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FORM
4
Rev 12/05State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form). Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b).

RECEIVED
2/15/2013

1. OGCC Operator Number: 100185	4. Contact Name: Chris Hines	Complete the Attachment Checklist OP OGCC
2. Name of Operator: Encana Oil & Gas (USA) Inc.	Phone: (970) 285-2653	
3. Address: 143 Diamond Ave City: Parachute State: CO Zip: 81635	Fax: (970) 285-2619	
5. API Number 05-334653 (Location ID)	OGCC Facility ID Number 418329	Survey Plat
6. Well/Facility Name: PB-15	7. Well/Facility Number NA	Directional Survey
8. Location (Qtr/Sec, Twp, Rng, Meridian): NWNE, Sec 15, T7S, R95W, 6th PM		Surface Eqpt Diagram
9. County: Garfield	10. Field Name: Parachute	Technical Info Page
11. Federal, Indian or State Lease Number: NA		Other

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines:	<input type="checkbox"/> FNLSL <input type="checkbox"/> FLUFWL
Change of Surface Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest lease line
Ground Elevation	Distance to nearest well same formation
	Distance to nearest bldg, public rd, utility or RR
	Is location in a High Density Area (rule 603b)? Yes/No
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading
	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	<input type="checkbox"/> Remove from surface bond
Formation Formation Code Spacing order number Unit Acreage Unit configuration	Signed surface use agreement attached
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME
Effective Date:	From:
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	To:
	Effective Date:
<input type="checkbox"/> ABANDONED LOCATION:	<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date well shut in or temporarily abandoned:
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Ready for Inspection:	MIT required if shut in longer than two years. Date of last MIT
<input type="checkbox"/> SPUD DATE:	<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK	
Method used	Cementing tool setting/perf depth
Cement volume	Cement top
Cement bottom	Date
*submit cbl and cement job summaries	
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.	
Final reclamation will commence on approximately	
<input type="checkbox"/> Final reclamation is completed and site is ready for inspection.	

Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent	<input checked="" type="checkbox"/> Report of Work Done
Approximate Start Date:	Date Work Completed: August, 2010
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)	
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: Pit closure
	<input checked="" type="checkbox"/> E&P Waste Disposal
	<input type="checkbox"/> Beneficial Reuse of E&P Waste
	<input checked="" type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Christopher C. Hines Date: 02-15-13 Email: christopher.hines@encana.com
 Print Name: Christopher C. Hines Title: Environmental Field Coordinator

COGCC Approved: Chris Canfield Title: FOR Date: 02/21/2013
 CONDITIONS OF APPROVAL, IF ANY:

Chris Canfield
 EPS NW Region

Pit closure
 OK ✓

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number:	100185	API Number:	334653 [Location ID]
2. Name of Operator:	Encana Oil & Gas (USA) Inc.	OGCC Facility ID #	418329
3. Well/Facility Name:	PB-15	Well/Facility Number:	NA
4. Location (QtrQtr, Sec, Twp, Rng, Meridian):	NWNE, Sec 15, T7S, R95W, 6th PM		

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**

REPORT OF WORK COMPLETED, AND E&P WASTE DISPOSAL

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 (Sundry and Notification of Completion) to document the closure of a lined earthen pit (Facility #: 418329) and onsite disposal of drill cuttings on the PB15 well pad (Location ID: 334653) in Encana’s South Parachute area of operation. Clearance samples were collected in accordance with an approved Site Investigation and Remediation Workplan (Rem # 7253), and as part of standard procedure for the management of drill cuttings.

The PB15 well pad is not found within any of the COGCC 317B, Public Water System Protection areas. The location is not within a sensitive area based on distance to surface and ground water. According to the soil survey for this area there is no frequency of flooding or ponding at this location.

In accordance with COGCC Rule 907 for the management of exploration and production (E&P) waste, Encana collects representative samples of potentially impacted material on each of its locations for the purpose of comparing constituent levels to the allowable limits identified by the COGCC. All samples collected on behalf of Encana's Parachute Field Office are collected and documented in accordance with the Environmental Department's Sampling Procedures. Location background samples are also collected to establish a baseline for naturally occurring concentrations/levels for applicable constituents of concern. Field sampling documentation and laboratory reports not provided with this form are kept on file at the Parachute Field Office and are available upon request.

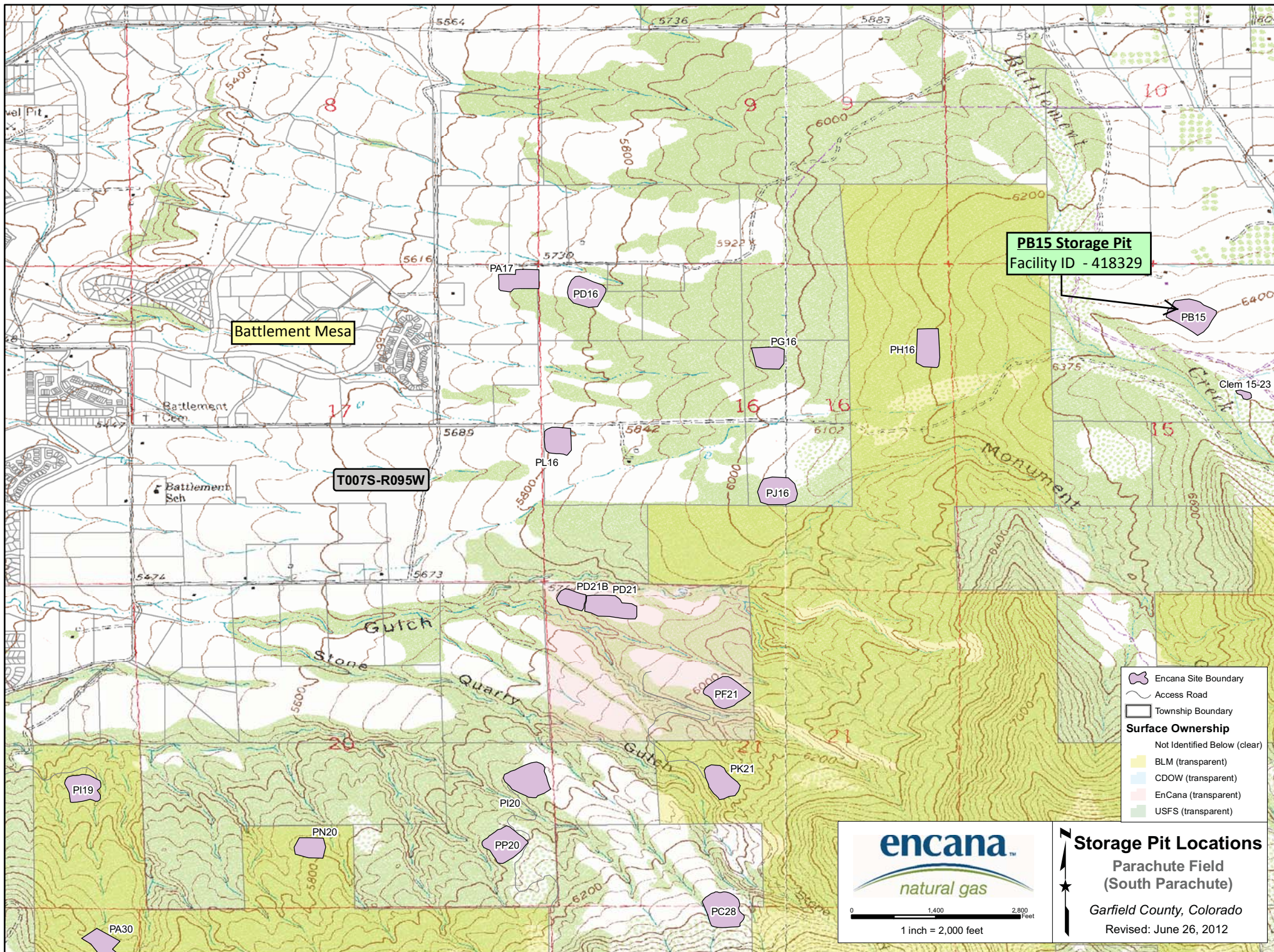
A representative composite sample of the drill cuttings stockpile was collected on November 5, 2009, and a representative below-liner composite sample was collected in support of the produced water storage pit on August 24, 2010. Laboratory results indicated that the Sodium Adsorption Ratio (SAR) and arsenic value were above the allowable limits identified in COGCC Table 910-1 for the below-liner pit sample. The drill cuttings results indicated exceedances for pH and arsenic. In accordance with Rule 905.c, a Form 19 was also submitted in support of this pit closure project. Background arsenic values for the area range from 1.2 to 9.8 ppm and are included in the Laboratory Results Summary Table. Consistent with Footnote 1 to Table 910-1, Encana requests that the background values be considered as alternative to the limit identified in Table 910-1. Consistent with reclamation objectives and approved handling of material with high levels of SAR and pH, the pit was backfilled with approximately 4,000 cubic yards of cuttings and was capped by more than three feet (3') of clean native fill and topsoil during interim reclamation.

