Document 2144689
Date 11/18/2015

Encana Oil & Gas (USA) Inc.
370 - 17 Street, Suite 1700
Denver, CO 80202

A05 596 (Location: 335909)
Pit (Facility: 414392)
Encana Oil & Gas (USA) Inc. (Operator: 100185)

REPORT OF WORK COMPLETED

- Form 27 (Doc: 2315588) (Rem: 9273)
- Form 19 (Doc: 400922820)

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 (Report of Work Completed and Notification of Completion) to document closure of a lined earthen pit on a well pad, specified above, in the North Parachute area of operation in Garfield County. This form was also prepared to document transfer of pit spoil from this location to the M23 496 well pad (Location: 335680) for remediation with the active pit closure (Facility: 414395) and remediation project (Rem9307) at that location. The transfer was carried out entirely on Encana owned surface and access roads. The attached topographic location map shows both locations, and a Form 4 (Status Update) will be prepared for the M23 pit closure remediation project to document this transfer.

Initial pit closure and characterization efforts were carried out in October, 2015. The pit was drained, and the liner and above liner solids were removed for offsite disposal. Below-liner soil conditions were assessed with field observations and collection of six (6) grab samples from the pit bottom and side walls submitted to the laboratory for analysis of COGCC Table 910-1 constituents of concern. Sample results identified concentrations/levels above the allowable limits for TPH, EC, SAR, and arsenic. In accordance with COGCC Rule 905.c, a Form 19 was submitted to document discovery of impacted soils beneath the liner.

Following identification of below-liner impacts, the pit bottom and walls were excavated to competent bedrock. Approximately 1,000 cubic yards of material were excavated and transported to the M23 496 well pad for remediation with other impacted material at that location.

Analytical results are provided in the attached summary table and laboratory reports.

NOTIFICATION OF COMPLETION

After excavation efforts were completed, no additional samples were collected due to the presence of competent bedrock. Encana requests that the COGCC consider the following conditions associated with this pit closure project and location as an alternative to the allowable limit for TPH:

- The samples with elevated constituent concentrations were collected from immediately below the liner. That material has been removed from the excavation and all that remains is a small amount of residual material on top of the bedrock. The collected samples are not representative of the bedrock or the geology beneath the bedrock, and only demonstrate that the removed material had hydrocarbon impacts.
- Encana has maintained an extensive water quality monitoring program in the North Parachute Properties for nearly a decade. The program includes quarterly sampling at area springs, seeps, and streams. The nearest down gradient sampling points (ENPR5SP and ENPR22ST) have had no water quality problems identified in their monitoring history. This program will continue into the future, and any water quality impacts would be reported promptly.

Arsenic concentrations in the pit bottom are above the allowable concentration in Table 910-1, but are within the range of background values for this area. Based on these results and Footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic values as the allowable concentration for this constituent.

With regards to the inorganic constituents (SAR and EC), the material represented by these samples are within the former pit footprint, are greater than five feet below the current working surface, and will be at an even greater depth below the final reclaimed working surface where the constituents will have no effect on revegetation efforts. Encana requests that the physical disposition of this material, along with the reason for inclusion in Table 910-1, be considered as alternative to the allowable levels.

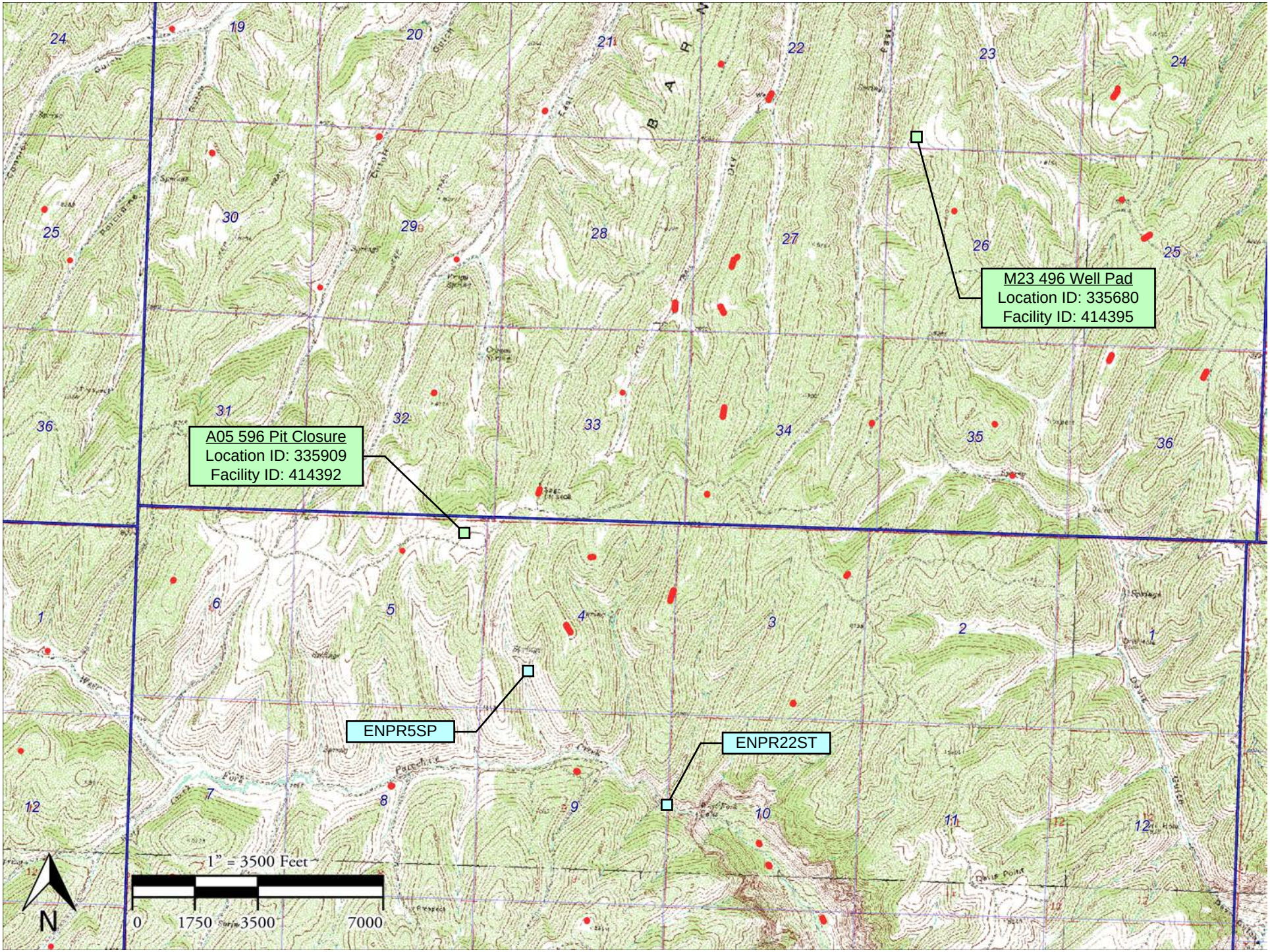
Demonstration of remediation success for the transported material to the M23 496 well pad will be documented with the Notification of Completion for the pit closure remediation project for that location (Rem9307).

