

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____	API Number: _____
2. Name of Operator: _____	OGCC Facility ID # _____
3. Well/Facility Name: _____	Well/Facility Number: _____
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____	

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Introduction

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 Sundry Notice to request final closure status for the earthen pit associated with the Cathedral Federal #27-2 (COGCC facility #315043, the COGCC remediation #7579). The site investigation was completed by a third party contractor as authorized by Encana personnel. It should be noted that all samples were collected in accordance with Encana's Environmental Compliance Group's Sampling Procedures. The analytical results for the respective soil samples were within the COGCC Table 910-1 standards and are provided in Table 1 and Attachment A of this submittal. The text below provides the details of the site investigation. For a visual description of the site investigation please refer to Figures 1 and 2 – Site Maps.

Site Investigation

July 19, 2012 – The pit was characterized utilizing a photoionization detector (PID) field unit by a third party consultant. A trackhoe was utilized for excavation purposes. There were minimal indicators of hydrocarbon impacts in accordance with field screen readings and visual observations. A grab sample from the pit bottom was sent to an accredited analytical laboratory for analysis. Five (5) background samples were also collected from approximately six (6) inches beneath the grounds surface for analysis with regards to arsenic. The analytical report indicated that the grab sample from the pit bottom was in compliance with the COGCC Table 910-1 standards. The soil which had been excavated was returned to the point of origin and compacted.

