



K22 596 (Location: 335648)
Pit (Facility: 425754)
Encana Oil & Gas (USA) Inc. (Operator: 100185)

REPORT OF WORK COMPLETED

- Form 27 (Doc: 2232930) (Rem: 7769)

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 (Report of Work Completed and Notification of Completion) to document closure of a lined earthen pit on a well pad in the North Parachute area of operation in Garfield County.

Initial pit closure and investigation activities were carried out in July, 2009. The pit was drained, and the liner and above liner solids were removed for offsite disposal. Following removal of the pit liner, a composite sample was collected from the pit bottom and sent to the lab to be analyzed for COGCC Table 910-1 constituents of concern. Upon receipt of laboratory results identifying TPH concentrations above the allowable limit, additional work on the pit was halted to allow natural attenuation of the now exposed below-liner soils.

A confirmation composite sample of the pit bottom was collected on November 24, 2009.

NOTIFICATION OF COMPLETION

The confirmation sample collected from the pit bottom in the fall of 2009 complied with COGCC Table 910-1 allowable concentration for TPH. Arsenic concentrations are above the allowable limit in Table 910-1, but are within the range of background values for this area. Based on these results and Footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic values as the allowable concentration for this constituent. With regards to the inorganic constituents (SAR, EC, pH), the soils represented by these samples are within the former pit footprint, are greater than five feet below the current working surface, and will be at an even greater depth below the final reclaimed working surface where the constituents will have no effect on revegetation efforts.

After receipt of laboratory results demonstrating compliance for below-liner soils, the pit excavation was backfilled to grade with native material.

If the information provided here is satisfactory, please close the associated remediation projects, and pit facilities, and provide documentation of these record closures.

ATTACHMENTS

1. Topographic Location Map
2. Laboratory Results Summary Table
3. Laboratory Reports

encana

North Parachute Ranch

Garfield County, Colorado

0 3,200 6,400 Feet

1 inch = 3,000 feet

K22 Well Pad and Pit
Location ID: 335648
Facility ID: 425754
Rem #: 7769

T005S-R096W

T005S-R095W

T006S-R096W

T006S-R095W

- Encana Site Boundary
- Access Road
- Township Boundary
- Surface Ownership**
- Not Identified Below (clear)
- EnCana (transparent)
- USFS (transparent)
- BLM (transparent)

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

Location	Sample Date:	Sample Matrix	Matrix Notes	Allowable Concentration -->	Organic Compounds in Soil (mg/kg [ppm])																			Inorganics in Soil			Metals in Soil (mg/kg [ppm])										
					TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C30) 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	Naphthalene	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
K22	07/22/09	Pit	pit bottom		1798.3	38.3	1760	0.144	0.525	ND	0.525	0.374	ND	ND	ND	ND	ND	ND	ND	0.122	ND	6.32	7.3	8.3	16.4		0.84	27.7	6.5	40	22.9	0.045	24.1	2	0.068	103	
K22	11/24/09	Pit	confirmation sample of exceedences		39.8	ND	39.8															0.505			20.6												



Technical Report for

EnCana

Pit Closures

K22 Pit Closure

Accutest Job Number: T33772

Sampling Date: 07/22/09

Report to:

EnCana
2717 Co. Rd. 215
Parachute, CO 81635
brett.middleton@encana.com; lannie.massey@encana.com;
christopher.hines@encana.com
ATTN: Brett Middleton

Total number of pages in report: 71



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-

Section 1: Sample Summary	3
Section 2: Sample Results	4
2.1: T33772-1: K22-BACKGROUND-072209	5
2.2: T33772-1A: K22-BACKGROUND-072209	11
2.3: T33772-1B: K22-BACKGROUND-072209	12
2.4: T33772-2: K22-PIT-072209	13
2.5: T33772-2A: K22-PIT-072209	19
2.6: T33772-2B: K22-PIT-072209	20
Section 3: Misc. Forms	21
3.1: Chain of Custody	22
Section 4: GC/MS Volatiles - QC Data Summaries	26
4.1: Method Blank Summary	27
4.2: Blank Spike Summary	28
4.3: Matrix Spike/Matrix Spike Duplicate Summary	29
Section 5: GC/MS Semi-volatiles - QC Data Summaries	30
5.1: Method Blank Summary	31
5.2: Blank Spike Summary	32
5.3: Matrix Spike/Matrix Spike Duplicate Summary	33
Section 6: GC Volatiles - QC Data Summaries	34
6.1: Method Blank Summary	35
6.2: Blank Spike Summary	36
6.3: Matrix Spike/Matrix Spike Duplicate Summary	37
Section 7: GC Semi-volatiles - QC Data Summaries	38
7.1: Method Blank Summary	39
7.2: Blank Spike Summary	40
7.3: Matrix Spike/Matrix Spike Duplicate Summary	41
Section 8: Metals Analysis - QC Data Summaries	42
8.1: Prep QC MP9956: As,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn	43
8.2: Prep QC MP9961: Hg	48
8.3: Prep QC MP9968: Ba	52
8.4: Prep QC MP9982: B	57
Section 9: General Chemistry - QC Data Summaries	62
9.1: Method Blank and Spike Results Summary	63
9.2: Duplicate Results Summary	64
Section 10: Misc. Forms (Accutest Laboratories Southeast, Inc.)	65
10.1: Chain of Custody	66
Section 11: General Chemistry - QC Data (Accutest Laboratories Southeast, Inc.)	68
11.1: Method Blank and Spike Results Summary	69
11.2: Duplicate Results Summary	70
11.3: Matrix Spike Results Summary	71



Sample Summary

EnCana

Job No: T33772

Pit Closures

Project No: K22 Pit Closure

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
T33772-1	07/22/09	15:50 DP	07/23/09	SO	Soil	K22-BACKGROUND-072209
T33772-1A	07/22/09	15:50 DP	07/23/09	AQ	Water Extract	K22-BACKGROUND-072209
T33772-1B	07/22/09	15:50 DP	07/23/09	SO	Soil	K22-BACKGROUND-072209
T33772-2	07/22/09	15:15 DP	07/23/09	SO	Soil	K22-PIT-072209
T33772-2A	07/22/09	15:15 DP	07/23/09	AQ	Water Extract	K22-PIT-072209
T33772-2B	07/22/09	15:15 DP	07/23/09	SO	Soil	K22-PIT-072209

