encana natural gas

Laboratory Results Summary Table

05/21/2015

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

				Organic Compounds in Soil (mg/kg [ppm])																						Inorganics in Soil			Metals in Soil (mg/kg [ppm])										
		Allowable Concentration -->		500			0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000		(<12)	(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000
Location	**Sample Date:**	**Sample Matrix**	**Matrix Notes**	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	Napthalene	Pyrene	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
A22W	03/02/11	Cuttings		**529.4**	56.4	473	**1.39**	2.62	ND	1.51	ND	ND	ND	ND	ND	ND	0.0752	ND	ND	ND	ND	ND	ND	3.03	**21**	**9.53**	**2.8**	7500	BDL	12.7	0.74	16.9	10.3	BDL	9.8	BDL	BDL	37
A22W	12/08/11	Cuttings	resample for 3/2/1	29	BDL	29	BDL	BDL	BDL	BDL																												

Encana Oil and Gas (USA) Inc.
Environmental Compliance Group
Parachute Field Office
143 Diamond Avenue
Parachute, CO 81635

Mountain States ACCUTEST LABORATORIES

03/08/11

Technical Report for

EnCana

A22W

Creek

Accutest Job Number: D21463

Sampling Date: 03/02/11

Report to:

EnCana Oil & Gas
2717 CR 215 Suite 100
Parachute, CO 81635
christopher.hines@encana.com

ATTN: Chris Hines

Total number of pages in report: **76**

ACCREDITED IN ACCORDANCE WITH nelac

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.

John Hamilton
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6 7 8 9 10 11 12

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Sample Summary

EnCana

Job No: D21463

A22W
Project No: Creek

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D21463-1	03/02/11	08:30	JH	03/03/11	SO	Soil	A22W-CUTTINGS-030211
D21463-1A	03/02/11	08:30	JH	03/03/11	SO	Soil	A22W-CUTTINGS-030211
D21463-2	03/02/11	08:40	JH	03/03/11	SO	Soil	A22W-WB-030211
D21463-3	03/02/11	08:45	JH	03/03/11	SO	Soil	A22W-SWB-030211
D21463-4	03/02/11	08:50	JH	03/03/11	SO	Soil	A22W-SB-030211

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	EnCana	**Job No**	D21463
Site:	A22W	**Report Date**	3/8/2011 3:25:20 PM

On 03/03/2011, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D21463 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V3V520

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21463-1MS, D21463-1MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP3242

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21463-1MS, D21463-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGA576

- All samples were analyzed within the recommended method holding time.
- Sample(s) D21463-1MS, D21463-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP3236

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D21436-1MS, D21436-1MSD 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:** MP4151

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21485-1AMS, D21485-1AMSD were used as the QC samples for the metals analysis.

Matrix SO **Batch ID:** MP4141

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21329-1MS, D21329-1MSD, D21329-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Barium, Selenium, Zinc are outside control limits. Probable cause due to matrix interference.
- The RPD(s) for the MS and MSD recoveries of Zinc are outside control limits for sample MP4141-S2. High RPD due to possible sample nonhomogeneity.
- The serial dilution RPD(s) for Cadmium, Selenium, Barium, Lead, Nickel, Zinc are outside control limits for sample MP4141-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP4141-SD1 for Barium, Zinc, Nickel, and Lead: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020

Matrix SO **Batch ID:** MP4142

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21329-1MS, D21329-1MSD, D21329-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471A

Matrix SO **Batch ID:** MP4144

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D21292-1MS, D21292-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO **Batch ID:** GN8524

- Sample(s) D21463-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method DEPT.OF AG, BOOK N9

Matrix SO **Batch ID:** GP3919

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method LADNR29B

Matrix SO **Batch ID:** MP4151

- D21463-1A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN8518

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 3060/7196A M

Matrix	SO	Batch ID:	R6506

- The data for SW846 3060/7196A M meets quality control requirements.
- D21463-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	M:GP12685

- The data for SW846 3060A/7196A meets quality control requirements.
- D21463-1 for Chromium, Hexavalent: Analysis performed at Accutest Laboratories, Marlborough, MA.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Accutest Mountain States	**Job No**	D21463
Site:	ENCACOP: A22W	**Report Date**	3/7/2011 5:04:36 PM

1 Sample was collected on 03/02/2011 and were received at Accutest on 03/03/2011 properly preserved, at 2.4 Deg. C and intact. These Samples received an Accutest job number of D21463. 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.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO **Batch ID:** GP12685

- All samples were distilled 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) D21334-1MS, D21334-1DUP were used as the QC samples for Chromium, Hexavalent.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP12685-D1. RPD acceptable due to low duplicate and sample concentrations.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D21463).