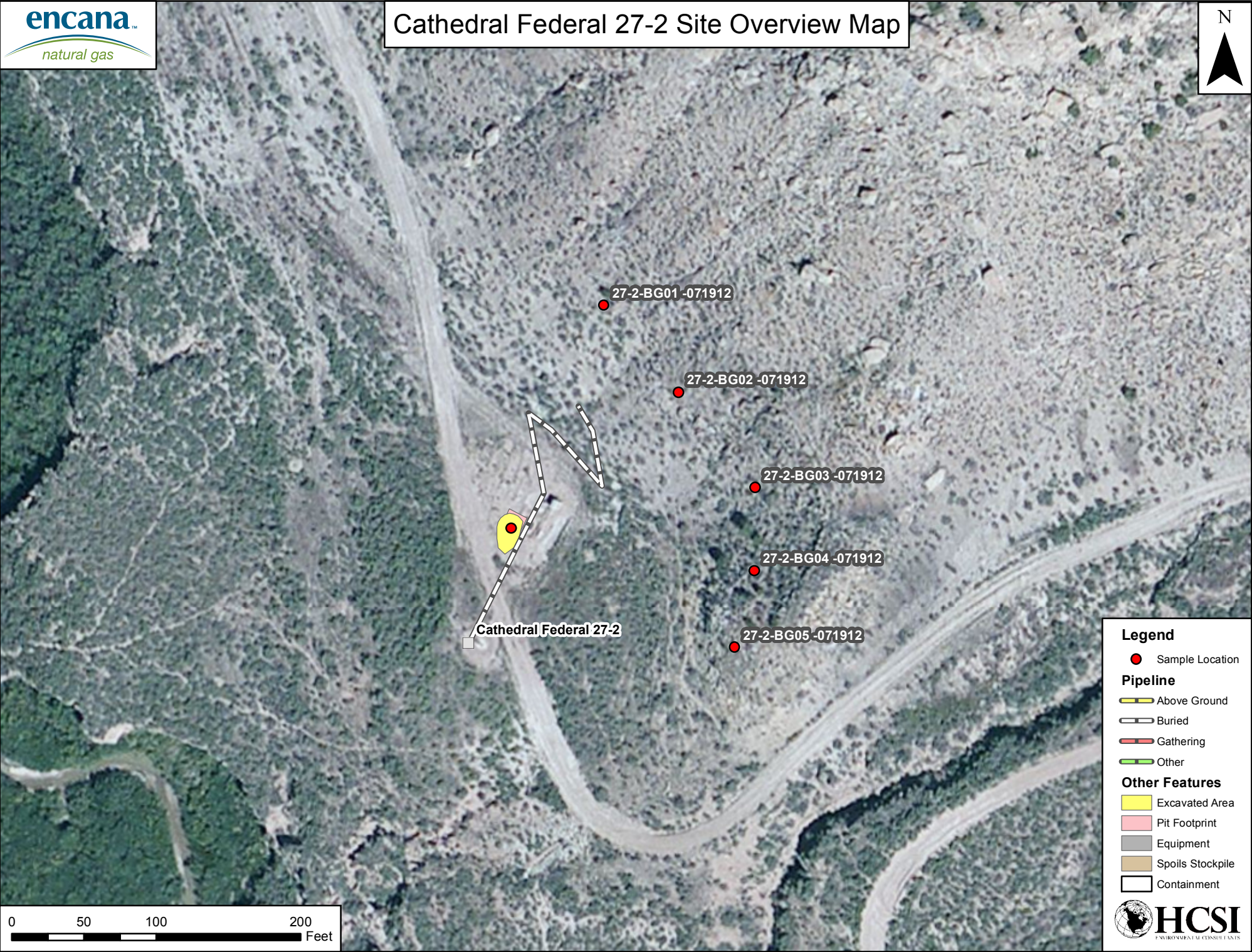
Conclusion

Based on the site investigation and analytical results, the pit associated with the Cathedral Federal #27-2 is in compliance with the standards specified within COGCC Table 910-1. Encana respectfully requests that final closure be granted for the respective pit, COGCC remediation # 7579.

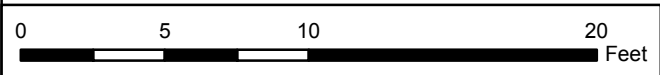
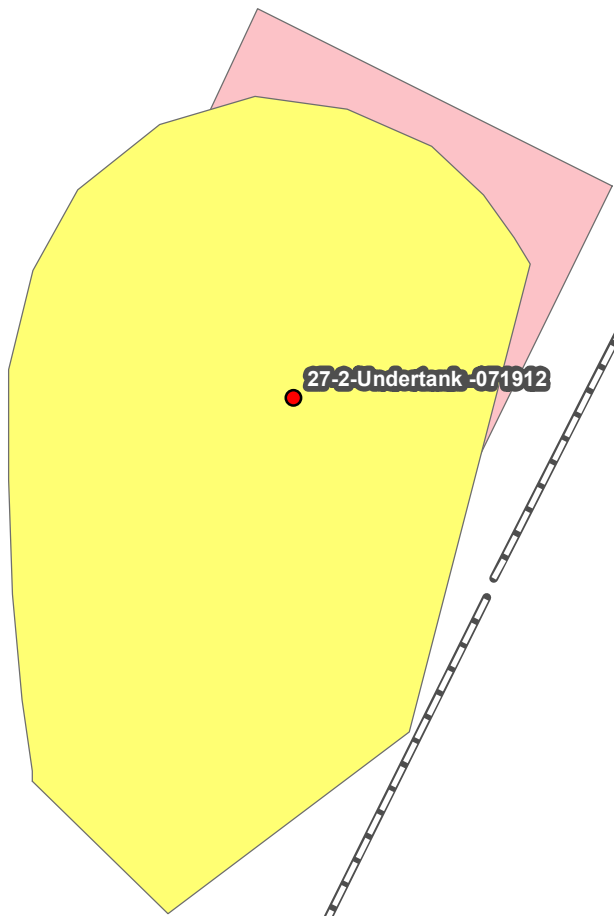
Analytical Review

Sample results indicate that the soil within the earthen pit footprint on Encana's Cathedral Federal #27-2 well pad have exceedances of COGCC Table 910-1 allowable concentrations for arsenic (3.6 ppm). Though the arsenic concentration in the soil is above the allowable concentration identified in Table 910-1, the concentration is within the range of arsenic background values (4.6-8.8 ppm) in this area. Based on these results and footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic value(s) as the allowable concentration for this constituent. Please see Attachment A for the respective laboratory analytical results.

Cathedral Federal 27-2 Site Overview Map



Cathedral Federal 27-2 Site Detail Map



Legend


● Sample Location

Pipeline

- Above Ground
- Buried
- Gathering
- Other

Other Features

- Excavated Area
- Pit Footprint
- Equipment
- Spoils Stockpile
- Containment



[illegible]



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

Est. 1970

Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

Report Summary

Tuesday July 31, 2012

Report Number: L586013

Samples Received: 07/20/12

Client Project: 10-418

Description: Pit Closure Project

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:

Jayred Willis, ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-BG01-071912 6IN
Collected By : KHR
Collection Date : 07/19/12 10:20

ESC Sample # : L586013-01

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.8	1.0	mg/kg	6010B	07/31/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 07/31/12 15:41 Printed: 07/31/12 15:41



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Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-BG02-071912 6IN
Collected By : KHR
Collection Date : 07/19/12 10:30

ESC Sample # : L586013-02

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.6	1.0	mg/kg	6010B	07/31/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-BG03-071912 6IN
Collected By : KHR
Collection Date : 07/19/12 10:40

ESC Sample # : L586013-03

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.2	1.0	mg/kg	6010B	07/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-BG04-071912 6IN
Collected By : KHR
Collection Date : 07/19/12 10:50