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



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: K22-BACKGROUND-072209	
Lab Sample ID: T33772-1	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8260B	Percent Solids: 97.0
Project: Pit Closures	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0019137.D	1	07/27/09	JL	n/a	n/a	VM771
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.48 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	4.7	0.66	ug/kg	
108-88-3	Toluene	ND	4.7	0.89	ug/kg	
100-41-4	Ethylbenzene	ND	4.7	0.85	ug/kg	
1330-20-7	Xylene (total)	ND	14	2.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		70-121%
2037-26-5	Toluene-D8	108%		76-132%
460-00-4	4-Bromofluorobenzene	135%		73-165%
17060-07-0	1,2-Dichloroethane-D4	84%		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

Client Sample ID: K22-BACKGROUND-072209	
Lab Sample ID: T33772-1	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8270C SW846 3550B	Percent Solids: 97.0
Project: Pit Closures	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J12257.D	1	07/28/09	SC	07/27/09	OP12597	EJ565
Run #2							

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

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	47	ug/kg	
208-96-8	Acenaphthylene	ND	170	40	ug/kg	
120-12-7	Anthracene	ND	170	33	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	65	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	42	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	40	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	32	ug/kg	
218-01-9	Chrysene	ND	170	37	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	90	ug/kg	
206-44-0	Fluoranthene	ND	170	35	ug/kg	
86-73-7	Fluorene	ND	170	46	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	61	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	40	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	53	ug/kg	
91-20-3	Naphthalene	ND	170	34	ug/kg	
85-01-8	Phenanthrene	ND	170	46	ug/kg	
129-00-0	Pyrene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		26-124%
4165-62-2	Phenol-d5	69%		19-106%
118-79-6	2,4,6-Tribromophenol	88%		18-129%
4165-60-0	Nitrobenzene-d5	61%		18-104%
321-60-8	2-Fluorobiphenyl	75%		21-114%
1718-51-0	Terphenyl-d14	121%		24-149%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit

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: K22-BACKGROUND-072209	
Lab Sample ID: T33772-1	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8015	Percent Solids: 97.0
Project: Pit Closures	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE046147.D	1	07/24/09	FI	n/a	n/a	GEE2341
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.82 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	11.5	4.6	0.27	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		46-127%
98-08-8	aaa-Trifluorotoluene	102%		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: K22-BACKGROUND-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-1	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 97.0
Method: SW846 8015 M SW846 3550B	
Project: Pit Closures	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC214311.D	1	07/29/09	SS	07/28/09	OP12603	GCC934
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	29.1	8.4	2.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	81%		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: K22-BACKGROUND-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-1	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 97.0
Project: Pit Closures	

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.5	0.61	0.12	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Cadmium	0.55	0.31	0.061	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Chromium	26.6	0.61	0.043	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Copper	27.5	1.5	0.079	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Lead	17.9	0.61	0.24	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Mercury	0.017	0.016	0.00065	mg/kg	1	07/31/09	07/31/09 NS	SW846 7471A ²	SW846 7471A ⁴
Nickel	17.8	2.4	0.079	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Selenium	1.3	0.61	0.15	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Silver	0.049 U	0.61	0.049	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³
Zinc	83.7	1.2	0.24	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ³

- (1) Instrument QC Batch: MA4199
- (2) Instrument QC Batch: MA4201
- (3) Prep QC Batch: MP9956
- (4) Prep QC Batch: MP9961

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-BACKGROUND-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-1	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 97.0
Project: Pit Closures	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	1.0 U	2.1	1.0	mg/kg	1	07/31/09	AFL	SW846 3060A/7196A
Chromium, Trivalent ^b	26.6	2.7	1.0	mg/kg	1	07/31/09	AFL	SW846 6010/7196A M
Sodium Adsorption Ratio	0.30	0.40		ratio	1	08/06/09	RR	LADNR29B
Solids, Percent	97			%	1	07/24/09	JL	SM 2540B M
Specific Conductivity	324	1.0		umhos/cm	1	08/02/09 08:30	KD	EPA 120.1
pH	8.2			su	1	07/25/09 10:45	EV	SW846 9045C

(a) Analysis performed at Accutest Laboratories, Orlando, FL.

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-BACKGROUND-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-1A	Date Received: 07/23/09
Matrix: AQ - Water Extract	Percent Solids: 97.0
Project: Pit Closures	

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	1390	210	4.3	ug/l	1	08/03/09	08/08/09 NS	SW846 6010B ¹	SW846 3010A ²

(1) Instrument QC Batch: MA4219

(2) Prep QC Batch: MP9982

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-BACKGROUND-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-1B	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 97.0
Project: Pit Closures	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	329	10	0.030	mg/kg	1	07/29/09	08/18/09 NS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA4239

(2) Prep QC Batch: MP9968

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-PIT-072209	
Lab Sample ID: T33772-2	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8260B	Percent Solids: 77.0
Project: Pit Closures	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0019133.D	1	07/27/09	JL	n/a	n/a	VM771
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.95 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	144	350	49	ug/kg	J
108-88-3	Toluene	525	350	66	ug/kg	
100-41-4	Ethylbenzene	ND	350	63	ug/kg	
1330-20-7	Xylene (total)	525	1000	150	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		70-121%
2037-26-5	Toluene-D8	100%		76-132%
460-00-4	4-Bromofluorobenzene	109%		73-165%
17060-07-0	1,2-Dichloroethane-D4	80%		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

Client Sample ID: K22-PIT-072209	
Lab Sample ID: T33772-2	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8270C SW846 3550B	Percent Solids: 77.0
Project: Pit Closures	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J12258.D	1	07/28/09	SC	07/27/09	OP12597	EJ565
Run #2	J12262.D	20	07/28/09	SC	07/27/09	OP12597	EJ565

Run #	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	374	210	59	ug/kg	
208-96-8	Acenaphthylene	ND	210	51	ug/kg	
120-12-7	Anthracene	ND	210	41	ug/kg	
56-55-3	Benzo(a)anthracene	ND	210	82	ug/kg	
50-32-8	Benzo(a)pyrene	ND	210	34	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	210	53	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	210	51	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	210	40	ug/kg	
218-01-9	Chrysene	ND	210	47	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	210	110	ug/kg	
206-44-0	Fluoranthene	ND	210	44	ug/kg	
86-73-7	Fluorene	ND	210	58	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	210	77	ug/kg	
90-12-0	1-Methylnaphthalene	197	210	50	ug/kg	J
91-57-6	2-Methylnaphthalene	420	210	67	ug/kg	
91-20-3	Naphthalene	122	210	43	ug/kg	J
85-01-8	Phenanthrene	383	210	57	ug/kg	
129-00-0	Pyrene	ND	210	42	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%	47%	26-124%
4165-62-2	Phenol-d5	62%	57%	19-106%
118-79-6	2,4,6-Tribromophenol	101%	63%	18-129%
4165-60-0	Nitrobenzene-d5	60%	57%	18-104%
321-60-8	2-Fluorobiphenyl	296% ^a	70%	21-114%
1718-51-0	Terphenyl-d14	104%	100%	24-149%

