



EnCana Oil & Gas (USA) Inc.



01761086

RECEIVED

OCT 11 2009

COGCC

EnCana Oil & Gas (USA) Inc.  
370 17<sup>th</sup> Street  
Suite 1700  
Denver, CO 80202

tel: 720-876-5889  
fax: 720-876-5890

[www.encana.com](http://www.encana.com)

October 10, 2009

John Axelson, P.G.  
Environmental Protection Specialist, Northeast Region  
Colorado Oil & Gas Conservation Commission  
9203 East 155<sup>th</sup> Drive  
Brighton, CO 80602

Re: Branch wells

John,

This letter is in regard to the EnCana Oil & Gas (USA) Inc ("EnCana") Branch wells on the properties owned by a Mr. Norm Anderson. On September 6, 2009 EnCana received a call from Debbie Baldwin of the COGCC informing EnCana that Mr. Anderson had contacted your offices regarding gas from a newly drilled water well. Since then EnCana has done internal investigations and research, as well as, worked with the COGCC in performing bradenhead pressure testing and bradenhead gas sampling. This letter summarizes EnCana's findings and analytical results.

#### **Anderson Water Well**

Attached to this letter is a June 23, 2009 letter of approval from the Colorado – Division of Water Resources amending the Anderson Well Permit 280098-A to allow a total depth of 450 feet below ground surface. The attached letter states, "At a depth of 450 feet this interval may include upper portions of the Pierre Shale." The variance was requested by A dbl R Well Service, Inc., on June 23, 2009 to drill another 100 feet. Also attached to this letter are the Well Construction and Test Report submitted by the driller to the Office of the State Engineer. The report indicates that from 300 feet to 450 feet shale was encountered.

#### **EnCana Branch Wells Casing Depths**

The following table depicts the actual surface casing depths for each of the wells EnCana operates within a ¼ mile of the Anderson water well. As can be seen in the table, all surface casing depths are well below the bottom of the Foxhills formation which the drillers report indicates is at 300 feet.

<b>EnCana Well</b>	<b>Surface Casing Depth (ft bgs)</b>
Branch 0-6-23	682
Branch 4-6-23	638
Branch 13-23	637
Branch 14-23	624
Branch 1	454

### **Perceived "Problems" with EnCana Branch Wells**

Mr. Anderson indicates that he reported observing gas bubbles around an EnCana well on his property and that when he reported the condition to EnCana, a workover rig was brought in to fix the leak. This is not the case. The following is a brief history of each of the Branch wells identified with a date and history for each instance a workover rig was used. As you will see, no remedial cement jobs or casing repairs were required on any EnCana Branch well in the last five years.

#### **BRANCH 13-23**

Spud Date 1/9/2004

Workover History - In January 2008, EnCana moved in a workover rig to replace several joints of corroded tubing.

#### **BRANCH 14-23**

Spud Date 1/3/2004

Workover History - In October 2004, remedial cement work was performed to provide coverage of the Sussex interval. Bond logs and pressure testing to 2500 psi show remedial cement work is adequate. In January 2008, EnCana moved in a workover rig to cleanout and replace several bad joints in the tubing.

#### **BRANCH 4-6-23**

Spud Date 12/27/2007

Workover History - Commingled the J-Sand, Niobrara and Codell on 2/28/2008.

#### **BRANCH 0-6-23**

Spud Date 11/7/2006

Workover History - Commingled the J-Sand, Niobrara and Codell on 2/19/2007.

#### **BRANCH 1**

Spud Date 9/29/1982

Workover History - April 1994, previous owner completed into the Codell, Niobrara and Sussex formations and commingled production. December 2003, cement squeeze job to provide coverage of the Sussex. During the job significant portions of production casing was replaced and several holes were squeezed. This well was TA'd to drill boundary wells in 2006.

### **Bradenhead Testing**

EnCana has adopted a routine procedure for measuring and documenting bradenhead pressure in the DJ Basin. The following table shows the last three months worth of

bradenhead pressures for each of the Branch wells including the pressure observed while accompanied by COGCC field personnel. The last column on the table is an action level calculated by EnCana based on COGCC guidance using 0.17 multiplied by the casing set depth. As you can see, none of the observed bradenhead pressures exceed the calculated action level.