ESC Sample # : L586013-04

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.5	1.0	mg/kg	6010B	07/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-BG05-071912 6IN
Collected By : KHR
Collection Date : 07/19/12 10:55

ESC Sample # : L586013-05

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.0	1.0	mg/kg	6010B	07/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-UNDERTANK-071912 4FT
Collected By : KHR
Collection Date : 07/19/12 11:20

ESC Sample # : L586013-06

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/23/12	1
Chromium, Trivalent	6.1	2.0	mg/kg	Calc.	07/24/12	1
ORP	170		mV	2580	07/25/12	1
pH	8.3		su	9045D	07/24/12	1
Sodium Adsorption Ratio	6.7			Calc.	07/25/12	1
Specific Conductance	390		umhos/cm	9050AMod	07/23/12	1
Mercury	BDL	0.020	mg/kg	7471	07/21/12	1
Arsenic	3.6	1.0	mg/kg	6010B	07/24/12	1
Barium	69.	0.25	mg/kg	6010B	07/24/12	1
Cadmium	BDL	0.25	mg/kg	6010B	07/24/12	1
Chromium	6.1	0.50	mg/kg	6010B	07/24/12	1
Copper	7.8	1.0	mg/kg	6010B	07/24/12	1
Lead	8.2	0.25	mg/kg	6010B	07/24/12	1
Nickel	7.4	1.0	mg/kg	6010B	07/24/12	1
Selenium	BDL	1.0	mg/kg	6010B	07/24/12	1
Silver	BDL	0.50	mg/kg	6010B	07/24/12	1
Zinc	41.	1.5	mg/kg	6010B	07/24/12	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/20/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/20/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/20/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/20/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/20/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	85.2		% Rec.	8021/8015	07/20/12	5
a,a,a-Trifluorotoluene(PID)	93.0		% Rec.	8021/8015	07/20/12	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	07/23/12	1
Surrogate recovery(%)						
o-Terphenyl	64.6		% Rec.	3546/DRO	07/23/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L586013-06 (PH) - 8.3@22.2c



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1125 Escalante Drive
Rangely, CO 81648-3600

July 31, 2012

Date Received : July 20, 2012
Description : Pit Closure Project
Sample ID : 27-2-UNDERTANK-071912 4FT
Collected By : KHR
Collection Date : 07/19/12 11:20

ESC Sample # : L586013-06

Site ID : C FED 27-2

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	07/25/12	1
Surrogate Recovery						
Nitrobenzene-d5	70.6		% Rec.	8270C-SIM	07/25/12	1
2-Fluorobiphenyl	67.5		% Rec.	8270C-SIM	07/25/12	1
p-Terphenyl-d14	44.7		% Rec.	8270C-SIM	07/25/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/31/12 15:41 Printed: 07/31/12 15:41
L586013-06 (PH) - 8.3@22.2c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L586013-01	WG603690	SAMP	Arsenic	R2280134	J3
L586013-06	WG603859	SAMP	pH	R2270193	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

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

Definitions

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

Summary of Remarks For Samples Printed
07/31/12 at 15:41:45

TSR Signing Reports: 358
R5 - Desired TAT

Log all projects under the project codes with the project managers last name unless multiple project managers are listed.

Sample: L586013-01 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41

Sample: L586013-02 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41

Sample: L586013-03 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41

Sample: L586013-04 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41

Sample: L586013-05 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41

Sample: L586013-06 Account: ENCANRCO Received: 07/20/12 09:00 Due Date: 07/27/12 00:00 RPT Date: 07/31/12 15:41
Added CR3. AV 7/23 - 2oz WETCHEM container broken in lab accident