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

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: K22-PIT-072209	
Lab Sample ID: T33772-2	Date Sampled: 07/22/09
Matrix: SO - Soil	Date Received: 07/23/09
Method: SW846 8015	Percent Solids: 77.0
Project: Pit Closures	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE046148.D	1	07/24/09	FI	n/a	n/a	GEE2341
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.95 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	38.3	7.0	0.42	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	117%		46-127%
98-08-8	aaa-Trifluorotoluene	97%		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: K22-PIT-072209		Date Sampled: 07/22/09
Lab Sample ID: T33772-2		Date Received: 07/23/09
Matrix: SO - Soil		Percent Solids: 77.0
Method: SW846 8015 M SW846 3550B		
Project: Pit Closures		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC214327.D	10	07/30/09	SS	07/28/09	OP12603	GCC935
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	1760	110	35	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	0% ^a		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: K22-PIT-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-2	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 77.0
Project: Pit Closures	

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	16.4	0.77	0.15	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Cadmium	0.84	0.38	0.077	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Chromium	32.8	3.8	0.27	mg/kg	5	07/30/09	08/11/09 NS	SW846 6010B ³	SW846 3050B ⁴
Copper	40.0	1.9	0.10	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Lead	22.9	3.8	1.5	mg/kg	5	07/30/09	08/11/09 NS	SW846 6010B ³	SW846 3050B ⁴
Mercury	0.045	0.020	0.00078	mg/kg	1	07/31/09	07/31/09 NS	SW846 7471A ²	SW846 7471A ⁵
Nickel	24.1	3.1	0.10	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Selenium	2.0	0.77	0.18	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Silver	0.068 B	0.77	0.061	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴
Zinc	103	1.5	0.31	mg/kg	1	07/30/09	07/30/09 NS	SW846 6010B ¹	SW846 3050B ⁴

- (1) Instrument QC Batch: MA4199
- (2) Instrument QC Batch: MA4201
- (3) Instrument QC Batch: MA4227
- (4) Prep QC Batch: MP9956
- (5) Prep QC Batch: MP9961

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-PIT-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-2	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 77.0
Project: Pit Closures	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent ^a	6.5 U	13	6.5	mg/kg	5	07/31/09	AFL	SW846 3060A/7196A
Chromium, Trivalent ^b	27.7	14	6.6	mg/kg	1	07/31/09	AFL	SW846 6010/7196A M
Sodium Adsorption Ratio	7.3	0.40		ratio	1	08/06/09	RR	LADNR29B
Solids, Percent	77			%	1	07/24/09	JL	SM 2540B M
Specific Conductivity	6320	1.0		umhos/cm	1	08/02/09 08:30	KD	EPA 120.1
pH	8.3			su	1	07/25/09 10:45	EV	SW846 9045C

(a) Dilution required due to matrix interference. Analysis performed at Accutest Laboratories, Orlando, FL.

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-PIT-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-2A	Date Received: 07/23/09
Matrix: AQ - Water Extract	Percent Solids: 77.0
Project: Pit Closures	

Total Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	1620	200	4.2	ug/l	1	08/03/09	08/08/09 NS	SW846 6010B ¹	SW846 3010A ²

(1) Instrument QC Batch: MA4219

(2) Prep QC Batch: MP9982

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-PIT-072209	Date Sampled: 07/22/09
Lab Sample ID: T33772-2B	Date Received: 07/23/09
Matrix: SO - Soil	Percent Solids: 77.0
Project: Pit Closures	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	12200	320	0.96	mg/kg	25	07/29/09	07/31/09 NS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA4202

(2) Prep QC Batch: MP9968

RL = Reporting Limit
MDL = Method Detection Limit

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



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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

CONTAMINANT OF CONCERN	CONCENTRATIONS	ANALYTICAL METHOD (SW846)
<i>Organic Compounds in Soil</i>		
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg	8015
Benzene	0.17 mg/kg ²	8260B
Toluene	65 mg/kg ²	8260B
Ethylbenzene	100 mg/kg ²	8260B
Xylenes (total)	175 mg/kg ²	8260B
Acenaphthene	1,000 mg/kg ²	8270C
Anthracene	1,000 mg/kg ²	8270C
Benzo(a)anthracene	0.22 mg/kg ²	8270C
Benzo(b)fluoranthene	0.22 mg/kg ²	8270C
Benzo(k)fluoranthene	2.2 mg/kg ²	8270C
Benzo(a)pyrene	0.022 mg/kg ²	8270C
Chrysene	22 mg/kg ²	8270C
Dibenz(a,h)anthracene	0.022 mg/kg ²	8270C
Fluoranthene	1,000 mg/kg ²	8270C
Fluorene	1,000 mg/kg ²	8270C
Indeno(1,2,3-c,d)pyrene	0.22 mg/kg ²	8270C
Naphthalene	28 mg/kg ²	8270C
Pyrene	1,000 mg/kg ²	8270C
<i>Inorganics in Soils</i>		
Electrical Conductivity (EC)	<4 mmhos/cm or 2x background	9050
Sodium Adsorption Ratio (SAR)	<1 ²	LADNR293
pH	6-9	9045C
<i>Metals in Soils</i>		
Arsenic	0.39 mg/kg ²	6010B
Barium (LDNR True Total Barium)	15,000 mg/kg ²	6010B
Boron (Hot Water Soluble)	2 mg/kg ²	6010B
Cadmium	7.0 mg/kg ²	6010B
Chromium (II)	120,000 mg/kg ²	6010B
Chromium (VI)	23 mg/kg ²	6010B
Copper	3,100 mg/kg ²	6010B
Lead (Inorganic)	400 mg/kg ²	6010B
Mercury	23 mg/kg ²	6010B
Nickel (soluble salts)	1,800 mg/kg ²	6010B
Selenium	390 mg/kg ²	6010B
Silver	390 mg/kg ²	6010B
Zinc	23,000 mg/kg ²	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 SW846 analytical methods be used where possible and that analyses of samples be performed in accordance with the methods listed in Table 910-1. Consideration shall be given to background levels in native soils.