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

ATTACHMENTS

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

A05 596 (NPM) Topographic Location Map



Laboratory Results Summary Table

11/11/2015

Analytes (BDL = Below Detection Limit; ND = Non Detect, U = below minimum detection limit [MDL])

				Organic Compounds in Soil (mg/kg [ppm])																				Inorganics in Soil			Metals in Soil (mg/kg [ppm])										
Allowable Concentration -->				500			0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000		(<12)	(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000
Location	**Sample Date:**	**Sample Matrix**	**Matrix Notes**	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3.C.D)pyrene	Napthalene	Pyrene	EC (<4 mmhos/cm or **2x background**)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
A05	10/12/15	Pit	E pit bottom	**4910**	**310**	**4600**	**0.028**	**0.096**	*<0.0081*	**0.24**																												
A05	10/12/15	Pit	W pit bottom	**69**	*<1.4*	**69**	**0.025**	**0.039**	*<0.0079*	**0.036**	*<0.0028*	*<0.0036*	*<0.0045*	*<0.0025*	*<0.0047*	*<0.0016*	*<0.0063*	*<0.0024*	*<0.0046*	*<0.0041*	*<0.0047*	**0.011**	*<0.0056*	**6.6**	**16**	**7.8**	**4.6**	**2500**	*<0.073*	**69**	*<0.32*	**15**	**9.4**	**0.018**	**36**	*<0.28*	**0.097**	**46**
A05	10/12/15	Pit	W wall	**120**	*<1.4*	**120**	**0.011**	**0.059**	*<0.0080*	**0.11**																												
A05	10/12/15	Pit	E wall	**660**	*<1.3*	**660**	*<0.0073*	**0.053**	**0.0086**	**0.1**																												
A05	10/12/15	Pit	N wall	**190**	*<1.4*	**190**	*<0.0077*	**0.028**	*<0.0079*	**0.039**																												
A05	10/12/15	Pit	S wall	**48**	*<1.4*	**48**	*<0.0078*	**0.029**	*<0.0080*	**0.069**																												

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

21-Oct-2015

Brett Middleton
Encana Oil and Gas (USA) Inc.
143 Diamond Avenue
Parachute, CO 81635

Re: **Pit Sampling A05** Work Order: **1510789**

Dear Brett,

ALS Environmental received 6 samples on 13-Oct-2015 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Les Arnold

Les Arnold
Senior Project Manager

Certificate No: MN 532786

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

ALS Group USA, Corp

Date: 21-Oct-15

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Work Order: **1510789**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1510789-01	20151012-A05 (PB-East) Surface	Soil		10/12/2015 13:05	10/13/2015 09:30	☐
1510789-02	20151012-A05 (PB-West) Surface	Soil		10/12/2015 13:00	10/13/2015 09:30	☐
1510789-03	20151012-A05 (Wall-West) Surface	Soil		10/12/2015 13:15	10/13/2015 09:30	☐
1510789-04	20151012-A05 (Wall-East) Surface	Soil		10/12/2015 13:20	10/13/2015 09:30	☐
1510789-05	20151012-A05 (Wall-North) Surface	Soil		10/12/2015 13:30	10/13/2015 09:30	☐
1510789-06	20151012-A05 (Wall-South) Surface	Soil		10/12/2015 13:40	10/13/2015 09:30	☐

ALS Group USA, Corp

Date: 21-Oct-15

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Work Order: 1510789

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 77524, Method 6010, ICP, Sample 1510789-02B: The MS and MSD recoveries were outside of the control limit for Barium, Chromium, and Zinc; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte.

Batch 77524, Method 6010, ICP; Sample 1510789-02B: The matrix spike recovery was outside of the control limit for Copper; however, the matrix spike duplicate recovery and the RPD between the MS and MSD were in control. No qualification is required for this analyte.

Batch 77524, Method 6010, ICP; Sample 1510789-02B: The MSD recovery was outside of the control limit for Lead; however, the matrix spike duplicate recovery and the RPD between the MS and MSD were in control. No qualification is required for this analyte.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (PB-East) Surface
Collection Date: 10/12/2015 01:05 PM

Work Order: 1510789
Lab ID: 1510789-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3541 / 10/16/15		Analyst: **IT**
DRO (C10-C28)	**4,600**		**31**	**95**	**mg/Kg-dry**	10	10/20/2015 11:43
Surr: 4-Terphenyl-d14	*74.4*			*39-133*	*%REC*	10	10/20/2015 11:43
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	**310**		**1.4**	**2.9**	**mg/Kg-dry**	1	10/14/2015 16:36
Surr: Toluene-d8	*116*			*50-150*	*%REC*	1	10/14/2015 16:36
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**			Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	**0.028**	J	**0.0079**	**0.035**	**mg/Kg-dry**	1	10/21/2015 12:10
Ethylbenzene	U		0.0081	0.035	mg/Kg-dry	1	10/21/2015 12:10
m,p-Xylene	**0.21**		**0.016**	**0.069**	**mg/Kg-dry**	1	10/21/2015 12:10
o-Xylene	**0.032**	J	**0.011**	**0.035**	**mg/Kg-dry**	1	10/21/2015 12:10
Toluene	**0.096**		**0.011**	**0.035**	**mg/Kg-dry**	1	10/21/2015 12:10
Xylenes, Total	**0.24**		**0.027**	**0.10**	**mg/Kg-dry**	1	10/21/2015 12:10
Surr: 1,2-Dichloroethane-d4	*98.6*			*70-130*	*%REC*	1	10/21/2015 12:10
Surr: 4-Bromofluorobenzene	*92.1*			*70-130*	*%REC*	1	10/21/2015 12:10
Surr: Dibromofluoromethane	*94.0*			*70-130*	*%REC*	1	10/21/2015 12:10
Surr: Toluene-d8	*98.6*			*70-130*	*%REC*	1	10/21/2015 12:10
MOISTURE		Method: **E160.3M**					Analyst: **TM**
Moisture	**14**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 16:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (PB-West) Surface
Collection Date: 10/12/2015 01:00 PM