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
Method:	SW846 8260B	**Percent Solids:**	67.8
Project:	A22W		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V09316.D	1	03/04/11	DC	n/a	n/a	V3V520
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	1.39	0.097	mg/kg	
108-88-3	Toluene	2.62	0.19	mg/kg	
100-41-4	Ethylbenzene	ND	0.19	mg/kg	
1330-20-7	Xylene (total)	1.51	0.19	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	89%		70-130%
460-00-4	4-Bromofluorobenzene	89%		70-130%
17060-07-0	1,2-Dichloroethane-D4	96%		70-130%

ND = Not detected
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:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
Method:	SW846 8270C BY SIM SW846 3540C	**Percent Solids:**	67.8
Project:	A22W		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G03078.D	5	03/08/11	TMB	03/03/11	OP3242	E3G111
Run #2							

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

BN PAH List

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	0.049	mg/kg	
208-96-8	Acenaphthylene	ND	0.25	mg/kg	
120-12-7	Anthracene	ND	0.049	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.049	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.049	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.049	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.049	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.049	mg/kg	
218-01-9	Chrysene	0.0752	0.049	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.049	mg/kg	
206-44-0	Fluoranthene	ND	0.049	mg/kg	
86-73-7	Fluorene	ND	0.049	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.049	mg/kg	
90-12-0	1-Methylnaphthalene	ND	0.049	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.25	mg/kg	
91-20-3	Naphthalene	ND	0.25	mg/kg	
85-01-8	Phenanthrene	ND	0.049	mg/kg	
129-00-0	Pyrene	ND	0.049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	61%		10-193%
321-60-8	2-Fluorobiphenyl	63%		20-138%
1718-51-0	Terphenyl-d14	66%		17-174%

ND = Not detected
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:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
Method:	SW846 8015B	**Percent Solids:**	67.8
Project:	A22W		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA0552.D	1	03/03/11	BR	n/a	n/a	GGA576
Run #2							

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

CAS No.	Compound	Result	RL	Units	Q
	TPH-GRO (C6-C10)	56.4	19	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		60-140%

ND = Not detected
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:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
Method:	SW846-8015B SW846 3550B	**Percent Solids:**	67.8
Project:	A22W		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FE6140.D	1	03/04/11	JB	03/03/11	OP3236	GFE303
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	473	20	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	105%		63-130%

ND = Not detected
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: A22W-CUTTINGS-030211
Lab Sample ID: D21463-1
Matrix: SO - Soil
Project: A22W

Date Sampled: 03/02/11
Date Received: 03/03/11
Percent Solids: 67.8

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.8	0.55	mg/kg	5	03/03/11	03/04/11	GJ	SW846 6020 [2]	SW846 3050B [6]
Barium	7500	14	mg/kg	10	03/03/11	03/07/11	JB	SW846 6010B [4]	SW846 3050B [5]
Cadmium	< 1.4	1.4	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Chromium	13.4	1.4	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Copper	16.9	1.4	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Lead	10.3	6.9	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Mercury	< 0.13	0.13	mg/kg	1	03/04/11	03/04/11	JY	SW846 7471A [1]	SW846 7471A [7]
Nickel	9.8	4.1	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Selenium	< 69	69	mg/kg	10	03/03/11	03/07/11	JB	SW846 6010B [4]	SW846 3050B [5]
Silver	< 4.1	4.1	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]
Zinc	37.0	4.1	mg/kg	1	03/03/11	03/04/11	JM	SW846 6010B [3]	SW846 3050B [5]

(1) Instrument QC Batch: MA1361
(2) Instrument QC Batch: MA1362
(3) Instrument QC Batch: MA1363
(4) Instrument QC Batch: MA1364
(5) Prep QC Batch: MP4141
(6) Prep QC Batch: MP4142
(7) Prep QC Batch: MP4144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	67.8
Project:	A22W		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent [a]	0.74	0.59	mg/kg	1	03/07/11 15:01	AMA	SW846 3060A/7196A
Chromium, Trivalent [b]	12.7	2.0	mg/kg	1	03/07/11 15:01	AMA	SW846 3060/7196A M
Redox Potential Vs H2	208		mv	1	03/03/11	JK	ASTM D1498-76M
Solids, Percent	67.8		%	1	03/03/11	SWT	SM19 2540B M
Specific Conductivity	3030	1.0	umhos/cm	1	03/07/11	JK	DEPT.OF AG, BOOK N9
pH	9.53		su	1	03/03/11 11:00	JK	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1A	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	67.8
Project:	A22W		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	58.3	2.0	mg/l	1	03/04/11	03/05/11	JM	SW846 6010B [1]	EPA 200.7 [3]
Magnesium	8.11	1.0	mg/l	1	03/04/11	03/05/11	JM	SW846 6010B [1]	EPA 200.7 [3]
Sodium	646	2.0	mg/l	1	03/04/11	03/08/11	JM	SW846 6010B [2]	EPA 200.7 [3]

(1) Instrument QC Batch: MA1363
(2) Instrument QC Batch: MA1367
(3) Prep QC Batch: MP4151

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-CUTTINGS-030211		
Lab Sample ID:	D21463-1A	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	67.8
Project:	A22W		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	21.0		ratio	1	03/08/11 11:45	JM	LADNR29B