SAMPLE INSPECTION FORM

Accutest Job Number: T33772 Client: Enigma Oil H&S Date/Time Received: 7-23-9 930
 # of Coolers Received: 1 Thermometer #: 21 Temperature Adjustment Factor: 1.4
 Cooler Temps: #1: 4.4°C #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: [Signature] 7/23/9
 INFORMATION AND SAMPLE LABELING VERIFIED BY: [Signature]

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ **CORRECTIVE ACTIONS** ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦

Client Representative Notified: _____ **Date:** _____
By Accutest Representative: _____ **Via:** Phone Email
Client Instructions: _____

i:\mwalker\forms\samplemanagement

31
3





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: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM771-MB	M0019118.D 1		07/27/09	JL	n/a	n/a	VM771

The QC reported here applies to the following samples:

Method: SW846 8260B

T33772-1, T33772-2

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	92%	70-121%
2037-26-5	Toluene-D8	98%	76-132%
460-00-4	4-Bromofluorobenzene	105%	73-165%
17060-07-0	1,2-Dichloroethane-D4	88%	57-122%

Blank Spike Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM771-BS	M0019116.D	1	07/27/09	JL	n/a	n/a	VM771

The QC reported here applies to the following samples:

Method: SW846 8260B

T33772-1, T33772-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	46.3	93	70-114
100-41-4	Ethylbenzene	50	42.4	85	60-119
108-88-3	Toluene	50	43.7	87	68-115
1330-20-7	Xylene (total)	150	127	85	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	70-121%
2037-26-5	Toluene-D8	98%	76-132%
460-00-4	4-Bromofluorobenzene	108%	73-165%
17060-07-0	1,2-Dichloroethane-D4	86%	57-122%

4.2.1
4

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T33464-1MS	M0019124.D	1	07/27/09	JL	n/a	n/a	VM771
T33464-1MSD	M0019125.D	1	07/27/09	JL	n/a	n/a	VM771
T33464-1 ^a	M0019123.D	1	07/27/09	JL	n/a	n/a	VM771
T33464-1	M0019126.D	1	07/27/09	JL	n/a	n/a	VM771

The QC reported here applies to the following samples:

Method: SW846 8260B

T33772-1, T33772-2

CAS No.	Compound	T33464-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND ^b	2660	2560	96	2500	94	2	70-114/38
100-41-4	Ethylbenzene	ND ^b	2660	2310	87	2290	86	1	60-119/40
108-88-3	Toluene	ND ^b	2660	2470	93	2400	90	3	68-115/38
1330-20-7	Xylene (total)	ND ^b	7970	7030	88	6900	87	2	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T33464-1	T33464-1	Limits
1868-53-7	Dibromofluoromethane	90%	89%	91%	91%	70-121%
2037-26-5	Toluene-D8	98%	97%	99%	111%	76-132%
460-00-4	4-Bromofluorobenzene	104%	105%	104%	147%	73-165%
17060-07-0	1,2-Dichloroethane-D4	90%	84%	88%	88%	57-122%

(a) Reported for QC purposes only. Sample was reanalyzed at 1x.

(b) Result is from Run #2.



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: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12597-MB	H34276.D	1	07/28/09	SC	07/27/09	OP12597	EH1857

The QC reported here applies to the following samples:

Method: SW846 8270C

T33772-1, T33772-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	46	ug/kg	
208-96-8	Acenaphthylene	ND	170	39	ug/kg	
120-12-7	Anthracene	ND	170	32	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	64	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	41	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	39	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	31	ug/kg	
218-01-9	Chrysene	ND	170	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	88	ug/kg	
206-44-0	Fluoranthene	ND	170	34	ug/kg	
86-73-7	Fluorene	ND	170	45	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	60	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	39	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	52	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	45	ug/kg	
129-00-0	Pyrene	ND	170	32	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	78%	26-124%
4165-62-2	Phenol-d5	60%	19-106%
118-79-6	2,4,6-Tribromophenol	69%	18-129%
4165-60-0	Nitrobenzene-d5	84%	18-104%
321-60-8	2-Fluorobiphenyl	72%	21-114%
1718-51-0	Terphenyl-d14	58%	24-149%

Blank Spike Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12597-BS	H34277.D	1	07/28/09	SC	07/27/09	OP12597	EH1857

The QC reported here applies to the following samples:

Method: SW846 8270C

T33772-1, T33772-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	1670	1410	85	53-106
208-96-8	Acenaphthylene	1670	1720	103	61-121
120-12-7	Anthracene	1670	1260	76	66-105
56-55-3	Benzo(a)anthracene	1670	1430	86	62-113
50-32-8	Benzo(a)pyrene	1670	1390	83	61-118
205-99-2	Benzo(b)fluoranthene	1670	1260	76	67-110
191-24-2	Benzo(g,h,i)perylene	1670	1060	64	57-124
207-08-9	Benzo(k)fluoranthene	1670	1440	86	65-116
218-01-9	Chrysene	1670	1460	88	71-106
53-70-3	Dibenzo(a,h)anthracene	1670	1460	88	59-123
206-44-0	Fluoranthene	1670	1410	85	64-114
86-73-7	Fluorene	1670	1520	91	65-99
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1450	87	51-133
90-12-0	1-Methylnaphthalene	1670	1160	70	56-94
91-57-6	2-Methylnaphthalene	1670	1050	63	48-101
91-20-3	Naphthalene	1670	1200	72	57-94
85-01-8	Phenanthrene	1670	1220	73	66-102
129-00-0	Pyrene	1670	956	57	49-117

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	77%	26-124%
4165-62-2	Phenol-d5	76%	19-106%
118-79-6	2,4,6-Tribromophenol	81%	18-129%
4165-60-0	Nitrobenzene-d5	76%	18-104%
321-60-8	2-Fluorobiphenyl	85%	21-114%
1718-51-0	Terphenyl-d14	58%	24-149%

5.2.1
5

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12597-MS	H34283.D	1	07/28/09	SC	07/27/09	OP12597	EH1857
OP12597-MSD	H34284.D	1	07/28/09	SC	07/27/09	OP12597	EH1857
T33364-1R	H34282.D	1	07/28/09	SC	07/27/09	OP12597	EH1857