Work Order: 1510789
Lab ID: 1510789-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3541 / 10/16/15		Analyst: **CW**
DRO (C10-C28)	**69**		**1.5**	**4.7**	**mg/Kg-dry**	1	10/16/2015 15:14
Surr: 4-Terphenyl-d14	*84.7*			*39-133*	*%REC*	1	10/16/2015 15:14
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	U		1.4	2.8	mg/Kg-dry	1	10/14/2015 18:20
Surr: Toluene-d8	*109*			*50-150*	*%REC*	1	10/14/2015 18:20
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 10/19/15		Analyst: **LR**
Mercury	**0.018**		**0.0014**	**0.017**	**mg/Kg-dry**	1	10/19/2015 16:23
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 10/15/15		Analyst: **JEC**
Arsenic	**4.6**		**0.11**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Barium	**2,500**		**0.22**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Cadmium	U		0.073	0.93	mg/Kg-dry	1	10/16/2015 13:46
Chromium	**69**		**0.015**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Copper	**15**		**0.050**	**0.93**	**mg/Kg-dry**	1	10/16/2015 13:46
Lead	**9.4**		**0.056**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Nickel	**36**		**0.14**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Selenium	U		0.28	0.93	mg/Kg-dry	1	10/16/2015 13:46
Silver	**0.097**	J	**0.047**	**0.47**	**mg/Kg-dry**	1	10/16/2015 13:46
Zinc	**46**		**0.15**	**0.93**	**mg/Kg-dry**	1	10/16/2015 13:46
SOLUBLE CATIONS FOR SAR		Method: **SW846 6010C**			Prep: USDA Method 20B / 10/15/15		Analyst: **JEC**
Calcium	**220**		**0.22**	**5.0**	**mg/L**	10	10/16/2015 16:48
Magnesium	**21**		**0.22**	**2.0**	**mg/L**	10	10/16/2015 16:48
Sodium	**930**		**0.24**	**2.0**	**mg/L**	10	10/16/2015 16:48
SODIUM ADSORPTION RATIO		Method: **USDA H60 METHOD 2**			Prep: USDA Method 20B / 10/15/15		Analyst: **JEC**
Sodium Adsorption Ratio	**16**		**0.010**	**0.010**	**none**	1	10/16/2015
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **SW846 8270D**			Prep: SW3541 / 10/16/15		Analyst: **JG**
Acenaphthene	U		0.0028	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Anthracene	U		0.0036	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Benzo(a)anthracene	U		0.0045	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Benzo(a)pyrene	U		0.0016	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Benzo(b)fluoranthene	U		0.0025	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Benzo(k)fluoranthene	U		0.0047	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Chrysene	U		0.0063	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Dibenzo(a,h)anthracene	U		0.0024	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Fluoranthene	U		0.0046	0.0075	mg/Kg-dry	1	10/17/2015 12:35

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (PB-West) Surface
Collection Date: 10/12/2015 01:00 PM

Work Order: 1510789
Lab ID: 1510789-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0041	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Indeno(1,2,3-cd)pyrene	U		0.0047	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Naphthalene	**0.011**		**0.0019**	**0.0075**	**mg/Kg-dry**	1	10/17/2015 12:35
Pyrene	U		0.0056	0.0075	mg/Kg-dry	1	10/17/2015 12:35
Surr: 2-Fluorobiphenyl	*54.4*			*12-100*	*%REC*	1	10/17/2015 12:35
Surr: 4-Terphenyl-d14	*61.4*			*25-137*	*%REC*	1	10/17/2015 12:35
Surr: Nitrobenzene-d5	*51.3*			*37-107*	*%REC*	1	10/17/2015 12:35
VOLATILE ORGANIC COMPOUNDS		Method:	**SW8260B**		Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	**0.025**	J	**0.0076**	**0.034**	**mg/Kg-dry**	1	10/21/2015 10:05
Ethylbenzene	U		0.0079	0.034	mg/Kg-dry	1	10/21/2015 10:05
m,p-Xylene	**0.037**	J	**0.015**	**0.068**	**mg/Kg-dry**	1	10/21/2015 10:05
o-Xylene	U		0.011	0.034	mg/Kg-dry	1	10/21/2015 10:05
Toluene	**0.039**		**0.011**	**0.034**	**mg/Kg-dry**	1	10/21/2015 10:05
Xylenes, Total	**0.036**	J	**0.026**	**0.10**	**mg/Kg-dry**	1	10/21/2015 10:05
Surr: 1,2-Dichloroethane-d4	*102*			*70-130*	*%REC*	1	10/21/2015 10:05
Surr: 4-Bromofluorobenzene	*101*			*70-130*	*%REC*	1	10/21/2015 10:05
Surr: Dibromofluoromethane	*96.0*			*70-130*	*%REC*	1	10/21/2015 10:05
Surr: Toluene-d8	*96.8*			*70-130*	*%REC*	1	10/21/2015 10:05
ELECTRICAL CONDUCTIVITY (SAR)		Method:	**USDA H60 METHOD 2**		Prep: USDA Method 20B / 10/15/15		Analyst: **JB**
Electrical Conductivity @ Saturation	**6.6**		**0.0055**	**0.050**	**mmhos/cm @25°C**	10	10/15/2015 12:15
CHROMIUM, TRIVALENT		Method:	**CALCULATION**				Analyst: **MB**
Chromium, Trivalent	**69**		**0.29**	**0.56**	**mg/Kg-dry**	1	10/19/2015 13:00
CHROMIUM, HEXAVALENT		Method:	**SW7196A**		Prep: SW3060A / 10/14/15		Analyst: **MB**
Chromium, Hexavalent	U		0.32	1.1	mg/Kg-dry	1	10/15/2015 17:00
MOISTURE		Method:	**E160.3M**				Analyst: **TM**
Moisture	**11**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 16:58
PH		Method:	**SW9045D**		Prep: EXTRACT / 10/16/15		Analyst: **JB**
pH	**7.8**		**0**		**s.u.**	1	10/16/2015 13:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (Wall-West) Surface
Collection Date: 10/12/2015 01:15 PM

Work Order: 1510789
Lab ID: 1510789-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3541 / 10/16/15		Analyst: **CW**
DRO (C10-C28)	**120**		**1.6**	**4.7**	**mg/Kg-dry**	1	10/16/2015 15:44
Surr: 4-Terphenyl-d14	*75.0*			*39-133*	*%REC*	1	10/16/2015 15:44
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	U		1.4	2.9	mg/Kg-dry	1	10/14/2015 18:45
Surr: Toluene-d8	*113*			*50-150*	*%REC*	1	10/14/2015 18:45
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**			Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	**0.011**	J	**0.0077**	**0.034**	**mg/Kg-dry**	1	10/21/2015 10:30
Ethylbenzene	U		0.0080	0.034	mg/Kg-dry	1	10/21/2015 10:30
m,p-Xylene	**0.094**		**0.015**	**0.068**	**mg/Kg-dry**	1	10/21/2015 10:30
o-Xylene	**0.014**	J	**0.011**	**0.034**	**mg/Kg-dry**	1	10/21/2015 10:30
Toluene	**0.059**		**0.011**	**0.034**	**mg/Kg-dry**	1	10/21/2015 10:30
Xylenes, Total	**0.11**		**0.026**	**0.10**	**mg/Kg-dry**	1	10/21/2015 10:30
Surr: 1,2-Dichloroethane-d4	*99.2*			*70-130*	*%REC*	1	10/21/2015 10:30
Surr: 4-Bromofluorobenzene	*102*			*70-130*	*%REC*	1	10/21/2015 10:30
Surr: Dibromofluoromethane	*95.0*			*70-130*	*%REC*	1	10/21/2015 10:30
Surr: Toluene-d8	*98.4*			*70-130*	*%REC*	1	10/21/2015 10:30
MOISTURE		Method: **E160.3M**					Analyst: **TM**
Moisture	**12**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 16:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (Wall-East) Surface
Collection Date: 10/12/2015 01:20 PM