YOUR LAB OF CHOICE

EnCana Oil & Gas - Rangely, CO
Blake Ford and Kate Ramsay
1125 Escalante Drive

Rangely, CO 81648-3600

Quality Assurance Report
Level II

L586013

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July 31, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG603715	07/20/12 18:59
Ethylbenzene	< .0005	mg/kg			WG603715	07/20/12 18:59
Toluene	< .005	mg/kg			WG603715	07/20/12 18:59
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG603715	07/20/12 18:59
Total Xylene	< .0015	mg/kg			WG603715	07/20/12 18:59
a,a,a-Trifluorotoluene(FID)		% Rec.	84.94	59-128	WG603715	07/20/12 18:59
a,a,a-Trifluorotoluene(PID)		% Rec.	92.78	54-144	WG603715	07/20/12 18:59
Mercury	< .02	mg/kg			WG603751	07/21/12 15:07
TPH (GC/FID) High Fraction	< 4	ppm			WG603704	07/23/12 10:46
o-Terphenyl		% Rec.	83.51	50-150	WG603704	07/23/12 10:46
Chromium, Hexavalent	< 2	mg/kg			WG603725	07/23/12 12:02
Specific Conductance	2.17	umhos/cm			WG603840	07/23/12 17:34
Arsenic	< 1	mg/kg			WG603831	07/24/12 00:52
Barium	< .25	mg/kg			WG603831	07/24/12 00:52
Cadmium	< .25	mg/kg			WG603831	07/24/12 00:52
Chromium	< .5	mg/kg			WG603831	07/24/12 00:52
Copper	< 1	mg/kg			WG603831	07/24/12 00:52
Lead	< .25	mg/kg			WG603831	07/24/12 00:52
Nickel	< 1	mg/kg			WG603831	07/24/12 00:52
Selenium	< 1	mg/kg			WG603831	07/24/12 00:52
Silver	< .5	mg/kg			WG603831	07/24/12 00:52
Zinc	< 1.5	mg/kg			WG603831	07/24/12 00:52
pH	4.86	su			WG603859	07/24/12 10:30
1-Methylnaphthalene	< .006	mg/kg			WG603815	07/24/12 10:12
2-Chloronaphthalene	< .006	mg/kg			WG603815	07/24/12 10:12
2-Methylnaphthalene	< .006	mg/kg			WG603815	07/24/12 10:12
Acenaphthene	< .006	mg/kg			WG603815	07/24/12 10:12
Acenaphthylene	< .006	mg/kg			WG603815	07/24/12 10:12
Anthracene	< .006	mg/kg			WG603815	07/24/12 10:12
Benzo(a)anthracene	< .006	mg/kg			WG603815	07/24/12 10:12
Benzo(a)pyrene	< .006	mg/kg			WG603815	07/24/12 10:12
Benzo(b)fluoranthene	< .006	mg/kg			WG603815	07/24/12 10:12
Benzo(g,h,i)perylene	< .006	mg/kg			WG603815	07/24/12 10:12
Benzo(k)fluoranthene	< .006	mg/kg			WG603815	07/24/12 10:12
Chrysene	< .006	mg/kg			WG603815	07/24/12 10:12
Dibenz(a,h)anthracene	< .006	mg/kg			WG603815	07/24/12 10:12
Fluoranthene	< .006	mg/kg			WG603815	07/24/12 10:12
Fluorene	< .006	mg/kg			WG603815	07/24/12 10:12
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG603815	07/24/12 10:12
Naphthalene	< .006	mg/kg			WG603815	07/24/12 10:12
Phenanthrene	< .006	mg/kg			WG603815	07/24/12 10:12
Pyrene	< .006	mg/kg			WG603815	07/24/12 10:12
2-Fluorobiphenyl		% Rec.	68.23	34-129	WG603815	07/24/12 10:12
Nitrobenzene-d5		% Rec.	60.82	14-141	WG603815	07/24/12 10:12
p-Terphenyl-d14		% Rec.	74.03	25-139	WG603815	07/24/12 10:12

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

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Level II

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July 31, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed	
		Units	% Rec				
Arsenic	< 1	mg/kg			WG603852	07/26/12 19:38	
Arsenic	< 1	mg/kg			WG603690	07/31/12 01:38	
Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
			Duplicate				
Mercury	mg/kg	0	0	0	20	L586013-06	WG603751
Chromium,Hexavalent	mg/kg	0	0	0	20	L585715-17	WG603725
Chromium,Hexavalent	mg/kg	0	0	0	20	L586108-06	WG603725
Specific Conductance	umhos/cm	380.	330.	13.8	20	L585352-05	WG603840
Specific Conductance	umhos/cm	1400	1400	1.42	20	L586202-02	WG603840
Arsenic	mg/kg	3.90	4.10	5.51	20	L586108-06	WG603831
Barium	mg/kg	260.	300.	13.9	20	L586108-06	WG603831
Cadmium	mg/kg	0	0	0	20	L586108-06	WG603831
Chromium	mg/kg	7.20	7.60	5.68	20	L586108-06	WG603831
Copper	mg/kg	7.80	8.50	8.21	20	L586108-06	WG603831
Lead	mg/kg	11.0	9.60	9.90	20	L586108-06	WG603831
Nickel	mg/kg	10.0	10.0	4.88	20	L586108-06	WG603831
Selenium	mg/kg	0	0	0	20	L586108-06	WG603831
Silver	mg/kg	0	0	0	20	L586108-06	WG603831
Zinc	mg/kg	120.	98.0	20.2*	20	L586108-06	WG603831
pH	su	7.50	7.40	1.21*	1	L586087-01	WG603859
pH	su	7.90	7.90	0.505	1	L586202-02	WG603859
ORP	mV	190.	200.	3.05	20	L585900-13	WG604456
ORP	mV	120.	120.	4.08	20	L586623-01	WG604456
Arsenic	mg/kg	7.40	6.90	6.59	20	L586078-06	WG603852
Arsenic	mg/kg	11.0	8.80	21.3*	20	L586013-01	WG603690
Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch	
		Known Val	Result				
Benzene	mg/kg	.05	0.0492	98.4	76-113	WG603715	
Ethylbenzene	mg/kg	.05	0.0504	101.	78-115	WG603715	
Toluene	mg/kg	.05	0.0487	97.4	76-114	WG603715	
Total Xylene	mg/kg	.15	0.155	103.	81-118	WG603715	
a,a,a-Trifluorotoluene(PID)				91.41	54-144	WG603715	
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.04	91.7	67-135	WG603715	
a,a,a-Trifluorotoluene(FID)				87.61	59-128	WG603715	
Mercury	mg/kg	12.4	12.5	101.	71.6-128	WG603751	