The QC reported here applies to the following samples:

Method: SW846 8270C

T33772-1, T33772-2

CAS No.	Compound	T33364-1R ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	3090	2340	76	2360	77	1	53-106/49
208-96-8	Acenaphthylene	ND	3090	2710	88	2910	95	7	61-121/49
120-12-7	Anthracene	ND	3090	2380	77	2380	77	0	66-105/40
56-55-3	Benzo(a)anthracene	ND	3090	2340	76	2560	83	9	62-113/43
50-32-8	Benzo(a)pyrene	ND	3090	2290	74	2600	84	13	61-118/44
205-99-2	Benzo(b)fluoranthene	ND	3090	2410	78	2590	84	7	67-110/42
191-24-2	Benzo(g,h,i)perylene	ND	3090	2770	90	2890	94	4	57-124/50
207-08-9	Benzo(k)fluoranthene	ND	3090	2630	85	2860	93	8	65-116/37
218-01-9	Chrysene	ND	3090	2510	81	2530	82	1	71-106/39
53-70-3	Dibenzo(a,h)anthracene	ND	3090	3170	103	2800	91	12	59-123/37
206-44-0	Fluoranthene	ND	3090	2240	73	2420	79	8	64-114/45
86-73-7	Fluorene	ND	3090	2570	83	2650	86	3	65-99/42
193-39-5	Indeno(1,2,3-cd)pyrene	ND	3090	3630	118	3630	118	0	51-133/55
90-12-0	1-Methylnaphthalene	ND	3090	1970	64	1980	64	1	56-94/49
91-57-6	2-Methylnaphthalene	ND	3090	2020	65	1890	61	7	48-101/48
91-20-3	Naphthalene	ND	3090	2120	69	2280	74	7	57-94/49
85-01-8	Phenanthrene	ND	3090	2270	73	2300	75	1	66-102/47
129-00-0	Pyrene	ND	3090	2230	72	2200	71	1	49-117/46

CAS No.	Surrogate Recoveries	MS	MSD	T33364-1R	Limits
367-12-4	2-Fluorophenol	64%	75%	72%	26-124%
4165-62-2	Phenol-d5	72%	78%	67%	19-106%
118-79-6	2,4,6-Tribromophenol	77%	76%	86%	18-129%
4165-60-0	Nitrobenzene-d5	68%	66%	79%	18-104%
321-60-8	2-Fluorobiphenyl	74%	72%	83%	21-114%
1718-51-0	Terphenyl-d14	69%	69%	85%	24-149%

5.3.1
 5



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: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2341-MB	EE046139.D	1	07/24/09	FI	n/a	n/a	GEE2341

The QC reported here applies to the following samples:

Method: SW846 8015

T33772-1, T33772-2

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	96%	46-127%
98-08-8	aaa-Trifluorotoluene	103%	44-120%

Blank Spike Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2341-BS	EE046135.D	1	07/24/09	FI	n/a	n/a	GEE2341

The QC reported here applies to the following samples:

Method: SW846 8015

T33772-1, T33772-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.372	93	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	95%	46-127%
98-08-8	aaa-Trifluorotoluene	105%	44-120%

6.2.1
6

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T33771-1MS	EE046150.D	1	07/24/09	FI	n/a	n/a	GEE2341
T33771-1MSD	EE046151.D	1	07/24/09	FI	n/a	n/a	GEE2341
T33771-1	EE046140.D	1	07/24/09	FI	n/a	n/a	GEE2341

The QC reported here applies to the following samples:

Method: SW846 8015

T33772-1, T33772-2

CAS No.	Compound	T33771-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	11.3	20	28.1	84	27.6	82	2	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T33771-1	Limits
460-00-4	4-Bromofluorobenzene	99%	99%	93%	46-127%
98-08-8	aaa-Trifluorotoluene	107%	103%	105%	44-120%

6.3.1
6



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: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12603-MB	CC214287.D 1		07/29/09	SS	07/28/09	OP12603	GCC934

The QC reported here applies to the following samples:

Method: SW846 8015 M

T33772-1, T33772-2

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	73% 33-115%

7.1.1
7

Blank Spike Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12603-BS	CC214288.D 1		07/29/09	SS	07/28/09	OP12603	GCC934

The QC reported here applies to the following samples:

Method: SW846 8015 M

T33772-1, T33772-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.3	23.1	69	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	66%	33-115%

7.2.1

7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T33772
Account: ENCACOP EnCana
Project: Pit Closures

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12603-MS	CC214289.D	1	07/29/09	SS	07/28/09	OP12603	GCC934
OP12603-MSD	CC214290.D	1	07/29/09	SS	07/28/09	OP12603	GCC934
T33993-1	CC214298.D	1	07/29/09	SS	07/28/09	OP12603	GCC934

The QC reported here applies to the following samples:

Method: SW846 8015 M

T33772-1, T33772-2

CAS No.	Compound	T33993-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	127	48.6	197	144* a	197	144* a	0	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T33993-1	Limits
84-15-1	o-Terphenyl	79%	73%	82%	33-115%

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

7.3.1
7



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: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

QC Batch ID: MP9956
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/30/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	-0.0095	<0.50
Barium	10	.007	.03		
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05	0.0020	<0.25
Calcium	250	.27	.86		
Chromium	0.50	.055	.035	-0.074	<0.50
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065	-0.077	<1.3
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2	0.036	<0.50
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065	-0.10	<2.0
Potassium	250	2.7	16		
Selenium	0.50	.16	.12	0.027	<0.50
Silver	0.50	.043	.04	-0.0080	<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	-0.0075	<1.0

Associated samples MP9956: T33772-1, T33772-2

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

8.1.1
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9956
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/30/09 07/30/09

Metal	T34222-1 Original	DUP	RPD	QC Limits	T34222-1 Original MS	Spikelot MPTW4	% Rec	QC Limits	
Aluminum									
Antimony	anr								
Arsenic	3.2	3.4	6.1	0-20	3.2	24.2	30.8	68.2N	80-120
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	0.23	0.27	16.0	0-20	0.23	23.0	30.8	74.0N	80-120
Calcium									
Chromium	8.6	7.4	15.0	0-20	8.6	29.9	30.8	69.2N	80-120
Cobalt	anr								
Copper	51.7	34.1	41.0*(a)	0-20	51.7	43.5	30.8	-26.6N	80-120
Iron	anr								
Lead	16.7	14.7	12.7	0-20	16.7	39.4	30.8	73.8N	80-120
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	4.9	4.2	15.4	0-20	4.9	27.7	30.8	74.1N	80-120
Potassium	anr								
Selenium	0.47	0.41	13.6	0-20	0.47	21.9	30.8	69.6N	80-120
Silver	0.0	0.0	NC	0-20	0.0	23.3	30.8	75.7N	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	190	147	25.5*(a)	0-20	190	156	30.8	-110.5(b)	80-120

