



09/22/10

Technical Report for

ENCANA

C16OU Background

Accutest Job Number: T59618

Sampling Date: 09/09/10

Report to:

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

Total number of pages in report: 18



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 (T104704220-09C-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-

Section 1: Sample Summary 3

Section 2: Case Narrative/Conformance Summary 4

Section 3: Sample Results 5

3.1: T59618-1: C16OU-SE BACK-090910 6

3.2: T59618-2: C16OU-S BACK-090910 7

3.3: T59618-3: C16OU-SW BACK-090910 8

Section 4: Misc. Forms 9

4.1: Chain of Custody 10

Section 5: Metals Analysis - QC Data Summaries 13

5.1: Prep QC MP12850: As 14



Sample Summary

ENCANA

Job No: T59618

C16OU Background

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T59618-1	09/09/10	10:55	09/10/10	SO	Soil	C16OU-SE BACK-090910
T59618-2	09/09/10	11:00	09/10/10	SO	Soil	C16OU-S BACK-090910
T59618-3	09/09/10	11:05	09/10/10	SO	Soil	C16OU-SW BACK-090910

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: ENCANA**Job No** T59618**Site:** C16OU Background**Report Date** 9/22/2010 8:25:17 AM

3 Sample(s) were collected on 09/09/2010 and were received at Accutest on 09/10/2010 properly preserved, at 26.3 Deg. C and intact. These Samples received an Accutest job number of T59618. 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.

Metals By Method SW846 6010B

Matrix SO**Batch ID:** MP12850

- 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) T59617-1DUP, T59617-1MS, T59617-1MSD, T59617-1SDL were used as the QC samples for metals.

Wet Chemistry By Method SM 2540 G

Matrix SO**Batch ID:** GN25333

- Sample(s) T59617-3DUP were used as the QC samples for Solids, Percent.

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

Client Sample ID:	C16OU-SE BACK-090910	
Lab Sample ID:	T59618-1	Date Sampled: 09/09/10
Matrix:	SO - Soil	Date Received: 09/10/10
		Percent Solids: 91.7
Project:	C16OU Background	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	17.5	0.58	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5107
(2) Prep QC Batch: MP12850

RL = Reporting Limit

Report of Analysis

Client Sample ID:	C16OU-S BACK-090910	
Lab Sample ID:	T59618-2	Date Sampled: 09/09/10
Matrix:	SO - Soil	Date Received: 09/10/10
		Percent Solids: 89.4
Project:	C16OU Background	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	18.4	0.65	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5107
(2) Prep QC Batch: MP12850

RL = Reporting Limit

Report of Analysis

Client Sample ID:	C16OU-SW BACK-090910	Date Sampled:	09/09/10
Lab Sample ID:	T59618-3	Date Received:	09/10/10
Matrix:	SO - Soil	Percent Solids:	90.7
Project:	C16OU Background		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	15.1	0.63	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA5107
(2) Prep QC Batch: MP12850

RL = Reporting Limit

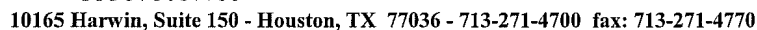


Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # <i>T59618</i>

T59618: Chain of Custody
Page 1 of 3

SAMPLE INSPECTION FORM

Accutest Job Number: T59618 Client: ENCANA Date/Time Received: 9/10/10 0945
of Coolers Received: 1 Thermometer #: IRGUN04 Temperature Adjustment Factor: +0.0°C

Cooler Temperatures (initial/adjusted): #1: 26.3/26.3 #2: _____ #3: _____ #4: _____ #5: _____
#6: _____ #7: _____ #8: _____ #9: _____ #10: _____ #11: _____ #12: _____

Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other

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: [Signature] 9/10/10

INFORMATION AND SAMPLE LABELING VERIFIED BY: G C 9/10/10

CORRECTIVE ACTIONS

Client Representative Notified: _____ Date: _____

By Accutest Representative: _____ Via: Phone Email

Client Instructions: _____

I:\mwalker\form\samplemanagement SM023 Revised 8/11/10

T59618: Chain of Custody

Page 2 of 3

JOB #: T59618 DATE/TIME RECEIVED: 9/10/10 0945
CLIENT: ENCANA INITIALS: JS

[illegible]

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 awn

Page 3 of 3



Metals Analysis

5

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: T59618
Account: ENCACOP - ENCANA
Project: C160U Background

QC Batch ID: MP12850
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 09/16/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.41	.73		
Antimony	0.50	.05	.085		
Arsenic	0.50	.085	.085	0.17	<0.50
Barium	10	.049	.069		
Beryllium	0.25	.0028	.0055		
Boron	5.0	.07	.17		
Cadmium	0.25	.0055	.014		
Calcium	250	.37	1.3		
Chromium	0.50	.012	.023		
Cobalt	2.5	.0075	.03		
Copper	1.3	.056	.056		
Iron	5.0	.057	1.1		
Lead	0.50	.05	.05		
Lithium	15	.1			
Magnesium	250	.38	1.3		
Manganese	0.75	.0027	.037		
Molybdenum	0.50	.02	.025		
Nickel	2.0	.035	.057		
Potassium	250	2	10		
Selenium	0.50	.077	.14		
Silver	0.50	.058	.058		
Sodium	250	.46	1.6		
Strontium	1.0	.0031	.059		
Thallium	0.50	.034	.04		
Tin	1.0	.035	.035		
Titanium	1.0	.015	.029		
Vanadium	2.5	.015	.034		
Zinc	1.0	.026	.084		

Associated samples MP12850: T59618-1, T59618-2, T59618-3

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: T59618
Account: ENCACOP - ENCANA
Project: C160U Background

QC Batch ID: MP12850
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

09/16/10

09/16/10

Metal	T59617-1 Original	DUP	RPD	QC Limits	T59617-1 Original MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic	10.1	11.7	14.7	0-20	10.1	32.9	24.2	94.3
Barium								80-120
Beryllium								
Boron								
Cadmium	anr							
Calcium	anr							
Chromium	anr							
Cobalt								
Copper	anr							
Iron								
Lead	anr							
Lithium								
Magnesium	anr							
Manganese								
Molybdenum	anr							
Nickel	anr							
Potassium	anr							
Selenium	anr							
Silver								
Sodium	anr							
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							

Associated samples MP12850: T59618-1, T59618-2, T59618-3

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: T59618
Account: ENCACOP - ENCANA
Project: C160U Background

QC Batch ID: MP12850
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 09/16/10

Metal	T59617-1 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	10.1	33.4	24.2	96.2	1.5	20
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium	anr					
Manganese						
Molybdenum	anr					
Nickel	anr					
Potassium	anr					
Selenium	anr					
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP12850: T59618-1, T59618-2, T59618-3

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: T59618
Account: ENCACOP - ENCANA
Project: C160U Background

QC Batch ID: MP12850
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 09/16/10

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	140	158	88.6	82-118
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP12850: T59618-1, T59618-2, T59618-3

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T59618
Account: ENCACOP - ENCANA
Project: C160U Background

QC Batch ID: MP12850
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 09/16/10

Metal	T59617-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	174	184	5.7	0-10
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP12850: T59618-1, T59618-2, T59618-3

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