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-WB-030211		
Lab Sample ID:	D21463-2	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	79.4
Project:	A22W		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	5.8	0.50	mg/kg	5	03/03/11	03/04/11	GJ	SW846 6020 [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA1362
(2) Prep QC Batch: MP4142

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-SWB-030211		
Lab Sample ID:	D21463-3	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	80.8
Project:	A22W		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.7	0.46	mg/kg	5	03/03/11	03/04/11	GJ	SW846 6020 [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA1362
(2) Prep QC Batch: MP4142

RL = Reporting Limit

Report of Analysis

Client Sample ID:	A22W-SB-030211		
Lab Sample ID:	D21463-4	**Date Sampled:**	03/02/11
Matrix:	SO - Soil	**Date Received:**	03/03/11
		Percent Solids:	78.0
Project:	A22W		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	5.9	0.49	mg/kg	5	03/03/11	03/04/11	GJ	SW846 6020 [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA1362
(2) Prep QC Batch: MP4142

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL. 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking #

Bottle Order Control #

Accutest Quote #

Accutest Job # D21463

Client / Reporting Information

Company Name: EnCana Oil & Gas (USA) Inc
Street Address: 2717 County Road 215, Suite 100
City: Parachute, CO 81635
Project Contact: Chris Hines
Phone #
Sampler(s) Name(s): Jake Harris

Project Information

Project Name: A22W
Street
City State
Project #: Creek
Client Purchase Order #
Project Manager
Attention:

Billing Information (if different from Report to)

Company Name: Same as Reporting Information
Street Address
City

Requested Analysis (see TEST CODE sheet)

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	Zn Acetate	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8270SIMPAH	V8260BTX	V8015GRO, B8015DRO	SCON, SAR	XXCRA (includes ph), CR3, CR	ASMS (6020)	BA, CD, CU, PB, HG, NI, SE, AG, ZN (6010)	Arsenic				LAB USE ONLY
	A22W-Cuttings-030211		3/2/11	0830	JH	SO	3									X	X	X	X	X	X	X					01
	A22W-WB-030211		3/2/11	0840	JH	SO	1																X				02
	A22W-SWB-030211		3/2/11	0845	JH	SO	1																X				03
	A22W-SB-030211		3/2/11	0850	JH	SO	1																X				04
																											10

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL - Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Turnaround Time (Business days)

- [ ] Std. 15 Business Days
- ~~[ ] Std. 10 Business Days~~ JH
- [ ] 5 Day RUSH
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [X] 1 Day Emergency

3 day per AW TP

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [X] COMMBN
- [ ] COMMBN+
- [ ] State Forms Required
- [ ] Send Forms to State
- [ ] Report by Fax
- [X] Report by PDF ONLY
- [ ] EDD Format

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC/Narrative (+ = chromatograms)

Comments / Special Instructions

Table 910-1 Parameters #24 / ONE DAY TURN AROUND ON ALL
Report out Total Xylenes
Send report via email to: Christopher.Hines@encana.com

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		3/2/11 1400	1	2		2 3-3-11 845
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal # Fedex	Intact / Not Intact	Preserved where applicable: N/A; On Ice: ✓; Cooler Temp. 2.5

D21463: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D21463 **Client:** ENCANA **Immediate Client Services Action Required:** No

Date / Time Received: 3/3/2011 8:45:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: A22W **Airbill #'s:** FEDEX

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D21463: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS 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: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V520-MB1	3V09313A.D	1	03/04/11	DC	n/a	n/a	V3V520

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21463-1

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	50	ug/kg	
100-41-4	Ethylbenzene	ND	100	ug/kg	
108-88-3	Toluene	ND	100	ug/kg	
1330-20-7	Xylene (total)	ND	100	ug/kg	

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	90%	70-130%
460-00-4	4-Bromofluorobenzene	81%	70-130%
17060-07-0	1,2-Dichloroethane-D4	94%	70-130%

Blank Spike Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V520-BS1	3V09314A.D	1	03/04/11	DC	n/a	n/a	V3V520

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21463-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2660	106	68-130
100-41-4	Ethylbenzene	2500	2640	106	70-130
108-88-3	Toluene	2500	2590	104	70-130
1330-20-7	Xylene (total)	5000	4930	99	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	91%	70-130%
460-00-4	4-Bromofluorobenzene	84%	70-130%
17060-07-0	1,2-Dichloroethane-D4	97%	70-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21463-1MS	3V09317.D	1	03/04/11	DC	n/a	n/a	V3V520
D21463-1MSD	3V09318.D	1	03/04/11	DC	n/a	n/a	V3V520
D21463-1	3V09316.D	1	03/04/11	DC	n/a	n/a	V3V520

The QC reported here applies to the following samples: **Method:** SW846 8260B

D21463-1

CAS No.	Compound	D21463-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1390		4870	6680	109	6750	110	1	55-140/30
100-41-4	Ethylbenzene	120		4870	5500	111	5660	114	3	56-139/30
108-88-3	Toluene	2620		4870	7690	104	7780	106	1	57-144/30
1330-20-7	Xylene (total)	1510		9730	11700	105	11800	106	1	51-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21463-1	Limits
2037-26-5	Toluene-D8	90%	89%	89%	70-130%
460-00-4	4-Bromofluorobenzene	92%	90%	89%	70-130%
17060-07-0	1,2-Dichloroethane-D4	91%	93%	96%	70-130%

Mountain States ACCUTEST LABORATORIES

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

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3242-MB	3G03076.D	1	03/07/11	TMB	03/03/11	OP3242	E3G111

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21463-1

CAS No.	Compound	Result	RL	Units	Q
83-32-9	Acenaphthene	ND	6.7	ug/kg	
208-96-8	Acenaphthylene	ND	33	ug/kg	
120-12-7	Anthracene	ND	6.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	ug/kg	
218-01-9	Chrysene	ND	6.7	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	ug/kg	
206-44-0	Fluoranthene	ND	6.7	ug/kg	
86-73-7	Fluorene	ND	6.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	ug/kg	
90-12-0	1-Methylnaphthalene	ND	6.7	ug/kg	
91-57-6	2-Methylnaphthalene	ND	33	ug/kg	
91-20-3	Naphthalene	ND	33	ug/kg	
85-01-8	Phenanthrene	ND	6.7	ug/kg	
129-00-0	Pyrene	ND	6.7	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	44%	10-193%
321-60-8	2-Fluorobiphenyl	44%	20-138%
1718-51-0	Terphenyl-d14	63%	17-174%

Blank Spike Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3242-BS	3G03077.D	1	03/07/11	TMB	03/03/11	OP3242	E3G111

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21463-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	51.2	61	40-136
208-96-8	Acenaphthylene	83.3	51.0	61	42-139
120-12-7	Anthracene	83.3	56.9	68	40-141
56-55-3	Benzo(a)anthracene	83.3	56.2	67	38-143
50-32-8	Benzo(a)pyrene	83.3	53.6	64	39-145
205-99-2	Benzo(b)fluoranthene	83.3	54.7	66	38-151
191-24-2	Benzo(g,h,i)perylene	83.3	59.7	72	35-136
207-08-9	Benzo(k)fluoranthene	83.3	56.3	68	38-147
218-01-9	Chrysene	83.3	56.9	68	39-137
53-70-3	Dibenzo(a,h)anthracene	83.3	58.5	70	35-139
206-44-0	Fluoranthene	83.3	57.6	69	34-132
86-73-7	Fluorene	83.3	52.9	63	41-136
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	63.1	76	31-144
90-12-0	1-Methylnaphthalene	83.3	49.9	60	36-130
91-57-6	2-Methylnaphthalene	83.3	48.2	58	40-131
91-20-3	Naphthalene	83.3	50.8	61	36-130
85-01-8	Phenanthrene	83.3	55.6	67	40-135
129-00-0	Pyrene	83.3	55.0	66	29-157

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	52%	10-193%
321-60-8	2-Fluorobiphenyl	51%	20-138%
1718-51-0	Terphenyl-d14	56%	17-174%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3242-MS	3G03079.D	5	03/08/11	TMB	03/03/11	OP3242	E3G111
OP3242-MSD	3G03080.D	5	03/08/11	TMB	03/03/11	OP3242	E3G111
D21463-1	3G03078.D	5	03/08/11	TMB	03/03/11	OP3242	E3G111

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D21463-1

CAS No.	Compound	D21463-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		123	94.4	77	76.0	62	22	20-151/30
208-96-8	Acenaphthylene	ND		123	98.5	80	80.5	66	20	23-156/30
120-12-7	Anthracene	ND		123	97.1	79	82.4	67	16	25-149/30
56-55-3	Benzo(a)anthracene	ND		123	102	83	83.5	68	20	22-157/30
50-32-8	Benzo(a)pyrene	ND		123	102	83	80.4	66	24	23-153/30
205-99-2	Benzo(b)fluoranthene	ND		123	101	82	84.2	69	18	22-161/30
191-24-2	Benzo(g,h,i)perylene	ND		123	89.8	73	72.5	59	21	20-158/30
207-08-9	Benzo(k)fluoranthene	ND		123	102	83	79.4	65	25	17-161/30
218-01-9	Chrysene	75.2		123	177	83	187	91	5	16-159/30
53-70-3	Dibenzo(a,h)anthracene	ND		123	104	85	93.7	76	10	21-154/30
206-44-0	Fluoranthene	ND		123	111	90	102	83	8	16-140/30
86-73-7	Fluorene	ND		123	109	89	108	88	1	15-153/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		123	117	95	109	89	7	21-159/30
90-12-0	1-Methylnaphthalene	ND		123	122	99	124	101	2	10-148/30
91-57-6	2-Methylnaphthalene	112		123	199	71	254	116	24	10-181/30
91-20-3	Naphthalene	59.0		123	129	57	137	64	6	10-176/30
85-01-8	Phenanthrene	45.8		123	129	68	135	73	5	22-152/30
129-00-0	Pyrene	ND		123	107	87	89.5	73	18	10-200/30

CAS No.	Surrogate Recoveries	MS	MSD	D21463-1	Limits
4165-60-0	Nitrobenzene-d5	60%	51%	61%	10-193%
321-60-8	2-Fluorobiphenyl	60%	50%	63%	20-138%
1718-51-0	Terphenyl-d14	62%	48%	66%	17-174%

Mountain States ACCUTEST LABORATORIES

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: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA576-MB	GA0550.D	1	03/03/11	BR	n/a	n/a	GGA576

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

D21463-1

CAS No.	Compound	Result	RL	Units	Q
	TPH-GRO (C6-C10)	ND	10	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	98%	60-140%

Blank Spike Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA576-BS	GA0551.D	1	03/03/11	BR	n/a	n/a	GGA576

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

D21463-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	96.2	87	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	105%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D21463-1MS	GA0553.D	1	03/03/11	BR	n/a	n/a	GGA576
D21463-1MSD	GA0554.D	1	03/04/11	BR	n/a	n/a	GGA576
D21463-1	GA0552.D	1	03/03/11	BR	n/a	n/a	GGA576

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

D21463-1

CAS No.	Compound	D21463-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	56.4		214	251	91	247	89	2	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21463-1	Limits
120-82-1	1,2,4-Trichlorobenzene	109%	107%	104%	60-140%

Mountain States ACCUTEST LABORATORIES

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: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3236-MB	FE6127.D	1	03/03/11	JB	03/03/11	OP3236	GFE303

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

D21463-1

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	13	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	111%	63-130%

Blank Spike Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3236-BS	FE6128.D	1	03/03/11	JB	03/03/11	OP3236	GFE303

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

D21463-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	629	94	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	110%	63-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D21463
Account: ENCACOP EnCana
Project: A22W

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3236-MS	FE6129.D	1	03/03/11	JB	03/03/11	OP3236	GFE303
OP3236-MSD	FE6130.D	1	03/03/11	JB	03/03/11	OP3236	GFE303
D21436-1	FE6131.D	1	03/03/11	JB	03/03/11	OP3236	GFE303

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

D21463-1

CAS No.	Compound	D21436-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		725	717	99	722	100	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D21436-1	Limits
84-15-1	o-Terphenyl	110%	109%	104%	63-130%

Mountain States ACCUTEST LABORATORIES

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 03/03/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.7	2		
Antimony	3.0	.17	.5		
Arsenic	2.5	.28	.72		
Barium	1.0	.014	.05	0.79	<1.0
Beryllium	1.0	.14	.21		
Boron	5.0	.35	.91		
Cadmium	1.0	.022	.12	0.010	<1.0
Calcium	40	1.7	2.7		
Chromium	1.0	.027	.18	0.33	<1.0
Cobalt	0.50	.048	.058		
Copper	0.50	.16	.38	0.65	<1.0
Iron	7.0	.77	.91		
Lead	5.0	.13	.24	0.39	<5.0
Lithium	0.20	.076	.09		
Magnesium	20	.58	.93		
Manganese	0.50	.021	.028		
Molybdenum	1.0	.041	.16		
Nickel	3.0	.038	.075	0.13	<3.0
Phosphorus	10	1.5	3.5		
Potassium	200	38	130		
Selenium	5.0	.28	.54	-0.030	<5.0
Silicon	5.0	1.2	.68		
Silver	3.0	.098	.068	0.0	<3.0
Sodium	40	23	6.3		
Strontium	5.0	.0091	.02		
Thallium	1.0	.31	.21		
Tin	5.0	1.4	.56		
Titanium	1.0	.0098	.041		
Uranium	5.0	.22	.53		
Vanadium	1.0	.027	.034		
Zinc	3.0	.076	.49	0.15	<3.0

Associated samples MP4141: D21463-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 03/03/11

Metal	D21329-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium	255	418	239	68.1N(a)	75-125
Beryllium					
Boron					
Cadmium	0.25	52.3	59.8	87.0	75-125
Calcium					
Chromium	9.5	61.7	59.8	87.3	75-125
Cobalt					
Copper	10.8	64.1	59.8	89.1	75-125
Iron					
Lead	10.1	111	120	84.4	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	12.0	61.4	59.8	82.6	75-125
Phosphorus					
Potassium					
Selenium	0.50	90.8	120	75.5	75-125
Silicon					
Silver	0.0	20.7	23.9	86.5	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	42.2	89.4	59.8	78.9	75-125

Associated samples MP4141: D21463-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 03/03/11

Metal	D21329-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	255	370	232	49.5N(a)	12.2	20
Beryllium						
Boron						
Cadmium	0.25	49.2	58.1	84.3	6.1	20
Calcium						
Chromium	9.5	59.4	58.1	85.9	3.8	20
Cobalt						
Copper	10.8	61.3	58.1	87.0	4.5	20
Iron						
Lead	10.1	105	116	81.7	5.6	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	12.0	59.1	58.1	81.1	3.8	20
Phosphorus						
Potassium						
Selenium	0.50	86.1	116	73.7N(b)	5.3	20
Silicon						
Silver	0.0	19.7	23.2	84.8	5.0	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	42.2	116	58.1	127.1N(b	25.9 (c)	20

Associated samples MP4141: D21463-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.
(b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
(c) High RPD due to possible sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 03/03/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	177	200	88.5	80-120
Beryllium				
Boron				
Cadmium	48.4	50	96.8	80-120
Calcium				
Chromium	49.8	50	99.6	80-120
Cobalt				
Copper	47.4	50	94.8	80-120
Iron				
Lead	96.1	100	96.1	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	48.7	50	97.4	80-120
Phosphorus				
Potassium				
Selenium	91.6	100	91.6	80-120
Silicon				
Silver	19.1	20	95.5	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	47.1	50	94.2	80-120

Associated samples MP4141: D21463-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 03/03/11

Metal	D21329-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	2280	2570	12.9*(a)	0-10
Beryllium				
Boron				
Cadmium	2.20	0.00	100.0(b)	0-10
Calcium				
Chromium	85.4	93.5	9.5	0-10
Cobalt				
Copper	96.6	94.0	2.7	0-10
Iron				
Lead	90.1	78.5	12.9*(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	108	124	14.9*(a)	0-10
Phosphorus				
Potassium				
Selenium	7.20	27.0	500.0(b)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	378	461	21.9*(a)	0-10

Associated samples MP4141: D21463-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4141
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4142
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 03/03/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.048	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP4142: D21463-1, D21463-2, D21463-3, D21463-4

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4142
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 03/03/11

Metal	D21329-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	3.2	111	120	90.1	60-119
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4142: D21463-1, D21463-2, D21463-3, D21463-4

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4142 Methods: SW846 6020
Matrix Type: SOLID Units: mg/kg

Prep Date: 03/03/11

Metal	D21329-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.2	105	116	87.7	5.6	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4142: D21463-1, D21463-2, D21463-3, D21463-4

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4142
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 03/03/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	94.4	100	94.4	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4142: D21463-1, D21463-2, D21463-3, D21463-4

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4142
Matrix Type: SOLID

Methods: SW846 6020
Units: ug/l

Prep Date: 03/03/11

Metal	D21329-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	33.3	25.9	8.6	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4142: D21463-1, D21463-2, D21463-3, D21463-4

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4144
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 03/04/11

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.013	0.00079	<0.10

Associated samples MP4144: D21463-1

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4144
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 03/04/11

Metal	D21292-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.088	0.51	0.468	90.2	85-115

Associated samples MP4144: D21463-1

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4144 Methods: SW846 7471A
Matrix Type: SOLID Units: mg/kg

Prep Date: 03/04/11

Metal	D21292-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.088	0.51	0.477	88.5	0.0	20

Associated samples MP4144: D21463-1

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4144
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 03/04/11

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.33	0.4	82.5	80-120

Associated samples MP4144: D21463-1

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: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date: 03/04/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	35	250		
Antimony	150	8.5	65		
Arsenic	130	14	33		
Barium	50	.7	12		
Beryllium	50	7	22		
Boron	250	18	93		
Cadmium	50	1.1	6		
Calcium	2000	85	46	11.5	<2000
Chromium	50	1.4	8		
Cobalt	25	2.4	1.5		
Copper	25	8	14		
Iron	350	39	50		
Lead	250	6.5	16		
Lithium	10	3.8	8		
Magnesium	1000	29	62	5.0	<1000
Manganese	25	1.1	3.5		
Molybdenum	50	2.1	6		
Nickel	150	1.9	3		
Phosphorus	500	75	270		
Potassium	5000	1900	2700		
Selenium	250	14	36		
Silicon	250	60	100		
Silver	150	4.9	1.5		
Sodium	2000	1200	110	112	<2000
Strontium	25	.46	17		
Thallium	50	16	11		
Tin	250	70	22		
Titanium	50	.49	3.5		
Uranium	250	11	20		
Vanadium	50	1.4	1.5		
Zinc	150	3.8	8.5		

Associated samples MP4151: D21463-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date: 03/04/11

Metal	D21485-1A Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	11600	152000	125000	112.3	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	1400	136000	125000	107.7	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	148000	275000	125000	101.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP4151: D21463-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date: 03/04/11

Metal	D21485-1A Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	11600	151000	125000	111.5	0.7	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	1400	134000	125000	106.1	1.5	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	148000	284000	125000	108.8	0.7	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP4151: D21463-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date: 03/04/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	141000	125000	112.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	134000	125000	107.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	133000	125000	106.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP4151: D21463-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

QC Batch ID: MP4151
Matrix Type: AQUEOUS

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

Prep Date:

Metal

(anr) Analyte not requested

Mountain States ACCUTEST LABORATORIES

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: D21463
Account: ENCACOP - EnCana
Project: A22W

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP3919/GN8562	1.0	<1.0	umhos/cm	9985	10100	101.5	90-110%
pH	GN8517			su	8.00	8.00	100.0	99.3-100.7%
pH	GN8517			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:
Batch GN8517: D21463-1
Batch GP3919: D21463-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21463
Account: ENCACOP - EnCana
Project: A22W

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Redox Potential Vs H2	GN8524	D21463-1	mv	208	214	2.8	0-20%

Associated Samples:
Batch GN8524: D21463-1
(*) Outside of QC limits

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST

4036 Youngfield St., Wheat Ridge, CO 80033
303-425-6021 FAX: 303-425-6854

Accutest Job #:	D21463
Accutest Quote #:	
AMS P.O. #:	
Project No.:	

Client Information			Subcontract Laboratory Information			Analytical Information
Name: Accutest Mountain States (AMS)			Name: Accutest - New England			
Address: 4036 Youngfield St.			Address: 495 Technology Center West, BLDG C			
City: Wheat Ridge,	State: CO	Zip: 80033	City: Marlborough	State: MA	Zip: 01752	
Send Report to: Tiffany Pham			Contact: Sample Management			
Any questions contact: Amanda Kissell						
Phone/Fax #: (303) 425-6021; (303)425-6854			Phone: (508) 481-6200			

Field ID / Point of Collection	Collection Date	Collection Time		Matrix	# of bottles	Preservation HCL	NaOH	HNO3	H2SO4	None	XCRA					Comments
D21463 -1	3/2/11	8:30 AM		Soil	1						X					

Turnaround Information

[X] 1 - 2 Business Day Rush
[ ] Other (Days)

RUSH!!

Approved By:

10 Day Turnaround Hardcopy, RUSH is FAX Data unless previously approved.

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [X] Commercial "BN"
- [ ] Reduced Tier 1
- [ ] Full Tier 1
- [ ] PDF
- [ ] Compact Disk Deliverable
- [ ] Electronic Delivery:
- [ ] State Forms
- [ ] Other (Specify)

Comments / Remarks

Please use Colorado regulations and RLs.

2D

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by:	Date & Time:	Received By:	Date & Time:
1	JDIG	3/3/11	FedEx	
2	FedEx	3/4/11 11:00		3/4/11 11:00
3				

For Subcontract Laboratory Use Only

Seal #: Headspace: Yes [ ] No [ ] NA [ ]

Preserved where applicable: [ ]

Temperature °C 2.4°C On Ice [X]

11.1 11

D21463: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D21463 **Client:** AMS **Immediate Client Services Action Required:** No

Date / Time Received: 3/4/2011 **Delivery Method:** **Client Service Action Required at Login:** No

Project: **No. Coolers:** 1 **Airbill #'s:**

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

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D21463: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

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: D21463
Account: ALMS - Accutest Mountain States
Project: ENCACOP: A22W

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP12685/GN34280	0.40	0.0	mg/kg	12	10.2	85.0	80-120%
Chromium, Hexavalent	GP12685/GN34280			mg/kg	1080	974	90.2	80-120%

Associated Samples:
Batch GP12685: D21463-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21463
Account: ALMS - Accutest Mountain States
Project: ENCACOP: A22W

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	0.60	33.0(a)	0-20%

Associated Samples:
Batch GP12685: D21463-1
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D21463
Account: ALMS - Accutest Mountain States
Project: ENCACOP: A22W

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	13	12.6	93.3	75-125%
Chromium, Hexavalent	GP12685/GN34280	D21334-1	mg/kg	0.43	1280	1280	99.8	75-125%

Associated Samples:
Batch GP12685: D21463-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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Est. 1970

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Wednesday December 14, 2011

Report Number: L551023
Samples Received: 12/10/11
Client Project:

Description: A22W Cuttings

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: Jarred Willis

Jarred Willis , 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, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

December 14, 2011

ESC Sample # : L551023-01

Date Received : December 10, 2011
Description : A22W Cuttings

Site ID :

Sample ID : A22W-CUT-120811 12 IN

Project # :

Collected By : Matt Kasten
Collection Date : 12/08/11 09:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	12/12/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/12/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/12/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/12/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/12/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	91.2		% Rec.	8021/8015	12/12/11	5
a,a,a-Trifluorotoluene(PID)	96.9		% Rec.	8021/8015	12/12/11	5
TPH (GC/FID) High Fraction	29.	4.0	mg/kg	3546/DRO	12/13/11	1
Surrogate recovery(%)						
o-Terphenyl	88.8		% Rec.	3546/DRO	12/13/11	1

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

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Reported: 12/14/11 12:16 Printed: 12/14/11 12:16

Summary of Remarks For Samples Printed
12/14/11 at 12:16:42

TSR Signing Reports: 358
R5 - Desired TAT

Try not to report benzene as BDL above a 250x dilution.