NOTIFICATION OF COMPLETION

This Sundry Notice is also being submitted as the Notification of Completion for Remediation Project # 6983. If the information provided is satisfactory, please provide documentation of the closure of this remediation project and pit.

ATTACHMENTS

- Topographic Location Map
- Laboratory Results Summary Table
- Laboratory Reports – Pit Investigation and Cuttings Sample (Background Lab Reports available upon request)



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



11/18/09

Technical Report for

ENCANA

EnCana Oil & Gas (USA) Inc.

ENCANA PB16 CUTTINGS

Accutest Job Number: T41705

Sampling Date: 11/05/09

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: 63



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.

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Sample Summary

ENCANA

Job No: T41705

EnCana Oil & Gas (USA) Inc.
Project No: ENCANA PB16 CUTTINGS

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
T41705-1	11/05/09	13:30	KR	11/07/09	SO	Soil	ENCANA_PB15_CUTTINGS_110509
T41705-1A	11/05/09	13:30	KR	11/07/09	SO	Soil	ENCANA_PB15_CUTTINGS_110509
T41705-1B	11/05/09	13:30	KR	11/07/09	SO	Soil	ENCANA_PB15_CUTTINGS_110509
T41705-1C	11/05/09	13:30	KR	11/07/09	SO	Soil	ENCANA_PB15_CUTTINGS_110509

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: ENCANA

Job No T41705

Site: EnCana Oil & Gas (USA) Inc.

Report Date 11/18/2009 11:09:52 A

1 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/05/2009 and were received at Accutest on 11/07/2009 properly preserved, at 2.8 Deg. C and intact. These Samples received an Accutest job number of T41705. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

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

Volatiles by GCMS By Method SW846 8260B

Matrix SO	Batch ID: VM890
------------------	------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) T41657-2MS, T41657-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for Benzene, Ethylbenzene, Xylene (total) are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Benzene, Ethylbenzene, Xylene (total) are outside control limits. Probable cause due to matrix interference.
- Sample(s) T41657-2MS, T41657-2MSD have surrogates outside control limits. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP13432
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) T41708-1MS, T41708-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Volatiles by GC By Method SW846 8015

Matrix SO	Batch ID: GEE2499
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) T41710-1MS, T41710-1MSD 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: OP13458
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) T41656-1MSD, T41656-1MS, T41656-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Recovery(s) for TPH (C10-C28) are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- Sample(s) OP13458-MS, OP13458-MSD have surrogates outside control limits. Probable cause due to matrix interference.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP10654

- 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) T39947-4CDUP were used as the QC samples for metals.

Matrix AQ

Batch ID: MP10656

- 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) T39947-4ADUP, T39947-4AMS, T39947-4AMSD, T39947-4ASDL were used as the QC samples for metals.

Matrix SO

Batch ID: MP10642

- 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) T39947-4DUP, T39947-4MS, T39947-4MSD, T39947-4SDL, T39947-4DUP were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Silver are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for Silver are outside control limits. Probable cause due to matrix interference.
- RPD(s) for Duplicate for Copper, Nickel are outside control limits for sample MP10642-D1. High RPD due to possible sample nonhomogeneity.
- RPD(s) for Serial Dilution for Arsenic, Cadmium, Silver, Lead, Nickel, Zinc are outside control limits for sample MP10642-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix SO

Batch ID: MP10655

- 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) T41706-1BDUP, T41706-1BMSD, T41706-1BSDL were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- RPD(s) for Serial Dilution for Barium are outside control limits for sample MP10655-SD1. Probable cause due to sample homogeneity.

Metals By Method SW846 7471A

Matrix SO

Batch ID: MP10636

- 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) T39947-4DUP, T39947-4MS, T39947-4MSD were used as the QC samples for metals.

Wet Chemistry By Method EPA 120.1

Matrix AQ

Batch ID: GN18728

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T41657-1DUP were used as the QC samples for Specific Conductivity.

Wet Chemistry By Method LADNR29B

Matrix SO

Batch ID: MP10654

- T41705-1C for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Wet Chemistry By Method SM 2540 G

Matrix SO

Batch ID: GN18730

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

Wet Chemistry By Method SW846 3060/7196A

Matrix SO

Batch ID: GN18693

- All method blanks for this batch meet method specific criteria.
- Sample(s) T41657-1DUP, T41657-1MS were used as the QC samples for Chromium, Hexavalent.

Wet Chemistry By Method SW846 6010/7196A M

Matrix SO

Batch ID: R19667

- T41705-1 for Chromium, Trivalent: Calculated as: $(\text{Chromium}) - (\text{Chromium, Hexavalent})$

Wet Chemistry By Method SW846 9045C

Matrix SO

Batch ID: GN18662

- Sample(s) T41789-14DUP were used as the QC samples for pH.

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



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	ENCANA_PB15_CUTTINGS_110509			Date Sampled:	11/05/09
Lab Sample ID:	T41705-1			Date Received:	11/07/09
Matrix:	SO - Soil			Percent Solids:	81.1
Method:	SW846 8260B				
Project:	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0022076.D	1	11/11/09	AH	n/a	n/a	VM890
Run #2							

	Initial Weight	Final Volume
Run #1	5.82 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.3	0.74	ug/kg	
108-88-3	Toluene	ND	5.3	1.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.3	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	16	2.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		70-121%
2037-26-5	Toluene-D8	114%		76-132%
460-00-4	4-Bromofluorobenzene	113%		73-165%
17060-07-0	1,2-Dichloroethane-D4	81%		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: ENCANA_PB15_CUTTINGS_110509
Lab Sample ID: T41705-1
Matrix: SO - Soil
Method: SW846 8270C BY SIM SW846 3550B
Project: EnCana Oil & Gas (USA) Inc.

Date Sampled: 11/05/09
Date Received: 11/07/09
Percent Solids: 81.1

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	H35963.D	1	11/10/09	SC	11/09/09	OP13432	EH1934
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.1	1.4	ug/kg	
208-96-8	Acenaphthylene	ND	8.1	2.8	ug/kg	
120-12-7	Anthracene	ND	8.1	1.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.1	1.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.1	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.1	4.3	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	8.1	8.1	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.1	5.2	ug/kg	
218-01-9	Chrysene	ND	8.1	2.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.1	7.8	ug/kg	
206-44-0	Fluoranthene	ND	8.1	1.8	ug/kg	
86-73-7	Fluorene	ND	8.1	2.8	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.1	6.1	ug/kg	
90-12-0	1-Methylnaphthalene	ND	8.1	1.5	ug/kg	
91-57-6	2-Methylnaphthalene	ND	8.1	1.4	ug/kg	
91-20-3	Naphthalene	ND	8.1	1.2	ug/kg	
85-01-8	Phenanthrene	ND	8.1	1.1	ug/kg	
129-00-0	Pyrene	ND	8.1	2.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	83%		18-129%
4165-60-0	Nitrobenzene-d5	65%		10-127%
321-60-8	2-Fluorobiphenyl	62%		11-133%
1718-51-0	Terphenyl-d14	111%		15-187%

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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:	ENCANA_PB15_CUTTINGS_110509			
Lab Sample ID:	T41705-1			Date Sampled: 11/05/09
Matrix:	SO - Soil			Date Received: 11/07/09
Method:	SW846 8015			Percent Solids: 81.1
Project:	EnCana Oil & Gas (USA) Inc.			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE049387.D	1	11/13/09	FI	n/a	n/a	GEE2499
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.42 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	6.9	0.41	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		46-127%
98-08-8	aaa-Trifluorotoluene	106%		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:	ENCANA_PB15_CUTTINGS_110509				
Lab Sample ID:	T41705-1	Date Sampled:	11/05/09		
Matrix:	SO - Soil	Date Received:	11/07/09		
Method:	SW846 8015 M SW846 3550B	Percent Solids:	81.1		
Project:	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC216462.D	1	11/13/09	SS	11/11/09	OP13458	GCC1005
Run #2							

	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)	5.73	10	3.4	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	45%		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: ENCANA_PB15_CUTTINGS_110509**Lab Sample ID:** T41705-1**Date Sampled:** 11/05/09**Matrix:** SO - Soil**Date Received:** 11/07/09**Percent Solids:** 81.1**Project:** EnCana Oil & Gas (USA) Inc.