Work Order: 1510789
Lab ID: 1510789-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method:	**SW8015M**		Prep: SW3541 / 10/16/15		Analyst: **CW**
DRO (C10-C28)	**660**		**1.4**	**4.4**	**mg/Kg-dry**	1	10/16/2015 16:14
Surr: 4-Terphenyl-d14	*80.3*			*39-133*	*%REC*	1	10/16/2015 16:14
GASOLINE RANGE ORGANICS BY GC-FID		Method:	**SW8015D**		Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	U		1.3	2.7	mg/Kg-dry	1	10/14/2015 19:10
Surr: Toluene-d8	*115*			*50-150*	*%REC*	1	10/14/2015 19:10
VOLATILE ORGANIC COMPOUNDS		Method:	**SW8260B**		Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	U		0.0073	0.032	mg/Kg-dry	1	10/21/2015 10:55
Ethylbenzene	**0.0086**	J	**0.0075**	**0.032**	**mg/Kg-dry**	1	10/21/2015 10:55
m,p-Xylene	**0.089**		**0.015**	**0.065**	**mg/Kg-dry**	1	10/21/2015 10:55
o-Xylene	**0.012**	J	**0.010**	**0.032**	**mg/Kg-dry**	1	10/21/2015 10:55
Toluene	**0.053**		**0.011**	**0.032**	**mg/Kg-dry**	1	10/21/2015 10:55
Xylenes, Total	**0.10**		**0.025**	**0.097**	**mg/Kg-dry**	1	10/21/2015 10:55
Surr: 1,2-Dichloroethane-d4	*96.5*			*70-130*	*%REC*	1	10/21/2015 10:55
Surr: 4-Bromofluorobenzene	*99.6*			*70-130*	*%REC*	1	10/21/2015 10:55
Surr: Dibromofluoromethane	*92.8*			*70-130*	*%REC*	1	10/21/2015 10:55
Surr: Toluene-d8	*97.6*			*70-130*	*%REC*	1	10/21/2015 10:55
MOISTURE		Method:	**E160.3M**				Analyst: **TM**
Moisture	**7.2**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 16:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (Wall-North) Surface
Collection Date: 10/12/2015 01:30 PM

Work Order: 1510789
Lab ID: 1510789-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3541 / 10/16/15		Analyst: **CW**
DRO (C10-C28)	**190**		**1.5**	**4.6**	**mg/Kg-dry**	1	10/16/2015 16:44
Surr: 4-Terphenyl-d14	*117*			*39-133*	*%REC*	1	10/16/2015 16:44
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	U		1.4	2.8	mg/Kg-dry	1	10/14/2015 19:35
Surr: Toluene-d8	*113*			*50-150*	*%REC*	1	10/14/2015 19:35
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**			Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	U		0.0077	0.034	mg/Kg-dry	1	10/21/2015 11:20
Ethylbenzene	U		0.0079	0.034	mg/Kg-dry	1	10/21/2015 11:20
m,p-Xylene	**0.039**	J	**0.015**	**0.068**	**mg/Kg-dry**	1	10/21/2015 11:20
o-Xylene	U		0.011	0.034	mg/Kg-dry	1	10/21/2015 11:20
Toluene	**0.028**	J	**0.011**	**0.034**	**mg/Kg-dry**	1	10/21/2015 11:20
Xylenes, Total	**0.039**	J	**0.026**	**0.10**	**mg/Kg-dry**	1	10/21/2015 11:20
Surr: 1,2-Dichloroethane-d4	*99.2*			*70-130*	*%REC*	1	10/21/2015 11:20
Surr: 4-Bromofluorobenzene	*103*			*70-130*	*%REC*	1	10/21/2015 11:20
Surr: Dibromofluoromethane	*96.0*			*70-130*	*%REC*	1	10/21/2015 11:20
Surr: Toluene-d8	*97.9*			*70-130*	*%REC*	1	10/21/2015 11:20
MOISTURE		Method: **E160.3M**					Analyst: **TM**
Moisture	**12**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 16:58

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *21-Oct-15*

Client: Encana Oil and Gas (USA) Inc.
Project: Pit Sampling A05
Sample ID: 20151012-A05 (Wall-South) Surface
Collection Date: 10/12/2015 01:40 PM

Work Order: 1510789
Lab ID: 1510789-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3541 / 10/16/15		Analyst: **CW**
DRO (C10-C28)	**48**		**1.6**	**4.7**	**mg/Kg-dry**	1	10/16/2015 17:14
Surr: 4-Terphenyl-d14	*59.7*			*39-133*	*%REC*	1	10/16/2015 17:14
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 10/14/15		Analyst: **IT**
GRO (C6-C10)	U		1.4	2.9	mg/Kg-dry	1	10/14/2015 20:00
Surr: Toluene-d8	*111*			*50-150*	*%REC*	1	10/14/2015 20:00
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260B**			Prep: SW5035 / 10/14/15		Analyst: **AK**
Benzene	U		0.0078	0.034	mg/Kg-dry	1	10/21/2015 11:45
Ethylbenzene	U		0.0080	0.034	mg/Kg-dry	1	10/21/2015 11:45
m,p-Xylene	**0.069**		**0.015**	**0.069**	**mg/Kg-dry**	1	10/21/2015 11:45
o-Xylene	U		0.011	0.034	mg/Kg-dry	1	10/21/2015 11:45
Toluene	**0.029**	J	**0.011**	**0.034**	**mg/Kg-dry**	1	10/21/2015 11:45
Xylenes, Total	**0.069**	J	**0.027**	**0.10**	**mg/Kg-dry**	1	10/21/2015 11:45
Surr: 1,2-Dichloroethane-d4	*99.1*			*70-130*	*%REC*	1	10/21/2015 11:45
Surr: 4-Bromofluorobenzene	*98.8*			*70-130*	*%REC*	1	10/21/2015 11:45
Surr: Dibromofluoromethane	*95.0*			*70-130*	*%REC*	1	10/21/2015 11:45
Surr: Toluene-d8	*98.1*			*70-130*	*%REC*	1	10/21/2015 11:45
MOISTURE		Method: **E160.3M**					Analyst: **TM**
Moisture	**13**		**0.025**	**0.050**	**% of sample**	1	10/16/2015 17:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 21-Oct-15

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and PQL, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group USA, Corp

Date: 21-Oct-15

Client: Encana Oil and Gas (USA) Inc.