EnCana Well	July Bradenhead Pressure (psi)	August Bradenhead Pressure (psi)	September Bradenhead Pressure (psi)	Bradenhead Pressure Calculated Action Threshold (psi)
Branch 0-6-23	0	19	8	115
Branch 4-6-23	0	0	0	108
Branch 13-23	0	15	7	108
Branch 14-23	0	6	12	106
Branch 1	0	30	26	77

On September 22, 2009, Ed Binkley (COGCC), and John Berlin (EnCana) visited all EnCana Branch wells for Form 17 Drawdown Tests. All bradenhead pressures went to zero pressure within a couple of minutes of opening the surface casing valve. One casing gas sample was pulled from the Branch 1 well. The following table summarizes the results from the Form 17 information submitted to the COGCC on September 23, 2009.

EnCana Well	Surface Casing Pressure (psi)	Bradenhead Flow Characteristic	Duration to Blowdown (minutes)
Branch 0-6-23	15	Water	1
Branch 4-6-23	23	Gas for the first minute, then only water.	2
Branch 13-23	0	NA	NA
Branch 14-23	14	Water	1
Branch 1	13	Gas	<1

#### EnCana Analytical Data

During the week of September 7, 2009 EnCana operators attempted to pull bradenhead gas samples on the Branch 13-23 and Branch 14-23. There was insufficient pressure to pull gas samples from either well.

On September 18, 2009, John Axelson (COGCC) and Mike Coppersmith (EnCana) met at the Branch 14-23 to obtain a gas sample. John and Mike observed 21 psi bradenhead pressure on location, but were unable to obtain a gas sample because the pressure blew down to 0 psi immediately upon opening the surface casing valve.

On September 23<sup>rd</sup> and again on September 25<sup>th</sup>, EnCana personnel pulled bradenhead gas samples from the Branch #1 well. The analytical results from those samples are attached to this letter.

## FLIR Camera Inspections

On September 17, 2009, EnCana performed an inspection using a FLIR camera to detect natural gas leaks from the wellhead of each of EnCana's Branch wells. No leaks were observed by the camera operator.

Upon review of the data and information provided in this letter, EnCana has determined that the EnCana Branch wells are not a likely source of the thermogenic gas in Mr. Anderson's water well. It appears likely that by drilling the additional 100 feet of depth, the water well has indeed encountered Pierre Shale which is a potential source of natural gas. The water well casing gas analytical sample results could be indicative of shale gas.

Please don't hesitate to call or email with any further questions or clarifications. I can be reached at my office at 720-876-5889.

Sincerely,



Scott K. Mason  
EHS Manager, DJ/Paradox/WTX Teams  
EnCana Oil & Gas (USA) Inc



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

June 23, 2009

Bill Ritter, Jr.  
Governor

Harris D. Sherman  
Executive Director

Dick Wolfe, P.E.  
Director

Allen R Robbins  
A dbi R well Service, Inc.  
25269 CR 50  
Kersey, Colorado 80644

Re: Well Permit 280098-A

Dear Mr. Robbins:

Attached is a copy of amended permit 280098-A. The aquifer interval approved by Permit Condition of Approval No. 5 has been changed to 40 feet to 450 feet below the ground surface. At a depth of 450 feet this interval may include upper portions of the Pierre Shale.

Please feel free to contact me if you have any questions or require additional information.

Sincerely,

Michael P Schaub  
Geologist, Geotechnical Services Branch  
Colorado Division of Water Resources

cc: Norman N Anderson  
File Copy

Attachment

p.2  
RECEIVED

JUN 23 2009

WATER RES.  
STATE ENG.  
COLL.