Sample: L551023-01 Account: ENCANACO Received: 12/10/11 09:00 Due Date: 12/16/11 00:00 RPT Date: 12/14/11 12:16

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Quality Assurance Report
Level II

L551023

December 14, 2011

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .0005	mg/kg			WG569532	12/11/11 23:42
Ethylbenzene	< .0005	mg/kg			WG569532	12/11/11 23:42
Toluene	< .005	mg/kg			WG569532	12/11/11 23:42
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG569532	12/11/11 23:42
Total Xylene	< .0015	mg/kg			WG569532	12/11/11 23:42
a,a,a-Trifluorotoluene(FID)		% Rec.	91.80	59-128	WG569532	12/11/11 23:42
a,a,a-Trifluorotoluene(PID)		% Rec.	97.55	54-144	WG569532	12/11/11 23:42
TPH (GC/FID) High Fraction	< 4	ppm			WG569507	12/13/11 21:16
o-Terphenyl		% Rec.	78.58	50-150	WG569507	12/13/11 21:16

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/kg	.05	0.0498	99.6	76-113	WG569532
Ethylbenzene	mg/kg	.05	0.0553	111.	78-115	WG569532
Toluene	mg/kg	.05	0.0563	113.	76-114	WG569532
Total Xylene	mg/kg	.15	0.161	107.	81-118	WG569532
a,a,a-Trifluorotoluene(PID)				96.33	54-144	WG569532
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.97	109.	67-135	WG569532
a,a,a-Trifluorotoluene(FID)				97.16	59-128	WG569532
TPH (GC/FID) High Fraction	ppm	60	41.6	69.3	50-150	WG569507
o-Terphenyl				84.14	50-150	WG569507

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/kg	0.0484	0.0498	97.0	76-113	2.83	20	WG569532
Ethylbenzene	mg/kg	0.0532	0.0553	106.	78-115	3.82	20	WG569532
Toluene	mg/kg	0.0534	0.0563	107.	76-114	5.36	20	WG569532
Total Xylene	mg/kg	0.154	0.161	102.	81-118	4.62	20	WG569532
a,a,a-Trifluorotoluene(PID)				96.69	54-144			WG569532
TPH (GC/FID) Low Fraction	mg/kg	6.14	5.97	112.	67-135	2.83	20	WG569532
a,a,a-Trifluorotoluene(FID)				97.58	59-128			WG569532
TPH (GC/FID) High Fraction	ppm	47.8	41.6	80.0	50-150	13.9	20	WG569507
o-Terphenyl				91.37	50-150			WG569507

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/kg	0.0405	0.00621	.05	68.7	32-137	L551011-03	WG569532
Ethylbenzene	mg/kg	0.0431	0.00485	.05	76.5	10-150	L551011-03	WG569532
Toluene	mg/kg	0.0452	0.0130	.05	64.2	20-142	L551011-03	WG569532
Total Xylene	mg/kg	0.125	0.0104	.15	76.7	16-141	L551011-03	WG569532
a,a,a-Trifluorotoluene(PID)					96.14	54-144		WG569532
TPH (GC/FID) Low Fraction	mg/kg	4.10	0.562	5.5	64.3	55-109	L551011-03	WG569532
a,a,a-Trifluorotoluene(FID)					95.01	59-128		WG569532
TPH (GC/FID) High Fraction	ppm	46.0	0	60	76.6	50-150	L551013-01	WG569507
o-Terphenyl					88.75	50-150		WG569507

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L551023

December 14, 2011

Analyte	Units	Matrix Spike MSD	Ref	Duplicate %Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/kg	0.0374	0.0405	62.3	32-137	8.15	39	L551011-03	WG569532
Ethylbenzene	mg/kg	0.0389	0.0431	68.1	10-150	10.2	44	L551011-03	WG569532
Toluene	mg/kg	0.0412	0.0452	56.2	20-142	9.29	42	L551011-03	WG569532
Total Xylene	mg/kg	0.112	0.125	67.4	16-141	11.7	46	L551011-03	WG569532
a,a,a-Trifluorotoluene(PID)				97.03	54-144				WG569532
TPH (GC/FID) Low Fraction	mg/kg	5.07	4.10	82.0	55-109	21.2*	20	L551011-03	WG569532
a,a,a-Trifluorotoluene(FID)				96.16	59-128				WG569532
a,a,a-Trifluorotoluene(PID)				103.1	54-144				WG569532
TPH (GC/FID) High Fraction	ppm	47.0	46.0	78.4	50-150	2.26	20	L551013-01	WG569507
o-Terphenyl				90.14	50-150				WG569507

Batch number /Run number / Sample number cross reference

WG569532: R1962052: L551023-01
WG569507: R1965574: L551023-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L551023

December 14, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.