Work Order: 1510789

Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77552** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-77552-77552** Units: **mg/Kg** Analysis Date: **10/16/2015 12:32 PM**

Client ID: Run ID: **GC8_151016A** SeqNo: **3514147** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	*1.682*	0	*2*	0	*84.1*	*39-133*	0			

LCS Sample ID: **DLCSS1-77552-77552** Units: **mg/Kg** Analysis Date: **10/16/2015 01:02 PM**

Client ID: Run ID: **GC8_151016A** SeqNo: **3514148** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	166.8	5.0	200	0	83.4	61-109	0			
Surr: 4-Terphenyl-d14	*1.184*	0	*2*	0	*59.2*	*39-133*	0			

MS Sample ID: **1510789-06A MS** Units: **mg/Kg** Analysis Date: **10/16/2015 02:02 PM**

Client ID: **20151012-A05 (Wall-South) Surface** Run ID: **GC8_151016A** SeqNo: **3516301** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	150.7	4.1	164.1	42.25	66.1	48-110	0			
Surr: 4-Terphenyl-d14	*1.039*	0	*1.641*	0	*63.3*	*39-133*	0			

MSD Sample ID: **1510789-06A MSD** Units: **mg/Kg** Analysis Date: **10/16/2015 02:32 PM**

Client ID: **20151012-A05 (Wall-South) Surface** Run ID: **GC8_151016A** SeqNo: **3516302** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	142	4.2	166	42.25	60.1	48-110	150.7	6	30	
Surr: 4-Terphenyl-d14	*0.9908*	0	*1.66*	0	*59.7*	*39-133*	1.039	*4.78*	*30*	

The following samples were analyzed in this batch:

1510789-01A	1510789-02B	1510789-03A
1510789-04A	1510789-05A	1510789-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77448** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-77448-77448** Units: **µg/Kg** Analysis Date: **10/14/2015 02:06 PM**
Client ID: Run ID: **GC9_151014A** SeqNo: **3510112** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	2,500								
Surr: Toluene-d8	*4709*	0	*5000*	0	*94.2*	*50-150*	0			

LCS Sample ID: **LCS-77448-77448** Units: **µg/Kg** Analysis Date: **10/14/2015 01:41 PM**
Client ID: Run ID: **GC9_151014A** SeqNo: **3510111** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	498800	2,500	500000	0	99.8	70-130	0			
Surr: Toluene-d8	*4860*	0	*5000*	0	*97.2*	*50-150*	0			

MS Sample ID: **1510788-05A MS** Units: **µg/Kg** Analysis Date: **10/14/2015 05:04 PM**
Client ID: Run ID: **GC9_151014A** SeqNo: **3510119** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	630700	2,500	500000	117000	103	70-130	0			
Surr: Toluene-d8	*5410*	0	*5000*	0	*108*	*50-150*	0			

MSD Sample ID: **1510788-05A MSD** Units: **µg/Kg** Analysis Date: **10/14/2015 05:29 PM**
Client ID: Run ID: **GC9_151014A** SeqNo: **3510120** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	585400	2,500	500000	117000	93.7	70-130	630700	7.44	30	
Surr: Toluene-d8	*5453*	0	*5000*	0	*109*	*50-150*	5410	*0.801*	*30*	

The following samples were analyzed in this batch:

1510789-01A	1510789-02B	1510789-03A
1510789-04A	1510789-05A	1510789-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77680** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-77680-77680** Units: **mg/Kg** Analysis Date: **10/19/2015 04:11 PM**
Client ID: Run ID: **HG1_151019A** SeqNo: **3517643** Prep Date: **10/19/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.020								

LCS Sample ID: **LCS-77680-77680** Units: **mg/Kg** Analysis Date: **10/19/2015 04:14 PM**
Client ID: Run ID: **HG1_151019A** SeqNo: **3517644** Prep Date: **10/19/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1833	0.020	0.1665	0	110	80-120	0			

MS Sample ID: **15101009-01BMS** Units: **mg/Kg** Analysis Date: **10/19/2015 04:18 PM**
Client ID: Run ID: **HG1_151019A** SeqNo: **3517646** Prep Date: **10/19/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1239	0.013	0.1081	0.007442	108	75-125	0			

MSD Sample ID: **15101009-01BMSD** Units: **mg/Kg** Analysis Date: **10/19/2015 04:21 PM**
Client ID: Run ID: **HG1_151019A** SeqNo: **3517647** Prep Date: **10/19/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1193	0.013	0.1079	0.007442	104	75-125	0.1239	3.77	35	

The following samples were analyzed in this batch: 1510789-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77452** Instrument ID **ICP2** Method: **SW846 6010C**

DUP Sample ID: **1510789-02ADUP** Units: **mg/L** Analysis Date: **10/16/2015 04:54 PM**
Client ID: **20151012-A05 (PB-West) Surface** Run ID: **ICP2_151016A** SeqNo: **3514529** Prep Date: **10/15/2015** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	220.8	5.0	0	0	0	0-0	220.5	0.154		
Magnesium	20.92	2.0	0	0	0	0-0	20.73	0.895		
Sodium	932.4	2.0	0	0	0	0-0	929.9	0.269		

DUP Sample ID: **1510789-02ADUP** Units: **none** Analysis Date: **10/16/2015**
Client ID: **20151012-A05 (PB-West) Surface** Run ID: **SAR_151016A** SeqNo: **3514595** Prep Date: **10/15/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	16.07	0.010	0	0	0		16.04	0.142	50	

The following samples were analyzed in this batch: 1510789-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77524** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-77524-77524** Units: **mg/Kg** Analysis Date: **10/16/2015 01:35 PM**
Client ID: Run ID: **ICP2_151016A** SeqNo: **3514435** Prep Date: **10/15/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	U	0.25								
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	U	0.50								

LCS Sample ID: **LCS-77524-77524** Units: **mg/Kg** Analysis Date: **10/16/2015 01:41 PM**
Client ID: Run ID: **ICP2_151016A** SeqNo: **3514436** Prep Date: **10/15/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.817	0.25	5	0	96.3	80-120	0			
Barium	4.883	0.25	5	0	97.7	80-120	0			
Cadmium	4.889	0.50	5	0	97.8	80-120	0			
Chromium	5.176	0.25	5	0	104	80-120	0			
Copper	5.177	0.50	5	0	104	80-120	0			
Lead	4.997	0.25	5	0	99.9	80-120	0			
Nickel	5.185	0.25	5	0	104	80-120	0			
Selenium	5.044	0.50	5	0	101	80-120	0			
Silver	5.049	0.25	5	0	101	80-120	0			
Zinc	5.008	0.50	5	0	100	80-120	0			

MS Sample ID: **1510789-02BMS** Units: **mg/Kg** Analysis Date: **10/16/2015 01:52 PM**
Client ID: **20151012-A05 (PB-West) Surface** Run ID: **ICP2_151016A** SeqNo: **3514438** Prep Date: **10/15/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.38	0.41	8.21	4.104	101	75-125	0			
Barium	2412	0.41	8.21	2196	2630	75-125	0			SO
Cadmium	8.017	0.82	8.21	-0.103	98.9	75-125	0			
Chromium	71.1	0.41	8.21	61.18	121	75-125	0			O
Copper	25.36	0.82	8.21	13.62	143	75-125	0			S
Lead	15.16	0.41	8.21	8.327	83.3	75-125	0			
Nickel	40.29	0.41	8.21	31.55	106	75-125	0			
Selenium	9.278	0.82	8.21	0.221	110	75-125	0			
Silver	9.153	0.41	8.21	0.08638	110	75-125	0			
Zinc	46.67	0.82	8.21	41.02	68.9	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77524** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **1510789-02BMSD** Units: **mg/Kg** Analysis Date: **10/16/2015 01:58 PM**