# *A dbl R Well Service, Inc*

*Allen R. Robbins - President*

25269 CR 50

Kersey, CO 80644

Ph: 970-284-0255 Fax: 970-284-0256

License # 1394

[www.coloradowelldrilling.com](http://www.coloradowelldrilling.com)

[allen.robhins@coloradowelldrilling.com](mailto:allen.robhins@coloradowelldrilling.com)

June 23, 2009

Dear Michael,

I am requesting variance on permit # 280098-A to drill another 100 ft.

Sincerely,



Allen R Robbins

A dbl R Well Service, Inc  
970-284-0255

FORM NO. GWS-31 04/2005	<b>WELL CONSTRUCTION AND TEST REPORT</b> STATE OF COLORADO, OFFICE OF THE STATE ENGINEER 1313 Sherman St., Room 818, Denver, CO 80203 Phone - Info (303) 866-3587 Main (303) 866-3581 Fax (303) 866-3589 <a href="http://www.water.state.co.us">http://www.water.state.co.us</a>	For Office Use Only  <b>RECEIVED</b>  <b>SEP 16 2009</b>  <small>WATER RESOURCES STATE ENGINEER COLORADO</small>																																																																																															
<b>1. WELL PERMIT NUMBER: 280098-A</b>																																																																																																	
<b>2. WELL OWNER INFORMATION</b> NAME OF WELL OWNER: Norman N. Anderson MAILING ADDRESS: 2691 54 <sup>th</sup> Avenue CITY: Greeley STATE: CO ZIP CODE: 80634 TELEPHONE NUMBER: (970) 396-6661																																																																																																	
<b>3. WELL LOCATION AS DRILLED: SW1/4, SW1/4, Sec. 23, Twp. 4</b> <input checked="" type="checkbox"/> N or <input type="checkbox"/> S, Range 65 <input type="checkbox"/> E or <input checked="" type="checkbox"/> W DISTANCES FROM SEC. LINES: 282 ft. from <input type="checkbox"/> N or <input checked="" type="checkbox"/> S section line and 166 ft. from <input type="checkbox"/> E or <input checked="" type="checkbox"/> W section line. SUBDIVISION: _____, LOT _____, BLOCK _____, FILING (UNIT) _____ Optional GPS Location: GPS Unit must use the following settings: Format must be UTM, Units must be meters, Datum must be NAD83, Unit must be set to true N, <input type="checkbox"/> Zone 12 or <input checked="" type="checkbox"/> Zone 13 STREET ADDRESS AT WELL LOCATION: 22063 CR 42 La Salle, CO. 80645 Northing: _____ Owner's Well Designation: _____ Easting: _____																																																																																																	
<b>4. GROUND SURFACE ELEVATION _____ feet</b> DRILLING METHOD <u>Mud Rotary</u> DATE COMPLETED 6/29/2009 TOTAL DEPTH 450 feet DEPTH COMPLETED 450 feet																																																																																																	
<b>5. GEOLOGIC LOG:</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Depth</th> <th>Type</th> <th>Grain Size</th> <th>Color</th> <th>Water Loc.</th> </tr> </thead> <tbody> <tr><td>0-3</td><td>Top soil</td><td></td><td>Black</td><td></td></tr> <tr><td>3-8</td><td>Clay</td><td></td><td></td><td></td></tr> <tr><td>8-20</td><td>Sand/Clay</td><td></td><td></td><td></td></tr> <tr><td>20-36</td><td>Ben /clay</td><td></td><td></td><td></td></tr> <tr><td>36-70</td><td>Gravel</td><td></td><td></td><td></td></tr> <tr><td>70-75</td><td>Clay</td><td></td><td>Brown</td><td></td></tr> <tr><td>75-160</td><td>Shale</td><td></td><td></td><td></td></tr> <tr><td>160-221</td><td>Shale/ss/layer</td><td></td><td></td><td></td></tr> <tr><td>221-233</td><td>Sand stone</td><td></td><td>White</td><td></td></tr> <tr><td>233-253</td><td>Shale/ss mix</td><td></td><td></td><td></td></tr> <tr><td>253-255</td><td>Rock</td><td></td><td>Brown</td><td></td></tr> <tr><td>255-260</td><td>Sand</td><td></td><td></td><td></td></tr> <tr><td>260-286</td><td>Shale/ss stks</td><td></td><td></td><td></td></tr> <tr><td>286-300</td><td>Gravel</td><td>Fine</td><td></td><td></td></tr> <tr><td>300-360</td><td>Shale</td><td></td><td></td><td></td></tr> <tr><td>360-366</td><td>Shale/sand</td><td></td><td></td><td></td></tr> <tr><td>366-414</td><td>Shale</td><td></td><td></td><td></td></tr> <tr><td>414-450</td><td>Shale/ss</td><td></td><td></td><td></td></tr> </tbody> </table>			Depth	Type	Grain Size	Color	Water Loc.	0-3	Top soil		Black		3-8	Clay				8-20	Sand/Clay				20-36	Ben /clay				36-70	Gravel				70-75	Clay		Brown		75-160	Shale				160-221	Shale/ss/layer				221-233	Sand stone		White		233-253	Shale/ss mix				253-255	Rock		Brown		255-260	Sand				260-286	Shale/ss stks				286-300	Gravel	Fine			300-360	Shale				360-366	Shale/sand				366-414	Shale				414-450	Shale/ss			
Depth	Type	Grain Size	Color	Water Loc.																																																																																													
0-3	Top soil		Black																																																																																														
3-8	Clay																																																																																																
8-20	Sand/Clay																																																																																																
20-36	Ben /clay																																																																																																
36-70	Gravel																																																																																																
70-75	Clay		Brown																																																																																														
75-160	Shale																																																																																																
160-221	Shale/ss/layer																																																																																																
221-233	Sand stone		White																																																																																														
233-253	Shale/ss mix																																																																																																
253-255	Rock		Brown																																																																																														
255-260	Sand																																																																																																
260-286	Shale/ss stks																																																																																																
286-300	Gravel	Fine																																																																																															
300-360	Shale																																																																																																
360-366	Shale/sand																																																																																																
366-414	Shale																																																																																																
414-450	Shale/ss																																																																																																
<b>6. HOLE DIAM (in.)</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>From (ft)</th> <th>To (ft)</th> </tr> </thead> <tbody> <tr><td>8 3/4</td><td>0</td><td>221</td></tr> <tr><td>6 1/8</td><td>221</td><td>450</td></tr> </tbody> </table>				From (ft)	To (ft)	8 3/4	0	221	6 1/8	221	450																																																																																						
	From (ft)	To (ft)																																																																																															
8 3/4	0	221																																																																																															
6 1/8	221	450																																																																																															
<b>7. PLAIN CASING:</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>OD (in)</th> <th>Kind</th> <th>Wall Size (in)</th> <th>From (ft)</th> <th>To (ft)</th> </tr> </thead> <tbody> <tr><td>6 5/8</td><td>Steel</td><td>.188</td><td>+18</td><td>221</td></tr> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>260</td><td>280</td></tr> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>300</td><td>400</td></tr> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>440</td><td>450</td></tr> </tbody> </table>			OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)	6 5/8	Steel	.188	+18	221	5 1/2	PVC	Sch 40	260	280	5 1/2	PVC	Sch 40	300	400	5 1/2	PVC	Sch 40	440	450																																																																						
OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)																																																																																													
6 5/8	Steel	.188	+18	221																																																																																													
5 1/2	PVC	Sch 40	260	280																																																																																													
5 1/2	PVC	Sch 40	300	400																																																																																													
5 1/2	PVC	Sch 40	440	450																																																																																													
<b>PERFORATED CASING: Screen Slot Size (in): .030</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>OD (in)</th> <th>Kind</th> <th>Wall Size (in)</th> <th>From (ft)</th> <th>To (ft)</th> </tr> </thead> <tbody> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>220</td><td>260</td></tr> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>280</td><td>300</td></tr> <tr><td>5 1/2</td><td>PVC</td><td>Sch 40</td><td>400</td><td>450</td></tr> </tbody> </table>			OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)	5 1/2	PVC	Sch 40	220	260	5 1/2	PVC	Sch 40	280	300	5 1/2	PVC	Sch 40	400	450																																																																											
OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)																																																																																													
5 1/2	PVC	Sch 40	220	260																																																																																													
5 1/2	PVC	Sch 40	280	300																																																																																													
5 1/2	PVC	Sch 40	400	450																																																																																													
<b>8. FILTER PACK:</b> Material _____ Size _____ Interval _____																																																																																																	
<b>9. PACKER PLACEMENT:</b> Type _____ Depth _____																																																																																																	
<b>10. GROUTING RECORD</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Material</th> <th>Amount</th> <th>Density</th> <th>Interval</th> <th>Placement</th> </tr> </thead> <tbody> <tr> <td>Cement</td> <td>45 bags</td> <td>14 lbs</td> <td>-6-221</td> <td>positive</td> </tr> </tbody> </table>			Material	Amount	Density	Interval	Placement	Cement	45 bags	14 lbs	-6-221	positive																																																																																					
Material	Amount	Density	Interval	Placement																																																																																													
Cement	45 bags	14 lbs	-6-221	positive																																																																																													
Remarks: Set 75' 10 3/4 Steel .250 wall surface ca																																																																																																	
<b>11. DISINFECTION: Type chlorine liquid 70%</b> Amt. Used 2 1/2 gallons																																																																																																	
<b>12. WELL TEST DATA:</b> <input type="checkbox"/> Check box if Test Data is submitted on Form Number GWS 39 Supplemental Well Test. TESTING METHOD <u>Pumped</u> Static Level 6 ft. Date/Time measured: 7-30-2009 10:50 am. Production Rate 5 gpm. Pumping Level 289 ft. Date/Time measured 7-30-2009 2:20 pm. Test Length (hrs) 3 1/2. Remarks: Difficult to clean due to issues of gases entering well. Water analyzes enclosed.																																																																																																	
<b>13. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402-2. [The filing of a document that contains false statements is a violation of section 37-91-108(1)(e), C.R.S., and is punishable by fines up to \$5000 and/or revocation of the contracting license.]</b>																																																																																																	
Company Name: A DBL R Well Service, Inc		Phone: (970)284-0255																																																																																															
License Number: 1394		Mailing Address: 25269 CR 50 Kersey, CO 80644																																																																																															
Signature: <i>Allen R Robbins</i>		Print Name and Title: Allen R Robbins-President																																																																																															
Date: 9/11/2009																																																																																																	

**ENCANA**  
**Oil and Gas Operations**  
**16157 Weld County Rd 22**  
 **Ft Lupton, Colorado 80621**  
**Phone:303-659-7711**

Analysis Reference Number **WELL-09-23-09 E3800.dat**  
 Sample ID **BRANCH 1-23**

Report Date **23-Sep-09**  
 Date Analyzed **23-Sep-09**

Source:  
 Sample Date:09/22/09  
 Sampled By:BERLIN  
 Sample Temp:  
 Sample Press:24  
 Analysis Temp:130  
 Analysis Press:23.5  
 System:  
 Field:...

Component	Mol%	GPM	GPM
NITROGEN	7.673		
METHANE	78.908		
CO2	0.000		
ETHANE	6.321	1.691	C2+ 3.709
PROPANE	3.364	0.927	C3+ 2.208
ISOBUTANE	0.657	0.215	
N-BUTANE	1.554	0.490	
ISOPENTANE	0.512	0.187	i-C5+ 0.576
N-PENTANE	0.552	0.200	
HEXANES +	0.460	0.189	
<b>TOTALS</b>	<b>100.000</b>		

Gas Specific Gravity	Determined			
	Calculated	0.713		13.73
				11.65
High Heating Value	14,730	psia and 60 F	Saturated	1117.78
			Dry	1137.58
				1131.40

Compressibility Factor	0.99716							
GPM is gallons per 1000 scf & Component	BTU Values	psia and 60 F BTU per Comp	GPM Values	GPM @ 14.730	SG Val.	SG per comp	Sum Factor	Comp
NITROGEN	0	0			0.9672	0.0742		
METHANE	1010.0	796.97			0.5539	0.4371	0.0116	0.9153
CO2	0.0	0.00			1.5196	0.0000		
ETHANE	1769.7	111.87	37.476	1.691	1.0382	0.0656	0.0239	0.1511
PROPANE	2516.2	84.63	36.375	0.927	1.5226	0.0512	0.0344	0.1157
ISOBUTANE	3252.0	21.36	30.639	0.215	2.0068	0.0132	0.0458	0.0301
N-BUTANE	3262.4	50.69	31.791	0.490	2.0068	0.0312	0.0478	0.0743
ISOPENTANE	4000.9	20.47	27.380	0.187	2.4912	0.0127	0.0581	0.0297
N-PENTANE	4008.7	22.11	27.673	0.200	2.4912	0.0137	0.0631	0.0348
HEXANES +	5129.3	23.62	24.379	0.189	2.9755	0.0137	0.082	0.0378
<b>TOTALS</b>		1131.72				0.7127		0.0139
14.65/14.696		0.99687						
14.73/14.696		1.002314						
Converted Pressure Base to 14.65		1131.40						
Converted Pressure Base to 14.73		1137.58						

**ENCANA**  
**Oil and Gas Operations**  
 16157 Weld County Rd 22  
 Ft Lupton, Colorado 80621  
 Phone:303-659-7711

**GAS REPORT**

Analysis Reference Number **WELL TEST-09-25-09 B3800.dat**  
 Sample ID **BRANCH #1**

Report Date **25-Sep-09**  
 Date Analyzed **25-Sep-09**

Source: -  
 Sample Date:09/24/09  
 Sampled By:BERLIN  
 Sample Temp:  
 Sample Press:26  
 Analysis Temp:130  
 Analysis Press:20.9  
 System:WELJ  
 Field:D.J. BASIN...

Component	Mol%	GPM	GPM
NITROGEN	7.611		
METHANE	78.495		
CO2	0.019		
ETHANE	6.375	1.705	C2+ 3.775
PROPANE	3.361	0.926	C3+ 2.366
ISOBUTANE	0.661	0.216	
N-BUTANE	1.575	0.497	
ISOPENTANE	0.567	0.208	i-C5+ 0.727
N-PENTANE	0.617	0.224	
HEXANES +	0.719	0.295	
<b>TOTALS</b>	<b>100.000</b>		

Gas Specific Gravity	Determined				
Calculated	0.722		14.73	14.65	
High Heating Value	14.730	psia and 60 F	Saturated	1133.35	1127.19
			Dry	1153.42	1147.15

Compressibility Factor	0.99795							
GPM is gallons per 1000 scf & Component	BTU Values	psia and 60 F BTU per Comp	GPM Values	GPM @ 14.730	SG Val...	SG per comp	Sum Factor	Comp
NITROGEN	0.0	0			0.9672	0.0736		
METHANE	1010.0	792.80			0.5539	0.4348	0.0116	0.9105
CO2	0.0	0.00			1.5196	0.0003		
ETHANE	1769.7	112.82	37.476	1.705	1.0382	0.0662	0.0239	0.1524
PROPANE	2516.2	84.56	26.375	0.926	1.5226	0.0312	0.0344	0.1156
ISOBUTANE	3252.0	21.50	30.639	0.216	2.0068	0.0133	0.0458	0.0303
N-BUTANE	3262.4	51.39	31.791	0.497	2.0068	0.0316	0.0478	0.0753
ISOPENTANE	4000.9	22.70	27.380	0.208	2.4912	0.0141	0.0581	0.0330
N-PENTANE	4008.7	24.74	27.673	0.224	2.4912	0.0154	0.0631	0.0389
HEXANES +	5129.3	36.86	24.379	0.295	2.9755	0.0214	0.082	0.0589
<b>TOTALS</b>		1147.36				0.7218		0.0141
14.65/14.696		0.99687						
14.73/14.696		1.002314						
Converted Pressure Base to 14.65		1147.15						
Converted Pressure Base to 14.73		1153.42						