5	86.3	75-125%

Associated Samples:

Batch GN18901: T42172-1, T42172-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

## ANALYTICAL REPORT

Job Number: 280-1486-4

Job Description: PH16-PitSpoil-03/17/10

For:  
EnCana Oil & Gas, Inc. (USA)  
2717 County Road 215  
Suite 100  
Parachute, CO 81635  
Attention: Chris Hines



Approved for release.  
Lori A Parsons  
Project Manager I  
4/1/2010 1:30 PM

---

Lori A Parsons  
Project Manager I  
lori.parsons@testamericainc.com  
04/01/2010

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002  
Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)



# Table of Contents

Cover Title Page . . . . .	1
Report Narrative . . . . .	3
Executive Summary . . . . .	4
Method Summary . . . . .	5
Method / Analyst Summary . . . . .	6
Sample Summary . . . . .	7
Sample Results . . . . .	8
Sample Datasheets . . . . .	9
Data Qualifiers . . . . .	11
QC Results . . . . .	12
Qc Association Summary . . . . .	13
Surrogate Recovery Report . . . . .	14
Qc Reports . . . . .	16
Laboratory Chronicle . . . . .	24
Client Chain of Custody . . . . .	26
Sample Receipt Checklist . . . . .	27

## **CASE NARRATIVE**

**Client: EnCana Oil & Gas, Inc. (USA)**

**Project: PH16-PitSpoil-03/17/10**

**Report Number: 280-1486-4**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### **RECEIPT**

The samples were received on 03/18/2010; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.8 C.

### **GASOLINE RANGE ORGANICS (GRO)**

Sample PH16-PITSPoil-031710 (280-1486-4) was analyzed for gasoline range organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO. The samples were analyzed on 03/22/2010.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-7961/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

No other difficulties were encountered during the GRO analysis.

All other quality control parameters were within the acceptance limits.

### **DIESEL RANGE ORGANICS**

Sample PH16-PITSPoil-031710 (280-1486-4) was analyzed for diesel range organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 03/23/2010 and analyzed on 03/29/2010.

No difficulties were encountered during the DRO analysis.

All quality control parameters were within the acceptance limits.



## EXECUTIVE SUMMARY - Detections

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
<b>280-1486-4</b>	<b>PH16-PITSPoil-031710</b>				
Gasoline Range Organics (GRO)-C6-C10		2.7 B	1.2	mg/Kg	8015B
C22-C36		23	11	mg/Kg	8015D
C10-C22		50	3.7	mg/Kg	8015D

## METHOD SUMMARY

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Description	Lab Location	Method	Preparation Method
<b>Matrix: Solid</b>			
Gasoline Range Organics - (GC)	TAL DEN	SW846 8015B	
Purge and Trap	TAL DEN		SW846 5030B
Diesel Range Organics (DRO)	TAL DEN	SW846 8015D	
Ultrasonic Extraction	TAL DEN		SW846 3550C

### Lab References:

TAL DEN = TestAmerica Denver

### Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Method	Analyst	Analyst ID
SW846 8015B	Ream, Brian E	BER
SW846 8015D	Pavlovich, Adam M	AMP

## SAMPLE SUMMARY

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-1486-4	PH16-PITSPoil-031710	Solid	03/17/2010 1200	03/18/2010 0900

# **SAMPLE RESULTS**

**Analytical Data**

Client: EnCana Oil &amp; Gas, Inc. (USA)

Job Number: 280-1486-4

**Client Sample ID: PH16-PITSPoil-031710**

Lab Sample ID: 280-1486-4

Date Sampled: 03/17/2010 1200

Client Matrix: Solid

Date Received: 03/18/2010 0900

**8015B Gasoline Range Organics - (GC)**

Method:	8015B	Analysis Batch: 280-8218	Instrument ID:	GCV_L
Preparation:	5030B	Prep Batch: 280-7961	Initial Weight/Volume:	10.05 g
Dilution:	1.0		Final Weight/Volume:	500 mL
Date Analyzed:	03/22/2010 1623		Injection Volume:	5 mL
Date Prepared:	03/19/2010 1313		Result Type:	PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	MDL	RL
Gasoline Range Organics (GRO)-C6-C10		2.7	B	0.32	1.2

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	87		77 - 123

## Analytical Data

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Client Sample ID: PH16-PITSPoil-031710

Lab Sample ID: 280-1486-4

Date Sampled: 03/17/2010 1200

Client Matrix: Solid

Date Received: 03/18/2010 0900

### 8015D Diesel Range Organics (DRO)

Method:	8015D	Analysis Batch: 280-9058	Instrument ID:	GCS_U2
Preparation:	3550C	Prep Batch: 280-8205	Initial Weight/Volume:	32.1 g
Dilution:	1.0		Final Weight/Volume:	1000 uL
Date Analyzed:	03/29/2010 1451		Injection Volume:	1 uL
Date Prepared:	03/23/2010 1035		Result Type:	PRIMARY

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	MDL	RL
C22-C36		23		3.7	11
C10-C22		50		0.93	3.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
o-Terphenyl		49		49 - 115	

## DATA REPORTING QUALIFIERS

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Lab Section	Qualifier	Description
GC VOA	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.



# **QUALITY CONTROL RESULTS**

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC VOA</b>					
<b>Prep Batch: 280-7961</b>					
LCS 280-7961/2-A	Lab Control Sample	T	Solid	5030B	
LCSD 280-7961/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 280-7961/1-A	Method Blank	T	Solid	5030B	
280-1486-B-2-B MS	Matrix Spike	T	Solid	5030B	
280-1486-B-2-C MSD	Matrix Spike Duplicate	T	Solid	5030B	
280-1486-4	PH16-PITSPOIL-031710	T	Solid	5030B	
<b>Analysis Batch:280-8218</b>					
LCS 280-7961/2-A	Lab Control Sample	T	Solid	8015B	280-7961
LCSD 280-7961/3-A	Lab Control Sample Duplicate	T	Solid	8015B	280-7961
MB 280-7961/1-A	Method Blank	T	Solid	8015B	280-7961
280-1486-B-2-B MS	Matrix Spike	T	Solid	8015B	280-7961
280-1486-B-2-C MSD	Matrix Spike Duplicate	T	Solid	8015B	280-7961
280-1486-4	PH16-PITSPOIL-031710	T	Solid	8015B	280-7961
<b>Report Basis</b>					
T = Total					
<b>GC Semi VOA</b>					
<b>Prep Batch: 280-8205</b>					
LCS 280-8205/2-A	Lab Control Sample	T	Solid	3550C	
LCSD 280-8205/3-A	Lab Control Sample Duplicate	T	Solid	3550C	
MB 280-8205/1-A	Method Blank	T	Solid	3550C	
280-1486-4	PH16-PITSPOIL-031710	T	Solid	3550C	
280-1490-A-41-D MS	Matrix Spike	T	Solid	3550C	
280-1490-A-41-E MSD	Matrix Spike Duplicate	T	Solid	3550C	
280-1525-C-1-B MS	Matrix Spike	T	Solid	3550C	
280-1525-C-1-C MSD	Matrix Spike Duplicate	T	Solid	3550C	
<b>Analysis Batch:280-9058</b>					
280-1486-4	PH16-PITSPOIL-031710	T	Solid	8015D	280-8205
<b>Analysis Batch:280-9060</b>					
LCS 280-8205/2-A	Lab Control Sample	T	Solid	8015D	280-8205
LCSD 280-8205/3-A	Lab Control Sample Duplicate	T	Solid	8015D	280-8205
MB 280-8205/1-A	Method Blank	T	Solid	8015D	280-8205
280-1490-A-41-D MS	Matrix Spike	T	Solid	8015D	280-8205
280-1490-A-41-E MSD	Matrix Spike Duplicate	T	Solid	8015D	280-8205
280-1525-C-1-B MS	Matrix Spike	T	Solid	8015D	280-8205
280-1525-C-1-C MSD	Matrix Spike Duplicate	T	Solid	8015D	280-8205
<b>Report Basis</b>					
T = Total					

TestAmerica Denver

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Surrogate Recovery Report

#### 8015B Gasoline Range Organics - (GC)

##### Client Matrix: Solid

Lab Sample ID	Client Sample ID	TFT1 %Rec
280-1486-4	PH16-PITSPoil-0317 10	87
MB 280-7961/1-A		102
LCS 280-7961/2-A		101
LCSD 280-7961/3-A		103
280-1486-B-2-B MS		77
280-1486-B-2-C MSD		80

Surrogate

Acceptance Limits

TFT = a,a,a-Trifluorotoluene

77-123

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

## Surrogate Recovery Report

### 8015D Diesel Range Organics (DRO)

#### Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH1 %Rec
280-1486-4	PH16-PITSPoil-0317 10	49
MB 280-8205/1-A		81
LCS 280-8205/2-A		81
LCSD 280-8205/3-A		86
280-1490-A-41-D MS		78
280-1525-C-1-B MS		72
280-1490-A-41-E MSD		73
280-1525-C-1-C MSD		80

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	49-115

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Method Blank - Batch: 280-7961

Lab Sample ID: MB 280-7961/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1719  
Date Prepared: 03/19/2010 1313

Analysis Batch: 280-8218  
Prep Batch: 280-7961  
Units: mg/Kg

### Method: 8015B Preparation: 5030B

Instrument ID: GCV\_L  
Lab File ID: 217F1201.D  
Initial Weight/Volume: 10.04 g  
Final Weight/Volume: 500 mL  
Injection Volume: 5 mL  
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
Gasoline Range Organics (GRO)-C6-C10	0.455	J	0.32	1.2

Surrogate	% Rec	Acceptance Limits
a,a,a-Trifluorotoluene	102	77 - 123

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 280-7961

### Method: 8015B Preparation: 5030B

LCS Lab Sample ID: LCS 280-7961/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1153  
Date Prepared: 03/19/2010 1313

Analysis Batch: 280-8218  
Prep Batch: 280-7961  
Units: mg/Kg

Instrument ID: GCV\_L  
Lab File ID: 125F0401.D  
Initial Weight/Volume: 10.02 g  
Final Weight/Volume: 500 mL  
Injection Volume: 5 mL  
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 280-7961/3-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1231  
Date Prepared: 03/19/2010 1313

Analysis Batch: 280-8218  
Prep Batch: 280-7961  
Units: mg/Kg

Instrument ID: GCV\_L  
Lab File ID: 126F0501.D  
Initial Weight/Volume: 10.03 g  
Final Weight/Volume: 500 mL  
Injection Volume: 5 mL  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Gasoline Range Organics (GRO)-C6-C10	118	126	85 - 153	6	30		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
a,a,a-Trifluorotoluene	101		103		77 - 123		

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Laboratory Control/ Laboratory Duplicate Data Report - Batch: 280-7961

Method: 8015B  
Preparation: 5030B

LCS Lab Sample ID: LCS 280-7961/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1153  
Date Prepared: 03/19/2010 1313

Units: mg/Kg

LCSD Lab Sample ID: LCSD 280-7961/3-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1231  
Date Prepared: 03/19/2010 1313

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Gasoline Range Organics (GRO)-C6-C10	5.49	5.48	6.47	6.90

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-7961

Method: 8015B  
Preparation: 5030B

MS Lab Sample ID: 280-1486-B-2-B MS  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1429  
Date Prepared: 03/19/2010 1313

Analysis Batch: 280-8218  
Prep Batch: 280-7961

Instrument ID: GCV\_L  
Lab File ID: 129F0801.D  
Initial Weight/Volume: 10.07 g  
Final Weight/Volume: 500 mL  
Injection Volume: 5 mL  
Column ID: PRIMARY

MSD Lab Sample ID: 280-1486-B-2-C MSD  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1507  
Date Prepared: 03/19/2010 1313

Analysis Batch: 280-8218  
Prep Batch: 280-7961

Instrument ID: GCV\_L  
Lab File ID: 130F0901.D  
Initial Weight/Volume: 10.08 g  
Final Weight/Volume: 500 mL  
Injection Volume: 5 mL  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Gasoline Range Organics (GRO)-C6-C10	128	134	85 - 153	1	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
a,a,a-Trifluorotoluene	77	80	77 - 123

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Matrix Spike/

**Matrix Spike Duplicate Data Report - Batch: 280-7961**

**Method: 8015B**

**Preparation: 5030B**

MS Lab Sample ID: 280-1486-B-2-B MS  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1429  
Date Prepared: 03/19/2010 1313

Units: mg/Kg

MSD Lab Sample ID: 280-1486-B-2-C MSD  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/22/2010 1507  
Date Prepared: 03/19/2010 1313

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Gasoline Range Organics (GRO)-C6-C10	22	5.46	5.46	28.8	29.1

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Method Blank - Batch: 280-8205

Lab Sample ID: MB 280-8205/1-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 1014  
Date Prepared: 03/23/2010 1035

Analysis Batch: 280-9060  
Prep Batch: 280-8205  
Units: mg/Kg

### Method: 8015D Preparation: 3550C

Instrument ID: GCS\_U2  
Lab File ID: 042F4201.D  
Initial Weight/Volume: 31.3 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
C22-C36	ND		3.7	12
C10-C22	ND		0.96	3.8

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	81	49 - 115

### Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 280-8205

### Method: 8015D Preparation: 3550C

LCS Lab Sample ID: LCS 280-8205/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 1049  
Date Prepared: 03/23/2010 1035

Analysis Batch: 280-9060  
Prep Batch: 280-8205  
Units: mg/Kg

Instrument ID: GCS\_U2  
Lab File ID: 043F4301.D  
Initial Weight/Volume: 31.8 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
C10-C22	81	81	50 - 150	5	30		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
o-Terphenyl	81		86		49 - 115		

Calculations are performed before rounding to avoid round-off errors in calculated results.



## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

**Laboratory Control/  
Laboratory Duplicate Data Report - Batch: 280-8205**

**Method: 8015D  
Preparation: 3550C**

LCS Lab Sample ID: LCS 280-8205/2-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 1049  
Date Prepared: 03/23/2010 1035

Units: mg/Kg

LCSD Lab Sample ID: LCSD 280-8205/3-A  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 1139  
Date Prepared: 03/23/2010 1035

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
C10-C22	62.9	66.2	51.0	53.8

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-8205

Method: 8015D  
Preparation: 3550C

MS Lab Sample ID: 280-1490-A-41-D MS      Analysis Batch: 280-9060  
Client Matrix: Solid      Prep Batch: 280-8205  
Dilution: 1.0  
Date Analyzed: 03/27/2010 2052  
Date Prepared: 03/23/2010 1035

Instrument ID: GCS\_U2  
Lab File ID: 060F6001.D  
Initial Weight/Volume: 30.8 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

MSD Lab Sample ID: 280-1490-A-41-E MSD      Analysis Batch: 280-9060  
Client Matrix: Solid      Prep Batch: 280-8205  
Dilution: 1.0  
Date Analyzed: 03/27/2010 2232  
Date Prepared: 03/23/2010 1035

Instrument ID: GCS\_U2  
Lab File ID: 063F6301.D  
Initial Weight/Volume: 30.3 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
C10-C22	69	70	50 - 150	2	30		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
o-Terphenyl	78		73	49 - 115			

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 280-8205

Method: 8015D  
Preparation: 3550C

MS Lab Sample ID: 280-1525-C-1-B MS  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/28/2010 0045  
Date Prepared: 03/23/2010 1035

Analysis Batch: 280-9060  
Prep Batch: 280-8205

Instrument ID: GCS\_U2  
Lab File ID: 067F6701.D  
Initial Weight/Volume: 30.6 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

MSD Lab Sample ID: 280-1525-C-1-C MSD  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/28/2010 0118  
Date Prepared: 03/23/2010 1035

Analysis Batch: 280-9060  
Prep Batch: 280-8205

Instrument ID: GCS\_U2  
Lab File ID: 068F6801.D  
Initial Weight/Volume: 30.3 g  
Final Weight/Volume: 1000 uL  
Injection Volume: 1 uL  
Column ID: PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
C10-C22	79	72	50 - 150	7	30		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
o-Terphenyl	72		80	49 - 115			

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

**Matrix Spike/  
Matrix Spike Duplicate Data Report - Batch: 280-8205**

**Method: 8015D  
Preparation: 3550C**

MS Lab Sample ID: 280-1490-A-41-D MS      Units: mg/Kg  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 2052  
Date Prepared: 03/23/2010 1035

MSD Lab Sample ID: 280-1490-A-41-E MSD  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/27/2010 2232  
Date Prepared: 03/23/2010 1035

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C22	ND	64.9	66.0	45.0	46.0

**Matrix Spike/  
Matrix Spike Duplicate Data Report - Batch: 280-8205**

**Method: 8015D  
Preparation: 3550C**

MS Lab Sample ID: 280-1525-C-1-B MS      Units: mg/Kg  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/28/2010 0045  
Date Prepared: 03/23/2010 1035

MSD Lab Sample ID: 280-1525-C-1-C MSD  
Client Matrix: Solid  
Dilution: 1.0  
Date Analyzed: 03/28/2010 0118  
Date Prepared: 03/23/2010 1035

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C22	ND	65.4	66.0	51.5	47.8

Calculations are performed before rounding to avoid round-off errors in calculated results.

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Laboratory Chronicle

Lab ID: 280-1486-4

Client ID: PH16-PITSPoil-031710

Sample Date/Time: 03/17/2010 12:00

Received Date/Time: 03/18/2010 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-1486-A-4-A		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	280-1486-A-4-A		280-8218	280-7961	03/22/2010 16:23	1	TAL DEN	BER
P:3550C	280-1486-A-4-B		280-9058	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	280-1486-A-4-B		280-9058	280-8205	03/29/2010 14:51	1	TAL DEN	AMP

Lab ID: MB

Client ID: N/A

Sample Date/Time: N/A

Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	MB 280-7961/1-A		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	MB 280-7961/1-A		280-8218	280-7961	03/22/2010 17:19	1	TAL DEN	BER
P:3550C	MB 280-8205/1-A		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	MB 280-8205/1-A		280-9060	280-8205	03/27/2010 10:14	1	TAL DEN	AMP

Lab ID: LCS

Client ID: N/A

Sample Date/Time: N/A

Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCS 280-7961/2-A		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	LCS 280-7961/2-A		280-8218	280-7961	03/22/2010 11:53	1	TAL DEN	BER
P:3550C	LCS 280-8205/2-A		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	LCS 280-8205/2-A		280-9060	280-8205	03/27/2010 10:49	1	TAL DEN	AMP

Lab ID: LCSD

Client ID: N/A

Sample Date/Time: N/A

Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	LCSD 280-7961/3-A		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	LCSD 280-7961/3-A		280-8218	280-7961	03/22/2010 12:31	1	TAL DEN	BER
P:3550C	LCSD 280-8205/3-A		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	LCSD 280-8205/3-A		280-9060	280-8205	03/27/2010 11:39	1	TAL DEN	AMP

## Quality Control Results

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

### Laboratory Chronicle

Lab ID: MS

Client ID: N/A

Sample Date/Time: 03/16/2010 14:30

Received Date/Time: 03/18/2010 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-1486-B-2-B MS		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	280-1486-B-2-B MS		280-8218	280-7961	03/22/2010 14:29	1	TAL DEN	BER
P:3550C	280-1490-A-41-D MS		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	280-1490-A-41-D MS		280-9060	280-8205	03/27/2010 20:52	1	TAL DEN	AMP
P:3550C	280-1525-C-1-B MS		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	280-1525-C-1-B MS		280-9060	280-8205	03/28/2010 00:45	1	TAL DEN	AMP

Lab ID: MSD

Client ID: N/A

Sample Date/Time: 03/16/2010 14:30

Received Date/Time: 03/18/2010 09:00

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030B	280-1486-B-2-C MSD		280-8218	280-7961	03/19/2010 13:13	1	TAL DEN	TEM
A:8015B	280-1486-B-2-C MSD		280-8218	280-7961	03/22/2010 15:07	1	TAL DEN	BER
P:3550C	280-1490-A-41-E MSD		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	280-1490-A-41-E MSD		280-9060	280-8205	03/27/2010 22:32	1	TAL DEN	AMP
P:3550C	280-1525-C-1-C MSD		280-9060	280-8205	03/23/2010 10:35	1	TAL DEN	SPS
A:8015D	280-1525-C-1-C MSD		280-9060	280-8205	03/28/2010 01:18	1	TAL DEN	AMP

#### Lab References:

TAL DEN = TestAmerica Denver

4955 Yarrow Street

Arvada, CO 80002  
phone 303.736.0100 fax 303.431.7171

**THE LEADER IN ENVIRONMENTAL TESTING**

**TestAmerica Laboratories, Inc.**

## Login Sample Receipt Check List

Client: EnCana Oil & Gas, Inc. (USA)

Job Number: 280-1486-4

Login Number: 1486

List Source: TestAmerica Denver

Creator: Bindel, Aaron M

List Number: 1

Question	T / F / NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified	True	