Client ID: **20151012-A05 (PB-West) Surface** Run ID: **ICP2_151016A** SeqNo: **3514439** Prep Date: **10/15/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.64	0.42	8.306	4.104	103	75-125	12.38	2.1	20	
Barium	2491	0.42	8.306	2196	3550	75-125	2412	3.21	20	SO
Cadmium	7.931	0.83	8.306	-0.103	96.7	75-125	8.017	1.07	20	
Chromium	73.27	0.42	8.306	61.18	146	75-125	71.1	3.01	20	SO
Copper	21.1	0.83	8.306	13.62	90	75-125	25.36	18.3	20	
Lead	14.48	0.42	8.306	8.327	74.1	75-125	15.16	4.59	20	S
Nickel	40.59	0.42	8.306	31.55	109	75-125	40.29	0.736	20	
Selenium	9.326	0.83	8.306	0.221	110	75-125	9.278	0.509	20	
Silver	9.14	0.42	8.306	0.08638	109	75-125	9.153	0.144	20	
Zinc	48.65	0.83	8.306	41.02	91.9	75-125	46.67	4.15	20	O

The following samples were analyzed in this batch: 1510789-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77551** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK Sample ID: **SBLKS1-77551-77551** Units: **µg/Kg** Analysis Date: **10/16/2015 03:46 PM**
Client ID: Run ID: **SVMS5_151016A** SeqNo: **3514598** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	6.7								
Anthracene	U	6.7								
Benzo(a)anthracene	U	6.7								
Benzo(a)pyrene	U	6.7								
Benzo(b)fluoranthene	U	6.7								
Benzo(k)fluoranthene	U	6.7								
Chrysene	U	6.7								
Dibenzo(a,h)anthracene	U	6.7								
Fluoranthene	U	6.7								
Fluorene	U	6.7								
Indeno(1,2,3-cd)pyrene	U	6.7								
Naphthalene	U	6.7								
Pyrene	U	6.7								
Surr: 2-Fluorobiphenyl	*1175*	0	*1667*	0	*70.5*	*12-100*	0			
Surr: 4-Terphenyl-d14	*1436*	0	*1667*	0	*86.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*1265*	0	*1667*	0	*75.9*	*37-107*	0			

LCS Sample ID: **SLCSS1-77551-77551** Units: **µg/Kg** Analysis Date: **10/16/2015 04:09 PM**
Client ID: Run ID: **SVMS5_151016A** SeqNo: **3514599** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	509.7	6.7	666.7	0	76.4	45-110	0			
Anthracene	578	6.7	666.7	0	86.7	55-105	0			
Benzo(a)anthracene	566.7	6.7	666.7	0	85	50-110	0			
Benzo(a)pyrene	896.7	6.7	666.7	0	134	50-110	0			S
Benzo(b)fluoranthene	874	6.7	666.7	0	131	45-115	0			S
Benzo(k)fluoranthene	845	6.7	666.7	0	127	45-115	0			S
Chrysene	545.3	6.7	666.7	0	81.8	55-110	0			
Dibenzo(a,h)anthracene	821.7	6.7	666.7	0	123	40-125	0			
Fluoranthene	597.7	6.7	666.7	0	89.6	55-115	0			
Fluorene	553.7	6.7	666.7	0	83	50-110	0			
Indeno(1,2,3-cd)pyrene	870.3	6.7	666.7	0	131	40-120	0			S
Naphthalene	475.7	6.7	666.7	0	71.3	40-105	0			
Pyrene	590.3	6.7	666.7	0	88.5	45-125	0			
Surr: 2-Fluorobiphenyl	*1224*	0	*1667*	0	*73.4*	*12-100*	0			
Surr: 4-Terphenyl-d14	*1355*	0	*1667*	0	*81.3*	*25-137*	0			
Surr: Nitrobenzene-d5	*1375*	0	*1667*	0	*82.5*	*37-107*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77551** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **1510878-01A MS** Units: **µg/Kg** Analysis Date: **10/16/2015 04:32 PM**
Client ID: Run ID: **SVMS5_151016A** SeqNo: **3514600** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	498	6.6	658.8	0	75.6	45-110	0			
Anthracene	583.3	6.6	658.8	30.86	83.9	55-105	0			
Benzo(a)anthracene	560.3	6.6	658.8	0	85	50-110	0			
Benzo(a)pyrene	884.4	6.6	658.8	0	134	50-110	0			S
Benzo(b)fluoranthene	868.2	6.6	658.8	0	132	45-115	0			S
Benzo(k)fluoranthene	824.4	6.6	658.8	0	125	45-115	0			S
Chrysene	541.5	6.6	658.8	0	82.2	55-110	0			
Dibenzo(a,h)anthracene	825.4	6.6	658.8	0	125	40-125	0			S
Fluoranthene	604.4	6.6	658.8	2.298	91.4	55-115	0			
Fluorene	546.4	6.6	658.8	8.206	81.7	50-110	0			
Indeno(1,2,3-cd)pyrene	880.8	6.6	658.8	0	134	40-120	0			S
Naphthalene	352.4	6.6	658.8	0	53.5	40-105	0			
Pyrene	581	6.6	658.8	4.267	87.5	45-125	0			
Surr: 2-Fluorobiphenyl	*1111*	0	*1647*	0	*67.4*	*12-100*	0			
Surr: 4-Terphenyl-d14	*1303*	0	*1647*	0	*79.1*	*25-137*	0			
Surr: Nitrobenzene-d5	*942.4*	0	*1647*	0	*57.2*	*37-107*	0			