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.8	0.75	0.15	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Cadmium	0.26 B	0.37	0.075	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Chromium	23.6	0.75	0.052	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Copper	22.2	1.9	0.097	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Lead	9.2	0.75	0.30	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Mercury	0.023	0.020	0.00079	mg/kg	1	11/12/09	11/12/09 TW	SW846 7471A ¹	SW846 7471A ³
Nickel	31.5	3.0	0.097	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Selenium	0.18 U	0.75	0.18	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Silver	0.20 B	0.75	0.060	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴
Zinc	48.6	1.5	0.30	mg/kg	1	11/12/09	11/14/09 NS	SW846 6010B ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA4391

(2) Instrument QC Batch: MA4396

(3) Prep QC Batch: MP10636

(4) Prep QC Batch: MP10642

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:	ENCANA_PB15_CUTTINGS_110509	Date Sampled:	11/05/09
Lab Sample ID:	T41705-1	Date Received:	11/07/09
Matrix:	SO - Soil	Percent Solids:	81.1
Project:	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.1 B	2.0	mg/kg	1	11/13/09 09:00	KD	SW846 3060/7196A
Chromium, Trivalent ^a	22.5	2.8	mg/kg	1	11/14/09 16:35	NS	SW846 6010/7196A M
Solids, Percent	81.1		%	1	11/13/09	AA	SM 2540 G
Specific Conductivity	123	1.0	umhos/cm	1	11/13/09 12:00	KD	EPA 120.1
pH	9.1		su	1	11/10/09 13:00	EV	SW846 9045C

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

RL = Reporting Limit

Report of Analysis

Client Sample ID:	ENCANA_PB15_CUTTINGS_110509			Date Sampled:	11/05/09
Lab Sample ID:	T41705-1A			Date Received:	11/07/09
Matrix:	SO - Soil			Percent Solids:	81.1
Project:	EnCana Oil & Gas (USA) Inc.				

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	0.134 B	0.20	0.0042	mg/l	1	11/15/09	11/16/09 NS	SW846 6010B ¹	LADNR 29B ²

(1) Instrument QC Batch: MA4397
(2) Prep QC Batch: MP10656

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:	ENCANA_PB15_CUTTINGS_110509			Date Sampled:	11/05/09
Lab Sample ID:	T41705-1B			Date Received:	11/07/09
Matrix:	SO - Soil			Percent Solids:	81.1
Project:	EnCana Oil & Gas (USA) Inc.				

Total True Barium Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	510	12	0.035	mg/kg	1	11/15/09	11/16/09 NS	SW846 6010B ¹	LADNR 29B ²

(1) Instrument QC Batch: MA4397
(2) Prep QC Batch: MP10655

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:	ENCANA_PB15_CUTTINGS_110509			Date Sampled:	11/05/09
Lab Sample ID:	T41705-1C			Date Received:	11/07/09
Matrix:	SO - Soil			Percent Solids:	81.1
Project:	EnCana Oil & Gas (USA) Inc.				

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Calcium	33.1	25	0.18	mg/l	5	11/15/09	11/16/09	NS	SW846 6010B ¹	LADNR 29B ²
Magnesium	6.43 B	25	0.039	mg/l	5	11/15/09	11/16/09	NS	SW846 6010B ¹	LADNR 29B ²
Sodium	21.5 B	25	0.67	mg/l	5	11/15/09	11/16/09	NS	SW846 6010B ¹	LADNR 29B ²

(1) Instrument QC Batch: MA4397
(2) Prep QC Batch: MP10654

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:	ENCANA_PB15_CUTTINGS_110509		
Lab Sample ID:	T41705-1C	Date Sampled:	11/05/09
Matrix:	SO - Soil	Date Received:	11/07/09
		Percent Solids:	81.1
Project:	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	0.895		ratio	1	11/16/09 12:39	NS	LADNR29B

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

RL = Reporting Limit



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SAMPLE INSPECTION FORM

Accutest Job Number: T417045 Client: En Cona Oil & Gas Date/Time Received: 11/07/09 1115
 # of Coolers Received: 1 Thermometer #: 12-1 Temperature Adjustment Factor: +0.9
 Cooler Temps: #1: 2.8 #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] 11/07/09
 INFORMATION AND SAMPLE LABELING VERIFIED BY: Sc 11-7a

CORRECTIVE ACTIONS

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

T41705: Chain of Custody
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4.1

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

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GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM890-MB	M0022072.D 1		11/11/09	AH	n/a	n/a	VM890

The QC reported here applies to the following samples:

Method: SW846 8260B

T41705-1

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	115% 76-132%
460-00-4	4-Bromofluorobenzene	114% 73-165%
17060-07-0	1,2-Dichloroethane-D4	86% 57-122%

Blank Spike Summary

Page 1 of 1

Job Number: T41705

Account: ENCACOP ENCANA

Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM890-BS	M0022070.D 1		11/11/09	AH	n/a	n/a	VM890

The QC reported here applies to the following samples:

Method: SW846 8260B

T41705-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	42.0	84	70-114
100-41-4	Ethylbenzene	50	48.5	97	60-119
108-88-3	Toluene	50	49.1	98	68-115
1330-20-7	Xylene (total)	150	147	98	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	70-121%
2037-26-5	Toluene-D8	114%	76-132%
460-00-4	4-Bromofluorobenzene	111%	73-165%
17060-07-0	1,2-Dichloroethane-D4	83%	57-122%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T41705

Account: ENCACOP ENCANA

Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T41657-2MS	M0022074.D	1	11/11/09	AH	n/a	n/a	VM890
T41657-2MSD	M0022075.D	1	11/11/09	AH	n/a	n/a	VM890
T41657-2	M0022073.D	1	11/11/09	AH	n/a	n/a	VM890

The QC reported here applies to the following samples:

Method: SW846 8260B

T41705-1

CAS No.	Compound	T41657-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	4.2	J	51.6	35.1	60*	32.6	54*	7	70-114/38
100-41-4	Ethylbenzene	1.5	J	51.6	26.3	48*	22.3	40*	16	60-119/40
108-88-3	Toluene	19.3		51.6	64.6	88	58.2	74	10	68-115/38
1330-20-7	Xylene (total)	7.5	J	155	79.3	46*	68.4	39*	15	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T41657-2	Limits
1868-53-7	Dibromofluoromethane	96%	98%	101%	70-121%
2037-26-5	Toluene-D8	199% * a	199% * a	191% * a	76-132%
460-00-4	4-Bromofluorobenzene	185% * a	183% * a	167% * a	73-165%
17060-07-0	1,2-Dichloroethane-D4	86%	88%	87%	57-122%

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



GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13432-MB	P07156.D	1	11/10/09	GJ	11/09/09	OP13432	EP344

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T41705-1

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

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	58% 10-127%
321-60-8	2-Fluorobiphenyl	36% 11-133%
1718-51-0	Terphenyl-d14	32% 15-187%

Blank Spike Summary

Page 1 of 1

Job Number: T41705

Account: ENCACOP ENCANA

Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13432-BS	P07157.D	1	11/10/09	GJ	11/09/09	OP13432	EP344

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T41705-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	167	104	62	18-118
208-96-8	Acenaphthylene	167	118	71	35-125
120-12-7	Anthracene	167	146	88	24-116
56-55-3	Benzo(a)anthracene	167	150	90	32-132
50-32-8	Benzo(a)pyrene	167	131	79	36-130
205-99-2	Benzo(b)fluoranthene	167	140	84	35-134
191-24-2	Benzo(g,h,i)perylene	167	171	103	18-149
207-08-9	Benzo(k)fluoranthene	167	170	102	30-131
218-01-9	Chrysene	167	157	94	37-124
53-70-3	Dibenzo(a,h)anthracene	167	158	95	23-150
206-44-0	Fluoranthene	167	156	94	28-118
86-73-7	Fluorene	167	120	72	32-106
193-39-5	Indeno(1,2,3-cd)pyrene	167	159	95	18-150
90-12-0	1-Methylnaphthalene	167	105	63	10-128
91-57-6	2-Methylnaphthalene	167	122	73	28-113
91-20-3	Naphthalene	167	116	70	31-106
85-01-8	Phenanthrene	167	146	88	37-112
129-00-0	Pyrene	167	156	94	24-132

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	90%	10-127%
321-60-8	2-Fluorobiphenyl	105%	11-133%
1718-51-0	Terphenyl-d14	104%	15-187%

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: T41705

Account: ENCACOP ENCANA

Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13432-MS	P07162.D	1	11/10/09	GJ	11/09/09	OP13432	EP344
OP13432-MSD	P07163.D	1	11/10/09	GJ	11/09/09	OP13432	EP344
T41708-1	P07161.D	1	11/10/09	GJ	11/09/09	OP13432	EP344

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

T41705-1

CAS No.	Compound	T41708-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		195	75.7	39	80.5	41	6	10-153/80
208-96-8	Acenaphthylene	ND		195	75.8	39	79.1	40	4	10-144/71
120-12-7	Anthracene	ND		195	136	70	156	80	14	10-176/57
56-55-3	Benzo(a)anthracene	ND		195	143	73	177	90	21	10-174/73
50-32-8	Benzo(a)pyrene	ND		195	123	63	154	79	22	10-182/74
205-99-2	Benzo(b)fluoranthene	ND		195	148	76	190	97	25	10-188/86
191-24-2	Benzo(g,h,i)perylene	ND		195	141	72	165	84	16	10-150/62
207-08-9	Benzo(k)fluoranthene	ND		195	141	72	176	90	22	10-170/94
218-01-9	Chrysene	ND		195	144	74	179	91	22	10-165/73
53-70-3	Dibenzo(a,h)anthracene	ND		195	145	74	171	87	16	10-192/74
206-44-0	Fluoranthene	ND		195	138	71	180	92	26	10-141/73
86-73-7	Fluorene	ND		195	85.4	44	92.2	47	8	10-164/72
193-39-5	Indeno(1,2,3-cd)pyrene	ND		195	142	73	168	86	17	10-150/73
90-12-0	1-Methylnaphthalene	ND		195	68.2	35	71.7	37	5	10-154/82
91-57-6	2-Methylnaphthalene	10.3		195	102	47	102	47	0	10-171/75
91-20-3	Naphthalene	ND		195	84.6	43	94.1	48	11	10-138/82
85-01-8	Phenanthrene	1.4	J	195	134	68	158	80	16	10-191/77
129-00-0	Pyrene	ND		195	178	91	224	114	23	10-150/66

CAS No.	Surrogate Recoveries	MS	MSD	T41708-1	Limits
4165-60-0	Nitrobenzene-d5	56%	53%	77%	10-127%
321-60-8	2-Fluorobiphenyl	56%	58%	59%	11-133%
1718-51-0	Terphenyl-d14	85%	122%	115%	15-187%



GC Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2499-MB	EE049386.D	1	11/13/09	FI	n/a	n/a	GEE2499

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

T41705-1

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	96%	46-127%
98-08-8	aaa-Trifluorotoluene	106%	44-120%

Blank Spike Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2499-BS	EE049382.D	1	11/12/09	FI	n/a	n/a	GEE2499

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

T41705-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.355	89	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	99%	46-127%
98-08-8	aaa-Trifluorotoluene	110%	44-120%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T41710-1MS	EE049392.D	1	11/13/09	FI	n/a	n/a	GEE2499
T41710-1MSD	EE049393.D	1	11/13/09	FI	n/a	n/a	GEE2499
T41710-1	EE049391.D	1	11/13/09	FI	n/a	n/a	GEE2499

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

T41705-1

CAS No.	Compound	T41710-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		23.7	22.9	96	21.6	91	6	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T41710-1	Limits
460-00-4	4-Bromofluorobenzene	104%	107%	95%	46-127%
98-08-8	aaa-Trifluorotoluene	103%	110%	106%	44-120%

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GC Semi-volatiles

QC Data Summaries

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Includes the following where applicable:

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

Method Blank Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13458-MB	CC216441.D 1		11/12/09	SS	11/11/09	OP13458	GCC1004

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

T41705-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	8.2	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	40% 33-115%

Blank Spike Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13458-BS	CC216442.D 1		11/12/09	SS	11/11/09	OP13458	GCC1004

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

T41705-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	32.4	21.4	66	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	43%	33-115%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T41705
Account: ENCACOP ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13458-MS	CC216443.D	10	11/12/09	SS	11/11/09	OP13458	GCC1004
OP13458-MSD	CC216444.D	10	11/12/09	SS	11/11/09	OP13458	GCC1004
T41656-1	CC216445.D	10	11/12/09	SS	11/11/09	OP13458	GCC1004

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

T41705-1

CAS No.	Compound	T41656-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	381		40.1	505	309* a	485	262* a	4	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T41656-1	Limits
84-15-1	o-Terphenyl	0% * b	0% * b	0% * b	33-115%

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



Metals Analysis

QC Data Summaries

Includes the following where applicable:

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10636
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 11/12/09

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.017	.0041	.00066	-0.0023	<0.017

Associated samples MP10636: T41705-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10636
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/12/09

11/12/09

Metal	T39947-4 Original DUP		RPD	QC Limits	T39947-4 Original MS		Spikelot HGTXWS1	% Rec	QC Limits
Mercury	0.023	0.025	8.3	0-20	0.023	0.38	0.326	109.4	75-125

Associated samples MP10636: T41705-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10636
 Matrix Type: SOLID

Methods: SW846 7471A
 Units: mg/kg

Prep Date: 11/12/09

Metal	T39947-4 Original	MSD	Spikelot HGTXWS1	% Rec	MSD RPD	QC Limit
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Mercury	0.023	0.39	0.34	107.9	2.6	
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Associated samples MP10636: T41705-1

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

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 7471A
Units: mg/kg

Metal	LCS Result	Spikelot HGLCD054 % Rec	QC Limits
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Associated samples MP10636: T41705-1

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10642
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/12/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	0.069	<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	-0.017	<0.50
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065	-0.036	<1.3
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2	0.054	<0.50
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065	0.20	<2.0
Potassium	250	2.7	16		
Selenium	0.50	.16	.12	0.066	<0.50
Silver	0.50	.043	.04	-0.012	<0.50
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2	-0.0080	<1.0

Associated samples MP10642: T41705-1

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10642
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:

11/12/09

11/12/09

	T39947-4			QC	T39947-4		Spikelot		QC
Metal	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic	4.3	4.7	8.9	0-20	4.3	35.7	33.3	94.2	80-120
Barium	anr								
Beryllium									
Boron									
Cadmium	0.10	0.093	7.3	0-20	0.10	30.6	33.3	91.5	80-120
Calcium									
Chromium	13.2	15.7	17.3	0-20	13.2	42.9	33.3	89.1	80-120
Cobalt									
Copper	11.8	16.7	34.4*(a)	0-20	11.8	44.0	33.3	96.6	80-120
Iron									
Lead	8.7	9.3	6.7	0-20	8.7	41.7	33.3	99.0	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel	7.9	11.2	34.6*(a)	0-20	7.9	37.9	33.3	90.0	80-120
Potassium									
Selenium	0.0	0.0	NC	0-20	0.0	31.2	33.3	93.6	80-120
Silver	0.16	0.15	6.5	0-20	0.16	25.4	33.3	75.7N	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	28.3	28.5	0.7	0-20	28.3	60.7	33.3	97.2	80-120

Associated samples MP10642: T41705-1

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.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10642
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/12/09

Metal	T39947-4 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.3	36.0	33.6	94.2	0.8	20
Barium	anr					
Beryllium						
Boron						
Cadmium	0.10	31.2	33.6	92.5	1.9	20
Calcium						
Chromium	13.2	42.4	33.6	86.8	1.2	20
Cobalt						
Copper	11.8	43.4	33.6	93.9	1.4	20
Iron						
Lead	8.7	42.3	33.6	99.9	1.4	20
Magnesium						
Manganese						
Molybdenum						
Nickel	7.9	38.1	33.6	89.8	0.5	20
Potassium						
Selenium	0.0	31.1	33.6	92.5	0.3	20
Silver	0.16	25.7	33.6	75.9N	1.2	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	28.3	61.6	33.6	99.0	1.5	20

Associated samples MP10642: T41705-1

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10642
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/12/09

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	147	158	93.0	82-118
Barium	anr			
Beryllium				
Boron				
Cadmium	161	187	86.1	82-118
Calcium				
Chromium	78.8	89.5	88.0	79-121
Cobalt				
Copper	122	129	94.6	84-117
Iron				
Lead	155	172	90.1	79-120
Magnesium				
Manganese				
Molybdenum				
Nickel	88.3	99	89.2	81-119
Potassium				
Selenium	134	148	90.5	78-121
Silver	60.6	66	91.8	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	345	394	87.6	80-119

Associated samples MP10642: T41705-1

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10642
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/12/09

Metal	T39947-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	58.9	67.2	14.1 (a)	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	1.37	1.78	29.9 (a)	0-10
Calcium				
Chromium	179	189	5.5	0-10
Cobalt				
Copper	161	163	1.2	0-10
Iron				
Lead	119	131	10.2*(b)	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	108	134	24.4*(b)	0-10
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	2.22	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	386	430	11.5*(b)	0-10

Associated samples MP10642: T41705-1

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.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10654
Matrix Type: AQUEOUS

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

Prep Date: 11/15/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	17		
Antimony	5.0	2.3	3		
Arsenic	5.0	1.8	2		
Barium	200	.14	2.7		
Beryllium	5.0	.11	.2		
Boron	100	1.1	2.1		
Cadmium	4.0	.25	.3		
Calcium	5000	5.4	35	92.0	<5000
Chromium	10	1.1	1.9		
Cobalt	50	.5	.8		
Copper	25	.58	5.9		
Iron	100	13	13		
Lead	3.0	1.6	1.7		
Magnesium	5000	6.7	7.8	9.4	<5000
Manganese	15	.2	7.6		
Molybdenum	10	.96	1.3		
Nickel	40	.95	3.2		
Potassium	5000	53	53		
Selenium	5.0	3.2	3.2		
Silver	10	.85	.8		
Sodium	5000	130	130	79.6	<5000
Strontium	20	.17	.4		
Thallium	10	3.2	2.6		
Tin	20	1.8	2.9		
Titanium	20	.3	.3		
Vanadium	50	.6	.6		
Zinc	20	.49	4.1		

Associated samples MP10654: T41705-1C

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: T41705
 Account: ENCACOP - ENCANA
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10654
 Matrix Type: AQUEOUS

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

Prep Date: 11/15/09

Metal	T39947-4C Original DUP		RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	234000	208000	11.8	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium	5050	4460	12.4	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	1650000	1520000	12.9	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10654: T41705-1C

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10655
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/15/09

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	0.097	<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 MP10655: T41705-1B

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: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10655
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/15/09

11/15/09

Metal	T41706-1B Original DUP		RPD	QC Limits	T41706-1B Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	269	255	5.3	0-20	269	288	31.4	60.5 (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 MP10655: T41705-1B

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10655
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/15/09

Metal	T41706-1B Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	269	288	30.4	62.6 (a)	0.0	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 MP10655: T41705-1B

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

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

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Prep Date: 11/15/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	19.6	20	98.0	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 MP10655: T41705-1B

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10655
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/15/09

Metal	T41706-1B Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	3490	4110	17.8*(a)	0-10
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10655: T41705-1B

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10656
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/15/09

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	-47	<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 MP10656: T41705-1A

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: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10656
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

11/15/09

11/15/09

Metal	T39947-4A Original DUP		RPD	QC Limits	T39947-4A Original MS		Spikelot MPTW4 % Rec		QC Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	253	251	0.8	0-20	253	2260	1000	102.7	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 MP10656: T41705-1A

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10656
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/15/09

Metal	T39947-4A Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	253	2130	1000	93.7	5.9	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10656: T41705-1A

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

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Prep Date: 11/15/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1990	1000	99.7	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 MP10656: T41705-1A

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10656
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/15/09

Metal		T39947-4A Original SDL 1:5		%DIF	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron	128	122	4.1	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 MP10656: T41705-1A

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

9.5.4
9



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: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN18693	2.0	<2.0	mg/kg	40	38.1	95.3	80-120%
Specific Conductivity	GN18728	1.0	<1.0	umhos/cm				

Associated Samples:
Batch GN18693: T41705-1
Batch GN18728: T41705-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN18693	T41657-1	mg/kg	0.47 B	<2.0	2.1	0-20%
Solids, Percent	GN18730	T42037-1	%	84.8	84.1	0.8	0-5%
Specific Conductivity	GN18728	T41657-1	umhos/cm	2270	2270	0.0	0-20%
pH	GN18662	T41789-14	su	6.5	6.5	0.0	0-20%

Associated Samples:

Batch GN18662: T41705-1
Batch GN18693: T41705-1
Batch GN18728: T41705-1
Batch GN18730: T41705-1
Batch MP10654: T41705-1C
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: T41705
Account: ENCACOP - ENCANA
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN18693	T41657-1	mg/kg	0.47 B	40	41.2	101.7	75-125%

Associated Samples:

Batch GN18693: T41705-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



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Chris Hines or Brad Kieding
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Monday August 30, 2010

Report Number: L475460


Samples Received: 08/25/10

Client Project: PB 15 PIT CLOSURE

Description: PB15 Pit Closure

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jarred Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
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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

Chris Hines or Brad Kieding
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

August 30, 2010

Date Received : August 25, 2010
Description : PB15 Pit Closure
Sample ID : PB15-SW BACK-082410
Collected By : Blair Rollins
Collection Date : 08/24/10 10:50

ESC Sample # : L475460-01

Site ID :

Project # : PB 15 PIT CLOSURE

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	5.0	mg/kg	6010B	08/28/10	5

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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REPORT OF ANALYSIS

Chris Hines or Brad Kieding
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

August 30, 2010

Date Received : August 25, 2010
Description : PB15 Pit Closure
Sample ID : PB15-S BACK-082410
Collected By : Blair Rollins
Collection Date : 08/24/10 10:55

ESC Sample # : L475460-02

Site ID :

Project # : PB 15 PIT CLOSURE

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.8	5.0	mg/kg	6010B	08/30/10	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Chris Hines or Brad Kieding
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

August 30, 2010

Date Received : August 25, 2010
Description : PB15 Pit Closure
Sample ID : PB15-SE BACK-082410
Collected By : Blair Rollins
Collection Date : 08/24/10 11:00

ESC Sample # : L475460-03

Site ID :

Project # : PB 15 PIT CLOSURE

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.5	1.0	mg/kg	6010B	08/28/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines or Brad Kieding
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

August 30, 2010

Date Received : August 25, 2010
Description : PB15 Pit Closure
Sample ID : PB15-PIT BOTTOM-082410
Collected By : Blair Rollins
Collection Date : 08/24/10 11:30

ESC Sample # : L475460-04

Site ID :

Project # : PB 15 PIT CLOSURE

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	08/28/10	1
Chromium, Trivalent	25.	0.50	mg/kg	Calc.	08/28/10	1
ORP	73.		mV	2580	08/27/10	1
pH	8.9		su	9045D	08/27/10	1
Sodium Adsorption Ratio	50.			Calc.	08/28/10	1
Specific Conductance	2400		umhos/cm	9050AMod	08/28/10	1
Mercury	BDL	0.020	mg/kg	7471	08/26/10	1
Arsenic	3.8	1.0	mg/kg	6010B	08/28/10	1
Barium	380	0.25	mg/kg	6010B	08/28/10	1
Cadmium	BDL	0.25	mg/kg	6010B	08/28/10	1
Chromium	25.	0.50	mg/kg	6010B	08/28/10	1
Copper	21.	1.0	mg/kg	6010B	08/28/10	1
Lead	11.	0.25	mg/kg	6010B	08/28/10	1
Nickel	37.	1.0	mg/kg	6010B	08/28/10	1
Selenium	2.2	1.0	mg/kg	6010B	08/28/10	1
Silver	1.1	0.50	mg/kg	6010B	08/29/10	1
Zinc	53.	1.5	mg/kg	6010B	08/28/10	1
Benzene	BDL	0.0025	mg/kg	8021/8015	08/26/10	5
Toluene	BDL	0.025	mg/kg	8021/8015	08/26/10	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	08/26/10	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	08/26/10	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	08/26/10	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.6		% Rec.	8021/8015	08/26/10	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	08/26/10	5
TPH (GC/FID) High Fraction	7.0	4.0	mg/kg	3546/DRO	08/26/10	1
Surrogate recovery(%)						
o-Terphenyl	85.6		% Rec.	3546/DRO	08/26/10	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L475460-04 (PH) - 8.9@21.8c



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REPORT OF ANALYSIS

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EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

August 30, 2010

Date Received : August 25, 2010
Description : PB15 Pit Closure
Sample ID : PB15-PIT BOTTOM-082410
Collected By : Blair Rollins
Collection Date : 08/24/10 11:30

ESC Sample # : L475460-04

Site ID :

Project # : PB 15 PIT CLOSURE

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	08/28/10	1
Surrogate Recovery						
Nitrobenzene-d5	53.4		% Rec.	8270C-SIM	08/28/10	1
2-Fluorobiphenyl	63.0		% Rec.	8270C-SIM	08/28/10	1
p-Terphenyl-d14	64.5		% Rec.	8270C-SIM	08/28/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 08/30/10 17:24 Printed: 08/30/10 17:24
L475460-04 (PH) - 8.9@21.8c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L475460-01	WG495266	SAMP	Arsenic	R1350290	O
L475460-04	WG495266	SAMP	Lead	R1350290	B
	WG495288	SAMP	Pyrene	R1351310	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J3	The associated batch QC was outside the established quality control range for precision.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

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
08/30/10 at 17:24:47

TSR Signing Reports: 358
R4 - Rush: Three Day

Create p-keys for projects. Enter project name as Project Number and Project Name. Log all samples to separate L#s. See L471333 when COC says see attached list. PAHs = SV8270PAHSIM. BTEX = 8021.

Sample: L475460-01 Account: ENCANACO Received: 08/25/10 09:00 Due Date: 08/30/10 00:00 RPT Date: 08/30/10 17:24

Sample: L475460-02 Account: ENCANACO Received: 08/25/10 09:00 Due Date: 08/30/10 00:00 RPT Date: 08/30/10 17:24

Sample: L475460-03 Account: ENCANACO Received: 08/25/10 09:00 Due Date: 08/30/10 00:00 RPT Date: 08/30/10 17:24

Sample: L475460-04 Account: ENCANACO Received: 08/25/10 09:00 Due Date: 08/30/10 00:00 RPT Date: 08/30/10 17:24



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Quality Assurance Report
Level II

L475460

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August 30, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG495203	08/25/10 20:22
Ethylbenzene	< .0005	mg/kg			WG495203	08/25/10 20:22
Toluene	< .005	mg/kg			WG495203	08/25/10 20:22
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG495203	08/25/10 20:22
Total Xylene	< .0015	mg/kg			WG495203	08/25/10 20:22
a,a,a-Trifluorotoluene(FID)		% Rec.	100.3	59-128	WG495203	08/25/10 20:22
a,a,a-Trifluorotoluene(PID)		% Rec.	105.3	54-144	WG495203	08/25/10 20:22
TPH (GC/FID) High Fraction	< 4	ppm			WG495294	08/26/10 12:11
o-Terphenyl		% Rec.	92.00	50-150	WG495294	08/26/10 12:11
Mercury	< .02	mg/kg			WG495308	08/26/10 15:20
Arsenic	< 1	mg/kg			WG495266	08/27/10 13:11
Barium	< .25	mg/kg			WG495266	08/27/10 13:11
Cadmium	< .25	mg/kg			WG495266	08/27/10 13:11
Chromium	< .5	mg/kg			WG495266	08/27/10 13:11
Copper	< 1	mg/kg			WG495266	08/27/10 13:11
Lead	0.350	mg/kg			WG495266	08/27/10 13:11
Nickel	< 1	mg/kg			WG495266	08/27/10 13:11
Selenium	< 1	mg/kg			WG495266	08/27/10 13:11
Silver	< .5	mg/kg			WG495266	08/27/10 13:11
Zinc	< 1.5	mg/kg			WG495266	08/27/10 13:11
pH	4.90	su			WG495412	08/27/10 14:47
Chromium,Hexavalent	< 2	mg/kg			WG495738	08/28/10 14:12
1-Methylnaphthalene	< .006	mg/kg			WG495288	08/28/10 11:34
2-Chloronaphthalene	< .006	mg/kg			WG495288	08/28/10 11:34
2-Methylnaphthalene	< .006	mg/kg			WG495288	08/28/10 11:34
Acenaphthene	< .006	mg/kg			WG495288	08/28/10 11:34
Acenaphthylene	< .006	mg/kg			WG495288	08/28/10 11:34
Anthracene	< .006	mg/kg			WG495288	08/28/10 11:34
Benzo(a)anthracene	< .006	mg/kg			WG495288	08/28/10 11:34
Benzo(a)pyrene	< .006	mg/kg			WG495288	08/28/10 11:34
Benzo(b)fluoranthene	< .006	mg/kg			WG495288	08/28/10 11:34
Benzo(g,h,i)perylene	< .006	mg/kg			WG495288	08/28/10 11:34
Benzo(k)fluoranthene	< .006	mg/kg			WG495288	08/28/10 11:34
Chrysene	< .006	mg/kg			WG495288	08/28/10 11:34
Dibenz(a,h)anthracene	< .006	mg/kg			WG495288	08/28/10 11:34
Fluoranthene	< .006	mg/kg			WG495288	08/28/10 11:34
Fluorene	< .006	mg/kg			WG495288	08/28/10 11:34
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG495288	08/28/10 11:34
Naphthalene	< .006	mg/kg			WG495288	08/28/10 11:34
Phenanthrene	< .006	mg/kg			WG495288	08/28/10 11:34
Pyrene	< .006	mg/kg			WG495288	08/28/10 11:34
2-Fluorobiphenyl		% Rec.	78.31	21-120	WG495288	08/28/10 11:34
Nitrobenzene-d5		% Rec.	71.72	33-114	WG495288	08/28/10 11:34
p-Terphenyl-d14		% Rec.	92.40	18-142	WG495288	08/28/10 11:34
Specific Conductance	1.80	umhos/cm			WG495798	08/28/10 10:20

* Performance of this Analyte is outside of established criteria.

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



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Quality Assurance Report
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Est. 1970

August 30, 2010

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Mercury	mg/kg	0	0		0	20	L475449-09	WG495308
Lead	mg/kg	130000	110000		19.7	20	L475484-01	WG495266
Arsenic	mg/kg	7300	4010		58.2*	20	L475484-01	WG495266
Barium	mg/kg	2.20	4.56		69.4*	20	L475484-01	WG495266
Cadmium	mg/kg	0	0		0	20	L475484-01	WG495266
Chromium	mg/kg	0	16.9		NA	20	L475484-01	WG495266
Copper	mg/kg	33.0	26.3		23.2*	20	L475484-01	WG495266
Nickel	mg/kg	0	30.0		NA	20	L475484-01	WG495266
Selenium	mg/kg	0	0		0	20	L475484-01	WG495266
Silver	mg/kg	34.0	17.3		65.1*	20	L475484-01	WG495266
Zinc	mg/kg	0	118.		NA	20	L475484-01	WG495266
pH	su	7.90	7.60		3.87*	1	L475559-01	WG495412
pH	su	7.70	7.60		1.31*	1	L475559-03	WG495412
ORP	mV	33.0	30.0		9.52	20	L474648-11	WG495464
Chromium,Hexavalent	mg/kg	0	0		0	20	L475460-04	WG495738
Specific Conductance	umhos/cm	2500	2400		2.55	20	L475460-04	WG495798

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0501	100.	76-113	WG495203
Ethylbenzene	mg/kg	.05	0.0518	104.	78-115	WG495203
Toluene	mg/kg	.05	0.0514	103.	76-114	WG495203
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG495203
a,a,a-Trifluorotoluene(PID)				104.0	54-144	WG495203
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.19	94.5	67-135	WG495203
a,a,a-Trifluorotoluene(FID)				95.41	59-128	WG495203
TPH (GC/FID) High Fraction	ppm	60	46.0	76.6	50-150	WG495294
o-Terphenyl				101.8	50-150	WG495294
Mercury	mg/kg	8.77	11.0	125.	71.6-127.7	WG495308
Arsenic	mg/kg	192	180.	93.8	78.6-120.8	WG495266
Barium	mg/kg	420	398.	94.8	78.8-121.4	WG495266
Cadmium	mg/kg	70.1	65.9	94.0	78.5-121.5	WG495266
Chromium	mg/kg	168	167.	99.4	80.4-120.2	WG495266
Copper	mg/kg	122	116.	95.1	81.6-119.7	WG495266
Lead	mg/kg	113	106.	93.8	77.3-122.1	WG495266
Nickel	mg/kg	74.1	81.0	109.	78.8-121.2	WG495266
Selenium	mg/kg	176	165.	93.8	75.6-125.0	WG495266
Silver	mg/kg	115	106.	92.2	66-133.9	WG495266
Zinc	mg/kg	437	416.	95.2	78.5-121.7	WG495266
pH	su	9.36	9.40	100.	98.9-102.0	WG495412

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
ORP	mV	229	220.	96.1	95.6-104.37	WG495464
Chromium, Hexavalent	mg/kg	100	66.8	66.8	50-143	WG495738
1-Methylnaphthalene	mg/kg	.033	0.0245	74.3	41-110	WG495288
2-Chloronaphthalene	mg/kg	.033	0.0245	74.2	43-109	WG495288
2-Methylnaphthalene	mg/kg	.033	0.0235	71.2	38-104	WG495288
Acenaphthene	mg/kg	.033	0.0235	71.3	48-103	WG495288
Acenaphthylene	mg/kg	.033	0.0237	71.8	43-106	WG495288
Anthracene	mg/kg	.033	0.0254	76.9	51-110	WG495288
Benzo(a)anthracene	mg/kg	.033	0.0239	72.6	38-126	WG495288
Benzo(a)pyrene	mg/kg	.033	0.0243	73.6	47-118	WG495288
Benzo(b)fluoranthene	mg/kg	.033	0.0247	74.9	47-118	WG495288
Benzo(g,h,i)perylene	mg/kg	.033	0.0282	85.4	40-125	WG495288
Benzo(k)fluoranthene	mg/kg	.033	0.0260	78.7	45-121	WG495288
Chrysene	mg/kg	.033	0.0255	77.4	35-135	WG495288
Dibenz(a,h)anthracene	mg/kg	.033	0.0279	84.5	41-124	WG495288
Fluoranthene	mg/kg	.033	0.0281	85.3	50-114	WG495288
Fluorene	mg/kg	.033	0.0246	74.6	49-109	WG495288
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0281	85.2	40-126	WG495288
Naphthalene	mg/kg	.033	0.0232	70.3	36-100	WG495288
Phenanthrene	mg/kg	.033	0.0238	72.0	46-108	WG495288
Pyrene	mg/kg	.033	0.0232	70.4	30-136	WG495288
2-Fluorobiphenyl				79.57	21-120	WG495288
Nitrobenzene-d5				75.17	33-114	WG495288
p-Terphenyl-d14				84.11	18-142	WG495288
Specific Conductance	umhos/cm	406	430.	106.	85-115	WG495798

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0484	0.0501	97.0	76-113	3.57	20	WG495203
Ethylbenzene	mg/kg	0.0493	0.0518	99.0	78-115	4.91	20	WG495203
Toluene	mg/kg	0.0492	0.0514	98.0	76-114	4.45	20	WG495203
Total Xylene	mg/kg	0.151	0.159	100.	81-118	5.25	20	WG495203
a,a,a-Trifluorotoluene(PID)				103.4	54-144			WG495203
TPH (GC/FID) Low Fraction	mg/kg	5.89	5.19	107.	67-135	12.5	20	WG495203
a,a,a-Trifluorotoluene(FID)				92.26	59-128			WG495203
TPH (GC/FID) High Fraction	ppm	50.6	46.0	84.0	50-150	9.53	20	WG495294
o-Terphenyl				106.6	50-150			WG495294
pH	su	9.40	9.40	100.	98.9-102.0	0	20	WG495412
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG495464
Chromium, Hexavalent	mg/kg	61.6	66.8	62.0	50-143	8.10	20	WG495738
1-Methylnaphthalene	mg/kg	0.0258	0.0245	78.0	41-110	4.96	24	WG495288
2-Chloronaphthalene	mg/kg	0.0273	0.0245	82.0	43-109	10.8	21	WG495288

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
2-Methylnaphthalene	mg/kg	0.0271	0.0235	82.0		38-104	14.3	24	WG495288
Acenaphthene	mg/kg	0.0262	0.0235	79.0		48-103	10.8	20	WG495288
Acenaphthylene	mg/kg	0.0275	0.0237	83.0		43-106	14.9	20	WG495288
Anthracene	mg/kg	0.0273	0.0254	83.0		51-110	7.48	22	WG495288
Benzo(a)anthracene	mg/kg	0.0243	0.0239	74.0		38-126	1.37	20	WG495288
Benzo(a)pyrene	mg/kg	0.0251	0.0243	76.0		47-118	3.21	20	WG495288
Benzo(b)fluoranthene	mg/kg	0.0280	0.0247	85.0		47-118	12.3	29	WG495288
Benzo(g,h,i)perylene	mg/kg	0.0288	0.0282	87.0		40-125	2.23	20	WG495288
Benzo(k)fluoranthene	mg/kg	0.0260	0.0260	79.0		45-121	0.0873	31	WG495288
Chrysene	mg/kg	0.0265	0.0255	80.0		35-135	3.68	20	WG495288
Dibenz(a,h)anthracene	mg/kg	0.0280	0.0279	85.0		41-124	0.458	20	WG495288
Fluoranthene	mg/kg	0.0257	0.0281	78.0		50-114	9.11	20	WG495288
Fluorene	mg/kg	0.0274	0.0246	83.0		49-109	10.5	19	WG495288
Indeno(1,2,3-cd)pyrene	mg/kg	0.0283	0.0281	86.0		40-126	0.635	20	WG495288
Naphthalene	mg/kg	0.0248	0.0232	75.0		36-100	6.63	24	WG495288
Phenanthrene	mg/kg	0.0262	0.0238	79.0		46-108	9.83	21	WG495288
Pyrene	mg/kg	0.0289	0.0232	88.0		30-136	21.7*	20	WG495288
2-Fluorobiphenyl				89.45		21-120			WG495288
Nitrobenzene-d5				83.73		33-114			WG495288
p-Terphenyl-d14				93.73		18-142			WG495288
Specific Conductance	umhos/	430.	430.	106.		85-115	0	20	WG495798

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.245	0.00140	.05	97.4	32-137	L475433-11	WG495203
Ethylbenzene	mg/kg	0.245	0.00186	.05	97.3	10-150	L475433-11	WG495203
Toluene	mg/kg	0.250	0.00210	.05	99.2	20-142	L475433-11	WG495203
Total Xylene	mg/kg	0.757	0.0167	.15	98.7	16-141	L475433-11	WG495203
a,a,a-Trifluorotoluene(PID)					103.8	54-144		WG495203
TPH (GC/FID) Low Fraction	mg/kg	25.2	0	5.5	91.6	55-109	L475472-02	WG495203
a,a,a-Trifluorotoluene(FID)					93.04	59-128		WG495203
TPH (GC/FID) High Fraction	ppm	50.5	0	60	84.2	50-150	L475296-21	WG495294
o-Terphenyl					106.4	50-150		WG495294
Mercury	mg/kg	0.298	0	.25	119.	70-130	L475449-09	WG495308
Arsenic	mg/kg	5380	4010	10	2740*	75-125	L475484-01	WG495266
Barium	mg/kg	54.4	4.56	10	99.7	75-125	L475484-01	WG495266
Cadmium	mg/kg	53.8	0	10	108.	75-125	L475484-01	WG495266
Chromium	mg/kg	55.5	16.9	10	77.2	75-125	L475484-01	WG495266
Copper	mg/kg	118.	26.3	10	183.*	75-125	L475484-01	WG495266
Nickel	mg/kg	53.4	30.0	10	46.8*	75-125	L475484-01	WG495266
Selenium	mg/kg	48.5	0	10	97.0	75-125	L475484-01	WG495266
Silver	mg/kg	73.7	17.3	10	113.	75-125	L475484-01	WG495266
Zinc	mg/kg	55.8	118.	10	0*	75-125	L475484-01	WG495266
Lead	mg/kg	124000	110000	1	28000*	75-125	L475484-01	WG495266
Chromium,Hexavalent	mg/kg	11.8	0	20	59.0	50-150	L475472-01	WG495738
1-Methylnaphthalene	mg/kg	0.0324	0	.033	98.1	19-131	L475347-01	WG495288

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
2-Chloronaphthalene	mg/kg	0.0343	0	.033	104.	38-117	L475347-01	WG495288
2-Methylnaphthalene	mg/kg	0.0346	0	.033	105.	18-125	L475347-01	WG495288
Acenaphthene	mg/kg	0.0309	0	.033	93.6	31-120	L475347-01	WG495288
Acenaphthylene	mg/kg	0.0365	0	.033	111.	34-116	L475347-01	WG495288
Anthracene	mg/kg	0.0348	0	.033	105.	32-131	L475347-01	WG495288
Benzo(a)anthracene	mg/kg	0.0391	0	.033	118.	32-131	L475347-01	WG495288
Benzo(a)pyrene	mg/kg	0.0364	0	.033	110.	28-130	L475347-01	WG495288
Benzo(b)fluoranthene	mg/kg	0.0374	0	.033	113.	37-130	L475347-01	WG495288
Benzo(g,h,i)perylene	mg/kg	0.0405	0	.033	123.	10-134	L475347-01	WG495288
Benzo(k)fluoranthene	mg/kg	0.0361	0	.033	109.	31-129	L475347-01	WG495288
Chrysene	mg/kg	0.0318	0	.033	96.2	25-137	L475347-01	WG495288
Dibenz(a,h)anthracene	mg/kg	0.0398	0	.033	120.	20-134	L475347-01	WG495288
Fluoranthene	mg/kg	0.0415	0	.033	126.	27-138	L475347-01	WG495288
Fluorene	mg/kg	0.0377	0	.033	114.	26-136	L475347-01	WG495288
Indeno(1,2,3-cd)pyrene	mg/kg	0.0402	0	.033	122.	16-135	L475347-01	WG495288
Naphthalene	mg/kg	0.0311	0	.033	94.2	22-121	L475347-01	WG495288
Phenanthrene	mg/kg	0.0332	0	.033	100.	27-133	L475347-01	WG495288
Pyrene	mg/kg	0.0335	0	.033	101.	22-133	L475347-01	WG495288
2-Fluorobiphenyl					109.9	21-120		WG495288
Nitrobenzene-d5					86.97	33-114		WG495288
p-Terphenyl-d14					119.8	18-142		WG495288

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.241	0.245	95.7	32-137	1.76	39	L475433-11	WG495203
Ethylbenzene	mg/kg	0.235	0.245	93.3	10-150	4.17	44	L475433-11	WG495203
Toluene	mg/kg	0.240	0.250	95.0	20-142	4.26	42	L475433-11	WG495203
Total Xylene	mg/kg	0.723	0.757	94.2	16-141	4.55	46	L475433-11	WG495203
a,a,a-Trifluorotoluene(PID)				102.8	54-144				WG495203
TPH (GC/FID) Low Fraction	mg/kg	24.7	25.2	90.0	55-109	1.79	20	L475472-02	WG495203
a,a,a-Trifluorotoluene(FID)				95.02	59-128				WG495203
TPH (GC/FID) High Fraction	ppm	50.8	50.5	84.7	50-150	0.681	20	L475296-21	WG495294
o-Terphenyl				110.2	50-150				WG495294
Mercury	mg/kg	0.304	0.298	122.	70-130	1.99	20	L475449-09	WG495308
Lead	mg/kg	104000	124000	0*	75-125	17.5	20	L475484-01	WG495266
Arsenic	mg/kg	6060	5380	4100*	75-125	11.9	20	L475484-01	WG495266
Barium	mg/kg	58.1	54.4	107.	75-125	6.58	20	L475484-01	WG495266
Cadmium	mg/kg	50.0	53.8	100.	75-125	7.32	20	L475484-01	WG495266
Chromium	mg/kg	157.	55.5	280.*	75-125	95.5*	20	L475484-01	WG495266
Copper	mg/kg	239.	118.	425.*	75-125	67.8*	20	L475484-01	WG495266
Nickel	mg/kg	134.	53.4	208.*	75-125	86.0*	20	L475484-01	WG495266
Selenium	mg/kg	43.8	48.5	87.6	75-125	10.2	20	L475484-01	WG495266
Silver	mg/kg	60.3	73.7	86.0	75-125	20.0	20	L475484-01	WG495266
Zinc	mg/kg	54.6	55.8	0*	75-125	2.17	20	L475484-01	WG495266
Chromium, Hexavalent	mg/kg	13.0	11.8	65.0	50-150	9.68	20	L475472-01	WG495738
1-Methylnaphthalene	mg/kg	0.0306	0.0324	92.6	19-131	5.75	30	L475347-01	WG495288
2-Chloronaphthalene	mg/kg	0.0321	0.0343	97.4	38-117	6.43	26	L475347-01	WG495288
2-Methylnaphthalene	mg/kg	0.0324	0.0346	98.2	18-125	6.50	29	L475347-01	WG495288

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Analyte	Units	MSD	Matrix Spike	Duplicate	Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Acenaphthene	mg/kg	0.0294	0.0309	89.2	31-120	4.89	30	L475347-01	WG495288	
Acenaphthylene	mg/kg	0.0343	0.0365	104.	34-116	6.29	29	L475347-01	WG495288	
Anthracene	mg/kg	0.0330	0.0348	100.	32-131	5.06	26	L475347-01	WG495288	
Benzo(a)anthracene	mg/kg	0.0342	0.0391	103.	32-131	13.5	31	L475347-01	WG495288	
Benzo(a)pyrene	mg/kg	0.0336	0.0364	102.	28-130	8.26	28	L475347-01	WG495288	
Benzo(b)fluoranthene	mg/kg	0.0334	0.0374	101.	37-130	11.3	41	L475347-01	WG495288	
Benzo(g,h,i)perylene	mg/kg	0.0373	0.0405	113.	10-134	8.32	26	L475347-01	WG495288	
Benzo(k)fluoranthene	mg/kg	0.0336	0.0361	102.	31-129	7.07	42	L475347-01	WG495288	
Chrysene	mg/kg	0.0300	0.0318	90.9	25-137	5.73	22	L475347-01	WG495288	
Dibenz(a,h)anthracene	mg/kg	0.0360	0.0398	109.	20-134	9.89	25	L475347-01	WG495288	
Fluoranthene	mg/kg	0.0391	0.0415	118.	27-138	5.92	35	L475347-01	WG495288	
Fluorene	mg/kg	0.0329	0.0377	99.8	26-136	13.4	30	L475347-01	WG495288	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0369	0.0402	112.	16-135	8.60	26	L475347-01	WG495288	
Naphthalene	mg/kg	0.0287	0.0311	86.9	22-121	8.08	30	L475347-01	WG495288	
Phenanthrene	mg/kg	0.0341	0.0332	103.	27-133	2.66	36	L475347-01	WG495288	
Pyrene	mg/kg	0.0303	0.0335	91.8	22-133	9.96	33	L475347-01	WG495288	
2-Fluorobiphenyl				104.9	21-120				WG495288	
Nitrobenzene-d5				86.07	33-114				WG495288	
p-Terphenyl-d14				115.6	18-142				WG495288	

Batch number /Run number / Sample number cross reference

WG495203: R1347030: L475460-04
WG495294: R1348528: L475460-04
WG495308: R1349128: L475460-04
WG495266: R1350290: L475460-01 02 03 04
WG495412: R1350428: L475460-04
WG495464: R1350528: L475460-04
WG495738: R1351108: L475460-04
WG495288: R1351310: L475460-04
WG495798: R1352448: L475460-04
WG495447: R1352548: L475460-04

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