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Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
TPH (GC/FID) High Fraction	ppm	60	52.3	87.1	50-150	WG603704
o-Terphenyl				78.78	50-150	WG603704
Chromium, Hexavalent	mg/kg	150	126.	84.0	50-150	WG603725
Specific Conductance	umhos/cm	495	511.	103.	85-115	WG603840
Arsenic	mg/kg	237	222.	93.7	83.1-117	WG603831
Barium	mg/kg	252	248.	98.4	84.1-116	WG603831
Cadmium	mg/kg	191	182.	95.3	83.2-117	WG603831
Chromium	mg/kg	128	128.	100.	81.3-118	WG603831
Copper	mg/kg	123	120.	97.6	83.7-116	WG603831
Lead	mg/kg	103	95.5	92.7	83.1-117	WG603831
Nickel	mg/kg	118	111.	94.1	82-118	WG603831
Selenium	mg/kg	110	102.	92.7	78.7-122	WG603831
Silver	mg/kg	47.3	43.7	92.4	66.2-134	WG603831
Zinc	mg/kg	183	172.	94.0	82-118	WG603831
pH	su	5.7	5.72	100.	98-101	WG603859
1-Methylnaphthalene	mg/kg	.033	0.0260	78.7	48-113	WG603815
2-Chloronaphthalene	mg/kg	.033	0.0256	77.5	51-114	WG603815
2-Methylnaphthalene	mg/kg	.033	0.0249	75.5	44-109	WG603815
Acenaphthene	mg/kg	.033	0.0262	79.3	52-108	WG603815
Acenaphthylene	mg/kg	.033	0.0260	78.6	51-110	WG603815
Anthracene	mg/kg	.033	0.0272	82.4	58-120	WG603815
Benzo(a)anthracene	mg/kg	.033	0.0278	84.4	54-110	WG603815
Benzo(a)pyrene	mg/kg	.033	0.0255	77.2	56-118	WG603815
Benzo(b)fluoranthene	mg/kg	.033	0.0259	78.4	55-114	WG603815
Benzo(g,h,i)perylene	mg/kg	.033	0.0240	72.7	48-130	WG603815
Benzo(k)fluoranthene	mg/kg	.033	0.0273	82.7	55-122	WG603815
Chrysene	mg/kg	.033	0.0268	81.3	57-118	WG603815
Dibenz(a,h)anthracene	mg/kg	.033	0.0245	74.4	53-122	WG603815
Fluoranthene	mg/kg	.033	0.0290	87.9	58-118	WG603815
Fluorene	mg/kg	.033	0.0264	80.0	54-109	WG603815
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0240	72.7	51-125	WG603815
Naphthalene	mg/kg	.033	0.0251	76.0	45-105	WG603815
Phenanthrene	mg/kg	.033	0.0261	79.2	53-114	WG603815
Pyrene	mg/kg	.033	0.0252	76.3	53-121	WG603815
2-Fluorobiphenyl				75.19	34-129	WG603815
Nitrobenzene-d5				71.53	14-141	WG603815
p-Terphenyl-d14				75.96	25-139	WG603815
ORP	mV	228	226.	99.1	95.6-104.	WG604456
Arsenic	mg/kg	237	249.	105.	83.1-117	WG603852
Arsenic	mg/kg	237	228.	96.2	83.1-117	WG603690

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Benzene	mg/kg	0.0508	0.0492	102.		76-113	3.29	20	WG603715
Ethylbenzene	mg/kg	0.0521	0.0504	104.		78-115	3.26	20	WG603715
Toluene	mg/kg	0.0502	0.0487	100.		76-114	3.08	20	WG603715
Total Xylene	mg/kg	0.160	0.155	106.		81-118	3.10	20	WG603715
a,a,a-Trifluorotoluene(PID)				91.66		54-144			WG603715
TPH (GC/FID) Low Fraction	mg/kg	5.49	5.04	100.		67-135	8.53	20	WG603715
a,a,a-Trifluorotoluene(FID)				89.54		59-128			WG603715
TPH (GC/FID) High Fraction	ppm	53.1	52.3	88.0		50-150	1.52	25	WG603704
o-Terphenyl				77.11		50-150			WG603704
Chromium,Hexavalent	mg/kg	129.	126.	86.0		50-150	2.35	20	WG603725
Specific Conductance	umhos/	510.	511.	103.		85-115	0.196	20	WG603840
pH	su	5.72	5.72	100.		98-101	0	20	WG603859
1-Methylnaphthalene	mg/kg	0.0257	0.0260	78.0		48-113	1.05	24	WG603815
2-Chloronaphthalene	mg/kg	0.0261	0.0256	79.0		51-114	2.01	24	WG603815
2-Methylnaphthalene	mg/kg	0.0249	0.0249	75.0		44-109	0.0326	24	WG603815
Acenaphthene	mg/kg	0.0259	0.0262	78.0		52-108	1.01	22	WG603815
Acenaphthylene	mg/kg	0.0256	0.0260	78.0		51-110	1.39	21	WG603815
Anthracene	mg/kg	0.0276	0.0272	84.0		58-120	1.56	20	WG603815
Benzo(a)anthracene	mg/kg	0.0284	0.0278	86.0		54-110	2.13	22	WG603815
Benzo(a)pyrene	mg/kg	0.0266	0.0255	80.0		56-118	4.20	21	WG603815
Benzo(b)fluoranthene	mg/kg	0.0267	0.0259	81.0		55-114	3.12	20	WG603815
Benzo(g,h,i)perylene	mg/kg	0.0244	0.0240	74.0		48-130	1.78	20	WG603815
Benzo(k)fluoranthene	mg/kg	0.0285	0.0273	86.0		55-122	4.43	25	WG603815
Chrysene	mg/kg	0.0279	0.0268	84.0		57-118	3.83	20	WG603815
Dibenz(a,h)anthracene	mg/kg	0.0247	0.0245	75.0		53-122	0.773	20	WG603815
Fluoranthene	mg/kg	0.0293	0.0290	89.0		58-118	1.02	20	WG603815
Fluorene	mg/kg	0.0268	0.0264	81.0		54-109	1.36	20	WG603815
Indeno(1,2,3-cd)pyrene	mg/kg	0.0247	0.0240	75.0		51-125	2.91	21	WG603815
Naphthalene	mg/kg	0.0249	0.0251	75.0		45-105	0.864	24	WG603815
Phenanthrene	mg/kg	0.0272	0.0261	82.0		53-114	3.98	20	WG603815
Pyrene	mg/kg	0.0254	0.0252	77.0		53-121	0.690	20	WG603815
2-Fluorobiphenyl				78.49		34-129			WG603815
Nitrobenzene-d5				71.94		14-141			WG603815
p-Terphenyl-d14				75.59		25-139			WG603815
ORP	mV	225.	226.	99.0		95.6-104.	0.443	20	WG604456

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.224	0	.05	89.6	32-137	L586013-06	WG603715
Ethylbenzene	mg/kg	0.226	0	.05	90.4	10-150	L586013-06	WG603715
Toluene	mg/kg	0.225	0	.05	89.9	20-142	L586013-06	WG603715
Total Xylene	mg/kg	0.704	0	.15	93.8	16-141	L586013-06	WG603715
a,a,a-Trifluorotoluene(PID)					90.89	54-144		WG603715
TPH (GC/FID) Low Fraction	mg/kg	22.5	0	5.5	81.8	55-109	L586013-06	WG603715
a,a,a-Trifluorotoluene(FID)					86.66	59-128		WG603715

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Mercury	mg/kg	0.282	0	.25	113.	80-120	L586013-06	WG603751
Chromium, Hexavalent	mg/kg	17.1	0	20	85.5	50-150	L585715-17	WG603725
TPH (GC/FID) High Fraction	ppm	43.7	0	60	72.9	50-150	L586013-06	WG603704
o-Terphenyl					71.40	50-150		WG603704
Arsenic	mg/kg	45.6	4.10	50	83.0	75-125	L586108-06	WG603831
Barium	mg/kg	406.	300.	50	212.*	75-125	L586108-06	WG603831
Cadmium	mg/kg	42.6	0	50	85.2	75-125	L586108-06	WG603831
Chromium	mg/kg	52.5	7.60	50	89.8	75-125	L586108-06	WG603831
Copper	mg/kg	53.0	8.50	50	89.0	75-125	L586108-06	WG603831
Lead	mg/kg	52.8	9.60	50	86.4	75-125	L586108-06	WG603831
Nickel	mg/kg	51.9	10.0	50	83.8	75-125	L586108-06	WG603831
Selenium	mg/kg	39.4	0	50	78.8	75-125	L586108-06	WG603831
Silver	mg/kg	43.1	0	50	86.2	75-125	L586108-06	WG603831
Zinc	mg/kg	154.	98.0	50	112.	75-125	L586108-06	WG603831
1-Methylnaphthalene	mg/kg	0.0252	0	.033	76.5	25-155	L585849-08	WG603815
2-Chloronaphthalene	mg/kg	0.0255	0	.033	77.2	31-153	L585849-08	WG603815
2-Methylnaphthalene	mg/kg	0.0238	0	.033	72.0	22-172	L585849-08	WG603815
Acenaphthene	mg/kg	0.0262	0	.033	79.5	43-133	L585849-08	WG603815
Acenaphthylene	mg/kg	0.0261	0	.033	78.9	42-146	L585849-08	WG603815
Anthracene	mg/kg	0.0277	0	.033	84.0	38-153	L585849-08	WG603815
Benzo(a)anthracene	mg/kg	0.0296	0	.033	89.7	31-142	L585849-08	WG603815
Benzo(a)pyrene	mg/kg	0.0266	0	.033	80.7	26-152	L585849-08	WG603815
Benzo(b)fluoranthene	mg/kg	0.0270	0	.033	81.9	10-188	L585849-08	WG603815
Benzo(g,h,i)perylene	mg/kg	0.0235	0	.033	71.1	10-176	L585849-08	WG603815
Benzo(k)fluoranthene	mg/kg	0.0277	0	.033	83.8	22-163	L585849-08	WG603815
Chrysene	mg/kg	0.0275	0	.033	83.4	26-146	L585849-08	WG603815
Dibenz(a,h)anthracene	mg/kg	0.0244	0	.033	73.9	10-160	L585849-08	WG603815
Fluoranthene	mg/kg	0.0290	0	.033	88.0	23-160	L585849-08	WG603815
Fluorene	mg/kg	0.0273	0	.033	82.6	44-143	L585849-08	WG603815
Indeno(1,2,3-cd)pyrene	mg/kg	0.0241	0	.033	72.9	10-157	L585849-08	WG603815
Naphthalene	mg/kg	0.0242	0	.033	73.5	22-156	L585849-08	WG603815
Phenanthrene	mg/kg	0.0267	0	.033	81.0	23-164	L585849-08	WG603815
Pyrene	mg/kg	0.0263	0	.033	79.7	12-170	L585849-08	WG603815
2-Fluorobiphenyl					76.09	34-129		WG603815
Nitrobenzene-d5					71.19	14-141		WG603815
p-Terphenyl-d14					80.87	25-139		WG603815
Arsenic	mg/kg	44.8	6.90	50	75.8	75-125	L586078-06	WG603852
Arsenic	mg/kg	50.6	8.80	50	83.6	75-125	L586013-01	WG603690

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.253	0.224	101.	32-137	12.3	39	L586013-06	WG603715
Ethylbenzene	mg/kg	0.251	0.226	100.	10-150	10.6	44	L586013-06	WG603715
Toluene	mg/kg	0.243	0.225	97.4	20-142	7.96	42	L586013-06	WG603715
Total Xylene	mg/kg	0.777	0.704	104.	16-141	9.85	46	L586013-06	WG603715
a,a,a-Trifluorotoluene(PID)				91.38	54-144				WG603715

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	19.9	22.5	72.5	55-109	12.0	20	L586013-06	WG603715
a,a,a-Trifluorotoluene(FID)				86.27	59-128				WG603715
Mercury	mg/kg	0.274	0.282	110.	80-120	2.88	20	L586013-06	WG603751
Chromium,Hexavalent	mg/kg	16.3	17.1	81.5	50-150	4.79	20	L585715-17	WG603725
TPH (GC/FID) High Fraction	ppm	42.4	43.7	70.6	50-150	3.12	25	L586013-06	WG603704
o-Terphenyl				72.22	50-150				WG603704
Arsenic	mg/kg	44.8	45.6	81.4	75-125	1.77	20	L586108-06	WG603831
Barium	mg/kg	285.	406.	0*	75-125	35.0*	20	L586108-06	WG603831
Cadmium	mg/kg	41.6	42.6	83.2	75-125	2.38	20	L586108-06	WG603831
Chromium	mg/kg	50.8	52.5	86.4	75-125	3.29	20	L586108-06	WG603831
Copper	mg/kg	51.7	53.0	86.4	75-125	2.48	20	L586108-06	WG603831
Lead	mg/kg	52.5	52.8	85.8	75-125	0.570	20	L586108-06	WG603831
Nickel	mg/kg	49.1	51.9	78.2	75-125	5.54	20	L586108-06	WG603831
Selenium	mg/kg	39.6	39.4	79.2	75-125	0.506	20	L586108-06	WG603831
Silver	mg/kg	42.1	43.1	84.2	75-125	2.35	20	L586108-06	WG603831
Zinc	mg/kg	157.	154.	118.	75-125	1.93	20	L586108-06	WG603831
1-Methylnaphthalene	mg/kg	0.0248	0.0252	75.2	25-155	1.64	27	L585849-08	WG603815
2-Chloronaphthalene	mg/kg	0.0242	0.0255	73.4	31-153	5.12	22	L585849-08	WG603815
2-Methylnaphthalene	mg/kg	0.0235	0.0238	71.3	22-172	0.976	29	L585849-08	WG603815
Acenaphthene	mg/kg	0.0251	0.0262	76.2	43-133	4.25	26	L585849-08	WG603815
Acenaphthylene	mg/kg	0.0255	0.0261	77.2	42-146	2.21	22	L585849-08	WG603815
Anthracene	mg/kg	0.0262	0.0277	79.5	38-153	5.46	27	L585849-08	WG603815
Benzo(a)anthracene	mg/kg	0.0275	0.0296	83.2	31-142	7.46	31	L585849-08	WG603815
Benzo(a)pyrene	mg/kg	0.0259	0.0266	78.5	26-152	2.73	32	L585849-08	WG603815
Benzo(b)fluoranthene	mg/kg	0.0266	0.0270	80.5	10-188	1.68	33	L585849-08	WG603815
Benzo(g,h,i)perylene	mg/kg	0.0235	0.0235	71.1	10-176	0.0260	30	L585849-08	WG603815
Benzo(k)fluoranthene	mg/kg	0.0260	0.0277	78.9	22-163	6.00	29	L585849-08	WG603815
Chrysene	mg/kg	0.0268	0.0275	81.2	26-146	2.64	30	L585849-08	WG603815
Dibenz(a,h)anthracene	mg/kg	0.0240	0.0244	72.7	10-160	1.64	39	L585849-08	WG603815
Fluoranthene	mg/kg	0.0274	0.0290	83.1	23-160	5.65	22	L585849-08	WG603815
Fluorene	mg/kg	0.0258	0.0273	78.1	44-143	5.63	23	L585849-08	WG603815
Indeno(1,2,3-cd)pyrene	mg/kg	0.0238	0.0241	72.0	10-157	1.19	40	L585849-08	WG603815
Naphthalene	mg/kg	0.0237	0.0242	71.9	22-156	2.17	27	L585849-08	WG603815
Phenanthrene	mg/kg	0.0256	0.0267	77.6	23-164	4.30	25	L585849-08	WG603815
Pyrene	mg/kg	0.0251	0.0263	76.0	12-170	4.71	24	L585849-08	WG603815
2-Fluorobiphenyl				73.64	34-129				WG603815
Nitrobenzene-d5				71.00	14-141				WG603815
p-Terphenyl-d14				73.75	25-139				WG603815
Arsenic	mg/kg	52.3	44.8	90.8	75-125	15.4	20	L586078-06	WG603852
Arsenic	mg/kg	46.4	50.6	75.2	75-125	8.66	20	L586013-01	WG603690

Batch number /Run number / Sample number cross reference

WG603715: R2265793: L586013-06

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

EnCana Oil & Gas - Rangely, CO
Blake Ford and Kate Ramsay
1125 Escalante Drive

Rangely, CO 81648-3600

Quality Assurance Report
Level II

L586013

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

Tax I.D. 62-0814289

Est. 1970

July 31, 2012

WG603751: R2266234: L586013-06
WG603704: R2267453: L586013-06
WG603725: R2267673: L586013-06
WG603840: R2268793: L586013-06
WG603831: R2269293: L586013-06
WG603859: R2270193: L586013-06
WG603815: R2270593: L586013-06
WG604456: R2272893: L586013-06
WG603925: R2273096: L586013-06
WG603852: R2274914: L586013-03 04 05
WG603690: R2280134: L586013-01 02

* * Calculations are performed prior to rounding of reported values.

* Performance of this Analyte is outside of established criteria.

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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.