MSD Sample ID: **1510878-01A MSD** Units: **µg/Kg** Analysis Date: **10/16/2015 04:56 PM**
Client ID: Run ID: **SVMS5_151016A** SeqNo: **3514601** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	464.8	6.5	646.1	0	71.9	45-110	498	6.9	30	
Anthracene	537.5	6.5	646.1	30.86	78.4	55-105	583.3	8.18	30	
Benzo(a)anthracene	502.6	6.5	646.1	0	77.8	50-110	560.3	10.8	30	
Benzo(a)pyrene	791.1	6.5	646.1	0	122	50-110	884.4	11.1	30	S
Benzo(b)fluoranthene	771.7	6.5	646.1	0	119	45-115	868.2	11.8	30	S
Benzo(k)fluoranthene	745.5	6.5	646.1	0	115	45-115	824.4	10.1	30	S
Chrysene	475.2	6.5	646.1	0	73.5	55-110	541.5	13.1	30	
Dibenzo(a,h)anthracene	725.8	6.5	646.1	0	112	40-125	825.4	12.8	30	
Fluoranthene	542.7	6.5	646.1	2.298	83.6	55-115	604.4	10.8	30	
Fluorene	502.9	6.5	646.1	8.206	76.6	50-110	546.4	8.29	30	
Indeno(1,2,3-cd)pyrene	772	6.5	646.1	0	119	40-120	880.8	13.2	30	
Naphthalene	407.6	6.5	646.1	0	63.1	40-105	352.4	14.5	30	
Pyrene	512.3	6.5	646.1	4.267	78.6	45-125	581	12.6	30	
Surr: 2-Fluorobiphenyl	*1087*	0	*1615*	0	*67.3*	*12-100*	1111	*2.13*	*40*	
Surr: 4-Terphenyl-d14	*1182*	0	*1615*	0	*73.2*	*25-137*	1303	*9.77*	*40*	
Surr: Nitrobenzene-d5	*1134*	0	*1615*	0	*70.2*	*37-107*	942.4	*18.4*	*40*	

The following samples were analyzed in this batch: 1510789-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77443** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **MBLK-77443-77443** Units: **µg/Kg** Analysis Date: **10/14/2015 08:25 PM**
Client ID: Run ID: **VMS6_151014A** SeqNo: **3510090** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30								
Ethylbenzene	U	30								
m,p-Xylene	U	60								
o-Xylene	U	30								
Toluene	U	30								
Xylenes, Total	U	90								
Surr: 1,2-Dichloroethane-d4	*1067*	0	*1000*	0	*107*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*950*	0	*1000*	0	*95*	*70-130*	0			
Surr: Dibromofluoromethane	*1014*	0	*1000*	0	*101*	*70-130*	0			
Surr: Toluene-d8	*969*	0	*1000*	0	*96.9*	*70-130*	0			

LCS Sample ID: **LCS-77443-77443** Units: **µg/Kg** Analysis Date: **10/14/2015 04:42 PM**
Client ID: Run ID: **VMS6_151014A** SeqNo: **3510089** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	991.5	30	1000	0	99.2	75-125	0			
Ethylbenzene	992.5	30	1000	0	99.2	75-125	0			
m,p-Xylene	2030	60	2000	0	101	80-125	0			
o-Xylene	973.5	30	1000	0	97.4	75-125	0			
Toluene	954	30	1000	0	95.4	70-125	0			
Xylenes, Total	3003	90	3000	0	100	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1039*	0	*1000*	0	*104*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*999*	0	*1000*	0	*99.9*	*70-130*	0			
Surr: Dibromofluoromethane	*1014*	0	*1000*	0	*101*	*70-130*	0			
Surr: Toluene-d8	*957.5*	0	*1000*	0	*95.8*	*70-130*	0			

The following samples were analyzed in this batch:

1510789-01A	1510789-02B	1510789-03A
1510789-04A	1510789-05A	1510789-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77452** Instrument ID **WETCHEM** Method: **USDA H60 Method**

DUP Sample ID: **1510789-02A DUP** Units: **mmhos/cm @25°C** Analysis Date: **10/15/2015 12:15 PM**

Client ID: **20151012-A05 (PB-West) Surface** Run ID: **WETCHEM_151015G** SeqNo: **3511285** Prep Date: **10/15/2015** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	6.56	0.050	0	0	0		6.62	0.91	50	

The following samples were analyzed in this batch: 1510789-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77557** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK Sample ID: **MBLK-77557-77557** Units: **mg/Kg** Analysis Date: **10/15/2015 05:00 PM**
Client ID: Run ID: **WETCHEM_151015O** SeqNo: **3512401** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	U	1.0								

LCS Sample ID: **LCS-77557-77557** Units: **mg/Kg** Analysis Date: **10/15/2015 05:00 PM**
Client ID: Run ID: **WETCHEM_151015O** SeqNo: **3512400** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.92	1.0	5	0	98.4	80-120	0			

MS Sample ID: **1510785-01A MS** Units: **mg/Kg** Analysis Date: **10/15/2015 05:00 PM**
Client ID: Run ID: **WETCHEM_151015O** SeqNo: **3512391** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.7228	0.99	4.95	0.219	10.2	75-125	0			JS

MS Sample ID: **1510785-01A MSI** Units: **mg/Kg** Analysis Date: **10/15/2015 05:00 PM**
Client ID: Run ID: **WETCHEM_151015O** SeqNo: **3512393** Prep Date: **10/14/2015** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	2537	99	2740	0.219	92.6	75-125	0			

MSD Sample ID: **1510785-01A MSD** Units: **mg/Kg** Analysis Date: **10/15/2015 05:00 PM**
Client ID: Run ID: **WETCHEM_151015O** SeqNo: **3512392** Prep Date: **10/14/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.951	0.98	4.902	0.219	14.9	75-125	0.7228	0	20	JS

The following samples were analyzed in this batch: 1510789-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **77580** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-77580-77580** Units: **s.u.** Analysis Date: **10/16/2015 01:00 PM**
Client ID: Run ID: **WETCHEM_151016E** SeqNo: **3513704** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.94	0	4	0	98.5	90-110	0			

DUP Sample ID: **15101009-01B DUP** Units: **s.u.** Analysis Date: **10/16/2015 01:00 PM**
Client ID: Run ID: **WETCHEM_151016E** SeqNo: **3513706** Prep Date: **10/16/2015** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.63	0	0	0	0	0-0	8.64	0.116	20	

The following samples were analyzed in this batch: 1510789-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **R174080** Instrument ID **MOIST** Method: **E160.3M**

MBLK Sample ID: **WBLKS-R174080** Units: **% of sample** Analysis Date: **10/16/2015 04:58 PM**
Client ID: Run ID: **MOIST_151016D** SeqNo: **3516239** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R174080** Units: **% of sample** Analysis Date: **10/16/2015 04:58 PM**
Client ID: Run ID: **MOIST_151016D** SeqNo: **3516238** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1510787-46A DUP** Units: **% of sample** Analysis Date: **10/16/2015 04:58 PM**
Client ID: Run ID: **MOIST_151016D** SeqNo: **3516217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	22.31	0.050	0	0	0		21.3	4.63	20	

DUP Sample ID: **1510788-01B DUP** Units: **% of sample** Analysis Date: **10/16/2015 04:58 PM**
Client ID: Run ID: **MOIST_151016D** SeqNo: **3516228** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.48	0.050	0	0	0		18.66	0.969	20	

The following samples were analyzed in this batch:

1510789-01A	1510789-02B	1510789-03A
1510789-04A	1510789-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Encana Oil and Gas (USA) Inc.
Work Order: 1510789
Project: Pit Sampling A05