Associated samples MP9956: T33772-1, T33772-2

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

8.1.2
 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9956
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/30/09

Metal	T34222-1 Original	MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	3.2	24.4	31.8	66.8N	0.8	20
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	0.23	23.1	31.8	72.0N	0.4	20
Calcium						
Chromium	8.6	29.8	31.8	66.8N	0.3	20
Cobalt	anr					
Copper	51.7	34.4	31.8	-54.5N	23.4 (a)	20
Iron	anr					
Lead	16.7	36.9	31.8	63.6N	6.6	20
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	4.9	27.5	31.8	71.2N	0.7	20
Potassium	anr					
Selenium	0.47	22.2	31.8	68.4N	1.4	20
Silver	0.0	23.5	31.8	74.0N	0.9	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	190	199	31.8	28.3 (b)	24.2 (a)	20

Associated samples MP9956: T33772-1, T33772-2

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.

8.1.2
8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9956
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/30/09

Metal	LCS Result	SpikeLot MPLCD050	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	267	280	95.4	81-119
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	169	182	92.9	82-118
Calcium				
Chromium	136	142	95.8	81-120
Cobalt	anr			
Copper	129	132	97.7	83-117
Iron	anr			
Lead	67.3	72.2	93.2	82-118
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	146	155	94.2	83-117
Potassium	anr			
Selenium	160	165	97.0	78-123
Silver	119	126	94.4	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	325	346	93.9	79-121

Associated samples MP9956: T33772-1, T33772-2

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

8.1.3
8

SERIAL DILUTION RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9956
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/30/09

Metal	T34222-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	40.6	47.3	16.4 (a)	0-10
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	2.88	3.65	26.7 (a)	0-10
Calcium				
Chromium	109	132	21.4*(b)	0-10
Cobalt	anr			
Copper	654	764	16.7*(b)	0-10
Iron	anr			
Lead	212	272	28.3*(b)	0-10
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	62.4	69.5	11.4*(b)	0-10
Potassium	anr			
Selenium	5.93	0.00	100.0(a)	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	2410	4340	79.8*(b)	0-10

Associated samples MP9956: T33772-1, T33772-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

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

(b) Serial dilution indicates possible matrix interference.

8.1.4
8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

QC Batch ID: MP9961
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 07/31/09

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

Mercury 0.017 .0041 .00066 0.000083 <0.017

Associated samples MP9961: T33772-1, T33772-2

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: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9961
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/31/09 07/31/09

Metal	T33771-1 Original	DUP	RPD	QC Limits	T33771-1 Original MS	Spikelot HGTXWS1	% Rec	QC Limits
Mercury	0.011	0.011	0.0	0-20	0.011 0.30	0.248	116.5	75-125

Associated samples MP9961: T33772-1, T33772-2

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

8.2.2
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9961
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 07/31/09

Metal	T33771-1 Original MSD	SpikeLot HGTXWS1	% Rec	MSD RPD	QC Limit
Mercury	0.011	0.28	0.244	110.4	6.9

Associated samples MP9961: T33772-1, T33772-2

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

8.2.2
8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

QC Batch ID: MP9961
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 07/31/09

Metal	LCS Result	Spikelot HGLCD050 % Rec	QC Limits
Mercury	9.4	8.48	110.8 66-132

Associated samples MP9961: T33772-1, T33772-2

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

8.2.3

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

QC Batch ID: MP9968
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 07/29/09

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	0.32	<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 MP9968: T33772-1B, T33772-2B

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

8.3.1
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9968
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/29/09 07/29/09

Metal	T33992-2B Original	DUP	RPD	QC Limits	T33992-2B Original MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic								
Barium	27100	24800	8.9	0-20	27100	28900	29.2	6168.7(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 MP9968: T33772-1B, T33772-2B

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.

8.3.2
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9968
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/29/09

Metal	T33992-2B Original MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium	27100	27100	27.7	0.0 (a)	6.4	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 MP9968: T33772-1B, T33772-2B

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.

8.3.2
8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9968
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 07/29/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	20.8	20	104.0	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 MP9968: T33772-1B, T33772-2B

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

8.3.3
8

SERIAL DILUTION RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9968
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 07/29/09

Metal	T33992-2B	QC
	Original SDL 50:250%DIF	Limits

Aluminum				
Antimony				
Arsenic				
Barium	381000	371000	2.7	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 MP9968: T33772-1B, T33772-2B

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

8.3.4
 8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

QC Batch ID: MP9982
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 08/03/09

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	17.6	<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 MP9982: T33772-1A, T33772-2A

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

8.4.1
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9982
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 08/03/09 08/03/09

Metal	T33993-2A Original	DUP	RPD	QC Limits	T33993-2A Original MS	Spikelot MPTW4	% Rec	QC Limits	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	526	373	34.0 (a)	0-20	526	2150	1000	74.2	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 MP9982: T33772-1A, T33772-2A

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

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

8.4.2
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9982
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 08/03/09

Metal	T33993-2A Original MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	526	2040	1000	70.6	5.3	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP9982: T33772-1A, T33772-2A

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

8.4.2
8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9982
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 08/03/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1870	1000	93.5	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 MP9982: T33772-1A, T33772-2A

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

8.4.3
8

SERIAL DILUTION RESULTS SUMMARY

Login Number: T33772
 Account: ENCACOP - EnCana
 Project: Pit Closures

QC Batch ID: MP9982
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 08/03/09

Metal	T33993-2A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	265	289	9.1	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 MP9982: T33772-1A, T33772-2A

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

8.4.4
 8



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: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Sodium Adsorption Ratio	MP10014/GN17618	0.40	0.28	ratio				
Specific Conductivity	GN17554	1.0	<1.0	umhos/cm				

Associated Samples:

Batch GN17554: T33772-1, T33772-2

Batch MP10014: T33772-1, T33772-2

(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T33772
Account: ENCACOP - EnCana
Project: Pit Closures

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Sodium Adsorption Ratio	MP10014/GN17618	T33992-5	ratio	16	1.2	0.8	0-20%
Solids, Percent	GN17468	T33378-12	%	95.7	95.7	0.0	0-20%
Specific Conductivity	GN17554	T33463-1	umhos/cm	1870	1870	0.0	0-20%
pH	GN17476	T33894-4	su	8.4	8.4	0.0	0-20%

Associated Samples:

Batch GN17468: T33772-1, T33772-2

Batch GN17476: T33772-1, T33772-2

Batch GN17554: T33772-1, T33772-2

Batch MP10014: T33772-1, T33772-2

(*) Outside of QC limits



Misc. Forms

Custody Documents and Other Forms

(Accutest Laboratories Southeast, Inc.)

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: T33772 CLIENT: Algc PROJECT: T33772
DATE/TIME RECEIVED: 7/30/09 9:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 4.2
METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER
AIRBILL NUMBERS: 7968 H07 4624

COOLER INFORMATION

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET
- WET ICE RECEIVED IN COOLER

TRIP BLANK INFORMATION

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 0
NUMBER OF 5035 FIELD KITS ? 0
NUMBER OF LAB FILTERED METALS ? 0

SUMMARY OF COMMENTS: _____

SAMPLE INFORMATION

- SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
 - CORRECT NUMBER OF CONTAINERS USED
 - SAMPLE RECEIVED IMPROPERLY PRESERVED
 - INSUFFICIENT VOLUME FOR ANALYSIS
 - TIMES ON COC DOES NOT MATCH LABEL(S)
 - ID'S ON COC DOES NOT MATCH LABEL(S)
 - VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
 - BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
 - NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
 - UNCLEAR FILTERING INSTRUCTIONS
 - UNCLEAR COMPOSITING INSTRUCTIONS
 - SAMPLE CONTAINER(S) RECEIVED BROKEN
 - % SOLIDS JAR NOT RECEIVED
 - 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
 - RESIDUAL CHLORINE PRESENT
- (APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

TECHNICIAN SIGNATURE/DATE CLR 7/30/09 TECHNICIAN SIGNATURE/DATE F.T. 7-30-09

ASBD 12/17/07

10.1 10



General Chemistry

QC Data Summaries

(Accutest Laboratories Southeast, 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: T33772
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: ENCACOP: Pit Closures

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN36085	2.0	0.0	mg/kg	20.0	17.0	97.0	80-120%

Associated Samples:

Batch GN36085: T33772-1, T33772-2

(*) Outside of QC limits

11.1
11

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T33772
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: ENCACOP: Pit Closures

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN36085	T33778-1	mg/kg	4.0 B	4.0 B	44.0(a)	0-20%

Associated Samples:

Batch GN36085: T33772-1, T33772-2

(*) Outside of QC limits

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

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T33772
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: ENCACOP: Pit Closures

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN36085	T33778-1	mg/kg	4.0 B	21.8	43.7	182.0*(a)	80-120%

Associated Samples:

Batch GN36085: T33772-1, T33772-2

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.



Technical Report for

ENCANA

EnCana Oil & Gas (USA) Inc.

K22 Pit Clearance

Accutest Job Number: T43188

Sampling Date: 11/24/09

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: **31**



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 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-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	6
3.1: T43188-1: K22-PIT-112409	7
Section 4: Misc. Forms	11
4.1: Chain of Custody	12
Section 5: GC Volatiles - QC Data Summaries	15
5.1: Method Blank Summary	16
5.2: Blank Spike Summary	17
5.3: Matrix Spike/Matrix Spike Duplicate Summary	18
Section 6: GC Semi-volatiles - QC Data Summaries	19
6.1: Method Blank Summary	20
6.2: Blank Spike Summary	21
6.3: Matrix Spike/Matrix Spike Duplicate Summary	22
Section 7: Metals Analysis - QC Data Summaries	23
7.1: Prep QC MP10751: As	24
Section 8: General Chemistry - QC Data Summaries	29
8.1: Method Blank and Spike Results Summary	30
8.2: Duplicate Results Summary	31

1

2

3

4

5

6

7

8



Sample Summary

ENCANA

Job No: T43188

EnCana Oil & Gas (USA) Inc.
Project No: K22 Pit Clearance

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
T43188-1	11/24/09	11:00 DP	11/25/09	SO	Soil	K22-PIT-112409

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: ENCANA

Job No T43188

Site: EnCana Oil & Gas (USA) Inc.

Report Date 12/7/2009 5:12:50 PM

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/24/2009 and were received at Accutest on 11/25/2009 properly preserved, at 4.2 Deg. C and intact. These Samples received an Accutest job number of T43188. 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 GC By Method SW846 8015

Matrix SO	Batch ID: GEE2525
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) T42865-10MS, T42865-10MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846 8015 M

Matrix SO	Batch ID: OP13585
------------------	--------------------------

- 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) T43189-1MS, T43189-1MSD were used as the QC samples indicated.
- 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.

Metals By Method SW846 6010B

Matrix SO	Batch ID: MP10751
------------------	--------------------------

- 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) T42643-1MS, T42643-1MSD, T42643-1SDL, T42643-1DUP were used as the QC samples for metals.
- RPD(s) for Duplicate for Arsenic are outside control limits for sample MP10751-D1. High RPD due to possible sample nonhomogeneity.

Wet Chemistry By Method EPA 120.1

Matrix AQ	Batch ID: GN19188
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T42643-1DUP were used as the QC samples for Specific Conductivity.

Wet Chemistry By Method SM 2540 G

Matrix SO	Batch ID: GN19040
------------------	--------------------------

- Sample(s) T42643-3DUP 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: K22-PIT-112409	
Lab Sample ID: T43188-1	Date Sampled: 11/24/09
Matrix: SO - Soil	Date Received: 11/25/09
Method: SW846 8015	Percent Solids: 70.2
Project: EnCana Oil & Gas (USA) Inc.	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE050023.D	1	11/28/09	FI	n/a	n/a	GEE2525
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.60 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	8.5	0.51	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	105%		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

31
3

Client Sample ID: K22-PIT-112409	Date Sampled: 11/24/09
Lab Sample ID: T43188-1	Date Received: 11/25/09
Matrix: SO - Soil	Percent Solids: 70.2
Method: SW846 8015 M SW846 3550B	
Project: EnCana Oil & Gas (USA) Inc.	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC216900.D	1	12/04/09	SS	12/01/09	OP13585	GCC1017
Run #2							

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

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	39.8	12	3.9	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	58%		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: K22-PIT-112409	Date Sampled: 11/24/09
Lab Sample ID: T43188-1	Date Received: 11/25/09
Matrix: SO - Soil	Percent Solids: 70.2
Project: EnCana Oil & Gas (USA) Inc.	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	20.6	0.75	0.15	mg/kg	1	12/01/09	12/04/09 NS	SW846 6010B ¹	SW846 3050B ²

(1) Instrument QC Batch: MA4429

(2) Prep QC Batch: MP10751

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: K22-PIT-112409	Date Sampled: 11/24/09
Lab Sample ID: T43188-1	Date Received: 11/25/09
Matrix: SO - Soil	Percent Solids: 70.2
Project: EnCana Oil & Gas (USA) Inc.	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	70.2		%	1	11/27/09	AA	SM 2540 G
Specific Conductivity	505	1.0	umhos/cm	1	12/04/09 09:00	KD	EPA 120.1

RL = Reporting Limit



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SAMPLE INSPECTION FORM

Accutest Job Number: T43188 Client: Encore Oil & Gas (USA) Date/Time Received: 11-25-9 915
of Coolers Received: 1 Thermometer #: IR-1 Temperature Adjustment Factor: +0.4
Cooler Temps: #1: 4.2 °C #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: [Signature] 11-25-9
INFORMATION AND SAMPLE LABELING VERIFIED BY: [Signature] 11-25-9

CORRECTIVE ACTIONS

Client Representative Notified: _____ Date: _____

By Accutest Representative: _____ Via: Phone Email

Client Instructions: _____

H:\mwalken\forms\samplemanagement

SAMPLE RECEIPT LOG

JOB #: T43183 DATE/TIME RECEIVED: 11-25-9 9:15

CLIENT: Encore Oil & Gas (USA) INITIALS: SC

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV				PH	
								1	2	3	4		
1	1	K22-Pit 112409	11-24-9 1100	S	1602	1	2-20	1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12

C.C. 11-25-9

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other
 LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Solls) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer
 Rev 8/13/01 ewp

4.1
4



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: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2525-MB	EE050009.D	1	11/28/09	FI	n/a	n/a	GEE2525

The QC reported here applies to the following samples:

Method: SW846 8015

T43188-1

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	90%	46-127%
98-08-8	aaa-Trifluorotoluene	109%	44-120%

Blank Spike Summary

Job Number: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2525-BS	EE050004.D	1	11/28/09	FI	n/a	n/a	GEE2525

The QC reported here applies to the following samples:

Method: SW846 8015

T43188-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.408	102	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	102%	46-127%
98-08-8	aaa-Trifluorotoluene	112%	44-120%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T42865-10MS	EE050015.D	1	11/28/09	FI	n/a	n/a	GEE2525
T42865-10MSD	EE050016.D	1	11/28/09	FI	n/a	n/a	GEE2525
T42865-10	EE050012.D	1	11/28/09	FI	n/a	n/a	GEE2525

The QC reported here applies to the following samples:

Method: SW846 8015

T43188-1

CAS No.	Compound	T42865-10 mg/kg	Spike Q	mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	23.3	22.5	96	22.8	98	1	78-115/14	

CAS No.	Surrogate Recoveries	MS	MSD	T42865-10	Limits
460-00-4	4-Bromofluorobenzene	99%	103%	89%	46-127%
98-08-8	aaa-Trifluorotoluene	112%	114%	109%	44-120%

5.3.1
5



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: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13585-MB	CC216896.D 1		12/04/09	SS	12/01/09	OP13585	GCC1017

The QC reported here applies to the following samples:

Method: SW846 8015 M

T43188-1

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	61% 33-115%

Blank Spike Summary

Job Number: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13585-BS	CC216897.D 1		12/04/09	SS	12/01/09	OP13585	GCC1017

The QC reported here applies to the following samples:

Method: SW846 8015 M

T43188-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.3	30.6	92	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	58%	33-115%

6.2.1
6

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T43188
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13585-MS	CC216898.D 1		12/04/09	SS	12/01/09	OP13585	GCC1017
OP13585-MSD	CC216899.D 1		12/04/09	SS	12/01/09	OP13585	GCC1017
T43189-1	CC216901.D 1		12/04/09	SS	12/01/09	OP13585	GCC1017

The QC reported here applies to the following samples:

Method: SW846 8015 M

T43188-1

CAS No.	Compound	T43189-1 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	235	39.6	279	111* a	262	68	6	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T43189-1	Limits
84-15-1	o-Terphenyl	59%	60%	66%	33-115%

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

6.3.1
6



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: T43188
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10751
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 12/01/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	0.056	<0.50
Barium	10	.007	.03		
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 MP10751: T43188-1

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

7.1.1
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T43188
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10751
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 12/01/09 12/01/09

Metal	T42643-1 Original	DUP	RPD	QC Limits	T42643-1 Original MS	Spikelot MPTW4	% Rec	QC Limits	
Aluminum									
Antimony									
Arsenic	17.8	8.1	74.9*(a)	0-20	17.8	79.2	69.1	88.9	80-120
Barium	anr								
Beryllium									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron									
Lead	anr								
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Potassium									
Selenium	anr								
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	anr								

Associated samples MP10751: T43188-1

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

(a) High RPD due to possible sample nonhomogeneity.

7.1.2
7

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T43188
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10751
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 12/01/09

Metal	T42643-1 Original MSD		SpikeLot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	17.8	74.4	62.8	90.1	6.3	20
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP10751: T43188-1

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

7.1.2
7

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T43188
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10751
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 12/01/09

Metal	LCS Result	SpikeLot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	148	158	93.7	82-118
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP10751: T43188-1

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

7.1.3
7

SERIAL DILUTION RESULTS SUMMARY

Login Number: T43188
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10751
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 12/01/09

Metal	T42643-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	104	102	1.2	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP10751: T43188-1

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

7.1.4
7



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: T43188
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GN19188	1.0	<1.0	umhos/cm				

Associated Samples:
Batch GN19188: T43188-1
(*) Outside of QC limits

8.1

8

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T43188
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Percent	GN19040	T42643-3	%	96.4	96.8	0.4	0-5%
Specific Conductivity	GN19188	T42643-1	umhos/cm	6180	6200	0.3	0-20%

Associated Samples:
Batch GN19040: T43188-1
Batch GN19188: T43188-1
(*) Outside of QC limits

8.2
8