QC BATCH REPORT

Batch ID: **R174082** Instrument ID **MOIST** Method: **E160.3M**

MBLK Sample ID: **WBLKS-R174082** Units: **% of sample** Analysis Date: **10/16/2015 05:46 PM**
Client ID: Run ID: **MOIST_151016E** SeqNo: **3516284** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R174082** Units: **% of sample** Analysis Date: **10/16/2015 05:46 PM**
Client ID: Run ID: **MOIST_151016E** SeqNo: **3516283** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1510884-06A DUP** Units: **% of sample** Analysis Date: **10/16/2015 05:46 PM**
Client ID: Run ID: **MOIST_151016E** SeqNo: **3516277** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.2	0.050	0	0	0		12.72	11	20	

DUP Sample ID: **1510898-01A DUP** Units: **% of sample** Analysis Date: **10/16/2015 05:46 PM**
Client ID: Run ID: **MOIST_151016E** SeqNo: **3516282** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	6.86	0.050	0	0	0		7.04	2.59	20	

The following samples were analyzed in this batch: 1510789-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1510789

ALS Laboratory Group

CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

COC number (for client tracking)

Page 1 of 1

CLIENT CONTACT AND REPORTING INFORMATION	INVOICE ADDRESS (if other than reporting address)
Company Name: Encana Oil & Gas (USA)	Company Name: SAME
Project Manager: Brett Middleton	Contact Name: SAME
Address: 143 Diamond Avenue	Address: SAME
Parachute Co, 81635	
Phone: 970.285.2653	**PROJECT INFORMATION**
Email: ENCANACO-LTENV	Project ID: Pit Sampling
Sampler Name (Print): Wesley Torres	Site: AOS
SERVICE REQUEST (Express services subject to availability)	PO No: 033415025
☒ Regular (default) 5-day Standard TAT	ALS Quote No:
☐ Express (Pls specify date required _____) (express fee will apply)	

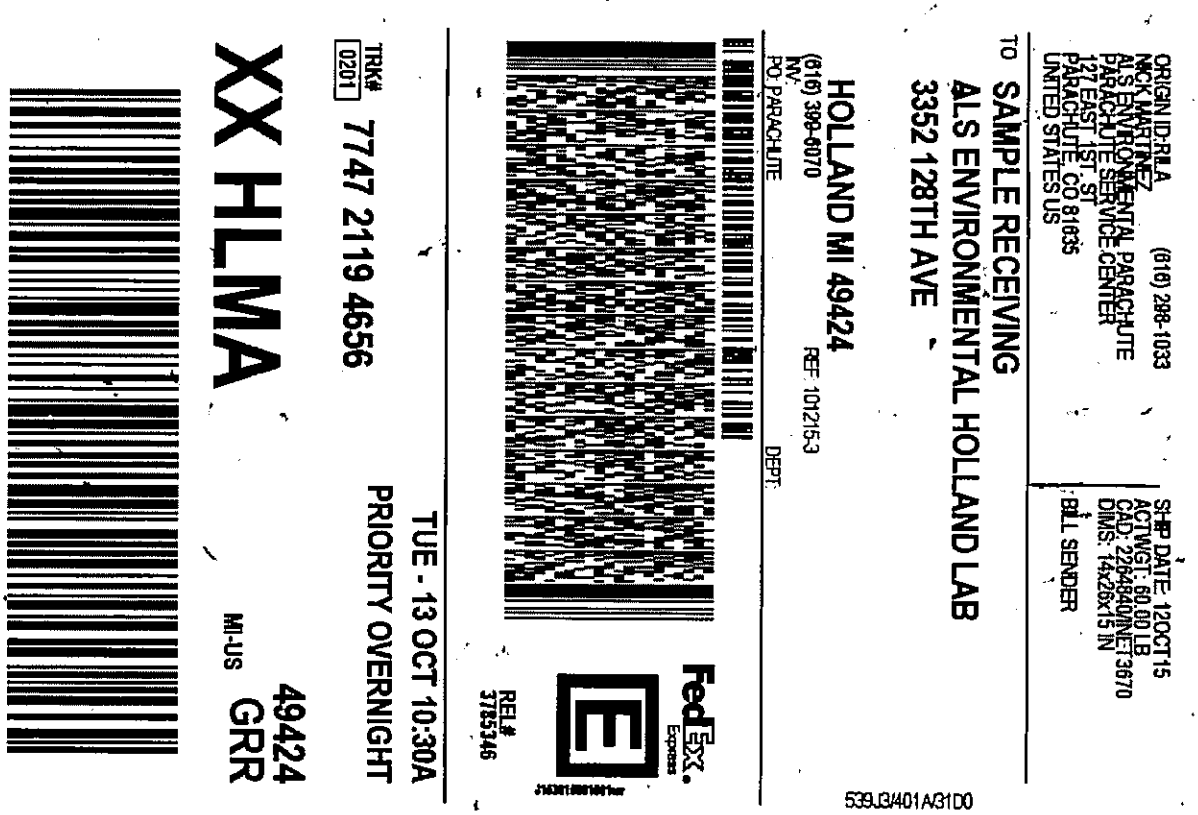
ANALYSIS REQUIRED (suite codes must be listed to attract suite prices)

ALS ID #	SAMPLE IDENTIFICATION (this description will appear on report)	Depth (ft)	SAMPLING AND CONTAINER INFO Date	Time	Tot Bottle	Matrix	BTEX	TPH GRO/DRO	Table 910-1 PAHs 8270 SIM	EC	PH	SAR	Table 910-1 Metals: As, Ba, Cd, Cr III, Cr VI, Cu, Pb, Hg, Ni, Se, Ag, Zn	Total Arsenic 6020
1	20151012-AOS (PB-East)	Surface	10-12-15	1305	1	S	X	X						
2	20151012-AOS (PB-West)	Surface	10-12-15	1300	2	S	X	X	X	X	X	X	X	X
3	20151012-AOS (Wall-West)	Surface	10-12-15	1315	1	S	X	X						
4	20151012-AOS (Wall-East)	Surface	10-12-15	1320	1	S	X	X						
5	20151012-AOS (Wall-North)	Surface	10-12-15	1330	1	S	X	X						
6	20151012-AOS (Wall-South)	Surface	10-12-15	1340	1	S	X	X						

CLIENT SIGNATURES	For lab use only				
Client's Signature: Melley Torres	Cooler Security Seal ☐ sealed ☐ broken ☐ not available	Sample Temp ☐ chilled ☐ ambient deg °C	No of Cooler Received carton / cooler box	Received by (lab)	Date and Time 10/13/15 0930
Client's Date and Time of Completion: 10-12-15 1530			Courier Name ALS	Committed by	Date and Time

Note: (a) DW (Drinking water), SW (Surface water), GW (Ground water), WW (Waste water), S (Soil), SL (Sludge), SE (Sediment), OS (Other solid material)

5.4°C



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
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ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **ENCANA2** Date/Time Received: **13-Oct-15 09:30**

Work Order: **1510789** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 13-Oct-15 (Date) Reviewed by: Chad Whelton (eSignature) 13-Oct-15 (Date)

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.4/5.4 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	10/13/2015 1:31:18 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: