



EXHIBIT(s)

FOR  
ORDER NO(s).

COGCC

139 - 99  
440 - 54

# ENCANA OIL & GAS (USA) INC.

RECEIVED  
SEP 04 2008  
COGCC

ORIGINAL

Cause No. 139, Docket No. ~~0807 AW 27~~

0809-AW-27

**Land Testimony  
Rulison and Parachute Fields  
Garfield County, Colorado  
Cause No. 139, 440, Docket No. 0809-AW-27  
EnCana Oil & Gas (USA) Inc.  
Increased Density Application  
Williams Fork Formation**

My name is Marian Learned. I am a land negotiator for EnCana Oil & Gas (USA) Inc. I am familiar with the lands subject to the Application Area. A copy of my curriculum vitae is enclosed in the exhibit booklet submitted by the Applicant.

**Exhibit L-1    Density Application Area**

Exhibit L-1 is a map which depicts the Application Area for the proposed density establishment. The proposed Application Area is outlined in Red.

**Exhibit L-2    Surface Ownership**

Exhibit L-2 is an outline of the Application Area located in Sections 11 and 16 of Township 7 South, Range 94 West, 6<sup>th</sup> P.M., Garfield County, Colorado with the surface ownership listed.

**Exhibit L-3    Mineral Ownership**

Exhibit L-3 reflects that the minerals underlying the Application Area are federal and fee minerals.

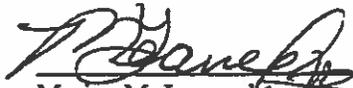
**Exhibit L-4    Leasehold Ownership**

Exhibit L-4 depicts the Leasehold ownership within the Application Area for the Williams Fork Formation.

**Exhibit L-5    Current Spacing Orders**

Exhibit L-5 depicts the proposed and previously approved spacing or density orders in the area of the Application.

The Applicant requests that all future Williams Fork wells should be located downhole anywhere upon the Application Lands but no closer than 100 feet from the boundaries of any lease line unless such lease line abuts or corners lands in respect of which the Commission has not at the time of drilling permit application granted the right to drill 10-acre density wells in which event the wells should be drilled downhole no closer than 200 feet from the lease line which so abuts or corners the lands in respect of which 10-acre density downhole drilling for Williams Fork has not been ordered by the Commission. Applicant does not intend by this Application to drill more than four (4) Williams Fork wells downhole per governmental quarter quarter section and no more than one (1) surface pad shall be located on a quarter quarter section. This request is similar to other 10-acre density applications filed by the other Operators in the Area. As of this date, we have not received any notice of objection or protest to our Application. All interested parties received notice of this Application under my direction and control. Exhibits L-1 through L-5 were prepared under my direction and control.

  
Marian M. Learned  
Land Negotiator  
EnCana Oil & Gas (USA) Inc.

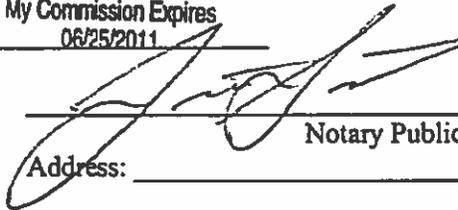
**ACKNOWLEDGMENT**

STATE OF COLORADO            )  
                                          ) ss.  
CITY AND COUNTY OF DENVER )

The foregoing instrument was acknowledged before me this 3<sup>rd</sup> day of September, 2008, by Marian M. Learned.

Witness my hand and official seal.

My commission expires: \_\_\_\_\_  
                                          My Commission Expires  
                                          06/25/2011

  
\_\_\_\_\_  
Notary Public  
Address: \_\_\_\_\_

(SEAL)

\_\_\_\_\_

# Marian M. Learned

1460 Little Raven St. #2-302 Denver, CO 80202 (720) 876-3575  
[marian.learned@encana.com](mailto:marian.learned@encana.com)

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## EDUCATION:

**Florida International University**  
Miami, Florida  
*Bachelor of the Arts- Environmental Studies*  
GPA: 3.755

## QUALIFICATIONS:

- Excellent communication skills
- Superior Dependability
- Experience with office systems such as Microsoft Word, Excel and PowerPoint
- Experience with Fee and Federal land including Federal Units
- Organizational Proficiency
- Experience with land based software i.e. Excalibur
- Significant group work

## WORK EXPERIENCE:

**EnCana Oil & Gas (USA) Inc, Denver, CO** January 2007- Present  
Land Negotiator, South Piceance Basin

- Participating in EnCana's two year new hire training program
- Field work experience in researching title, acquiring fee leases and negotiating surface agreements
- Experience with spacing orders, pooling agreements, communitization agreements and other preparation for commencement of operations
- Coordinating with field landmen and in-house personnel to secure surface and subsurface rights
- Managing all land obligations and responsibilities of three large federal units with partners

**United States Army Corps of Engineers** Summer 2005  
Permitting Intern- South Florida Region, United States

- Reviewed and verified surface ownership for building permits
- Coordinated with third party contractors to determine scope of projects
- Consulted with Florida Fish and Wildlife to discuss possible impacts of proposed projects

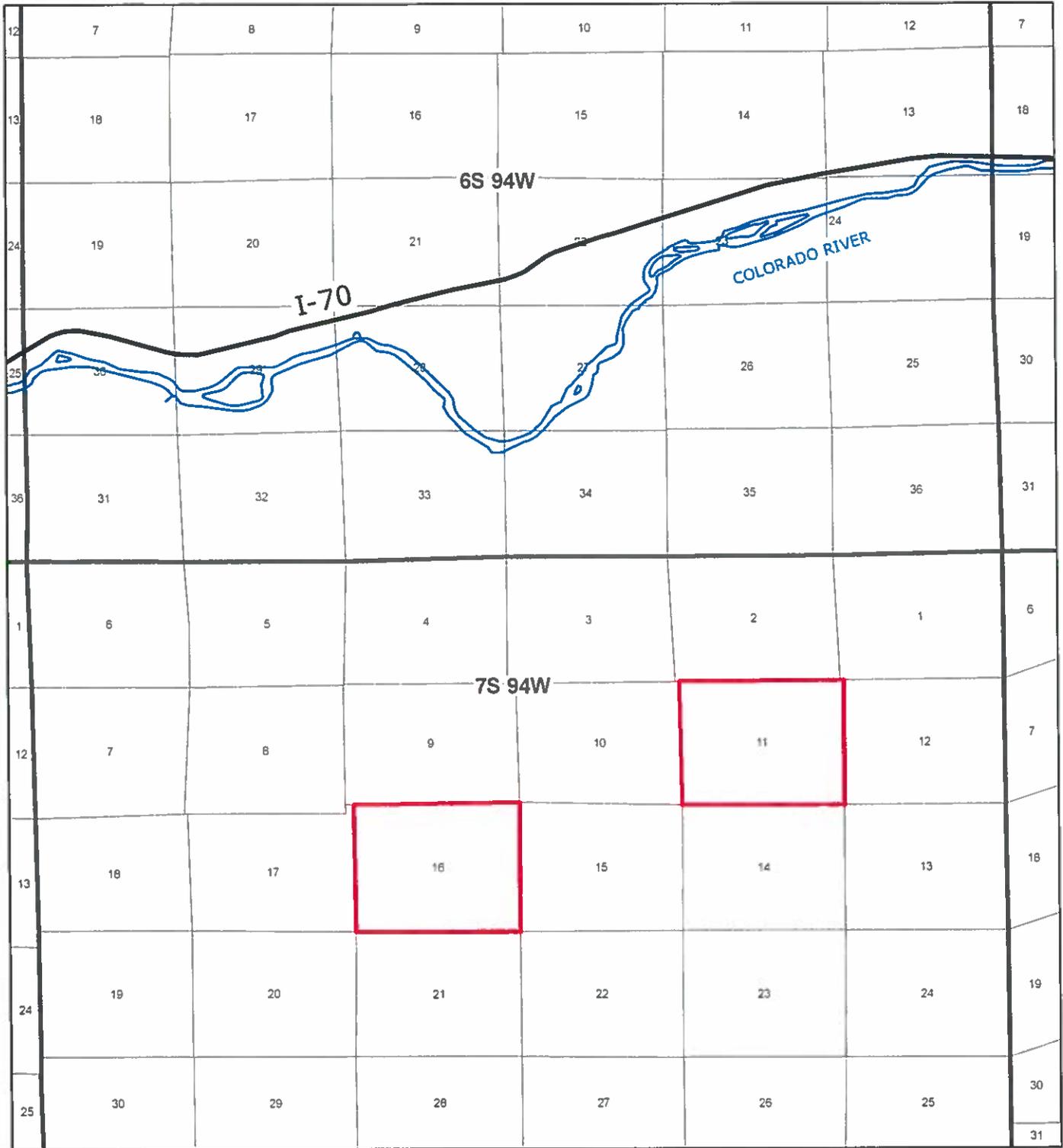
## RECOGNITION:

Dean's List Award received  
▪ 2002, 2003, 2004, 2005, 2006

## PROFESSIONAL ORGANIZATIONS:

American Association of Petroleum Landmen –AAPL  
Denver Association of Petroleum Landmen—DAPL

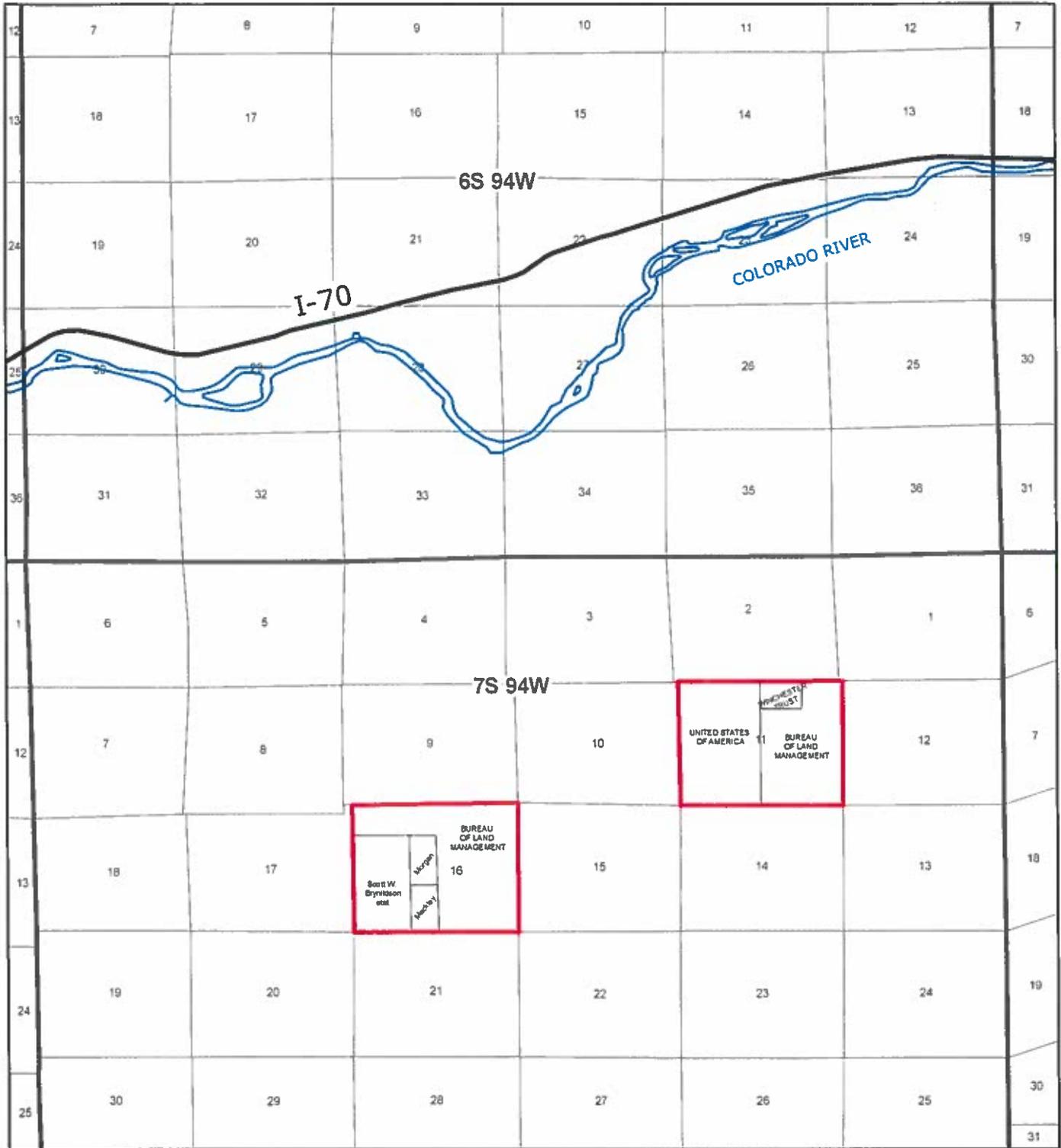
*References available upon request*



**ENCANA**  
 Encana Oil & Gas (USA) Inc.  
 Exhibit L1  
 Application Area  
 Cause #139, 140  
 Docket # 0809-AW-27

 Application Area

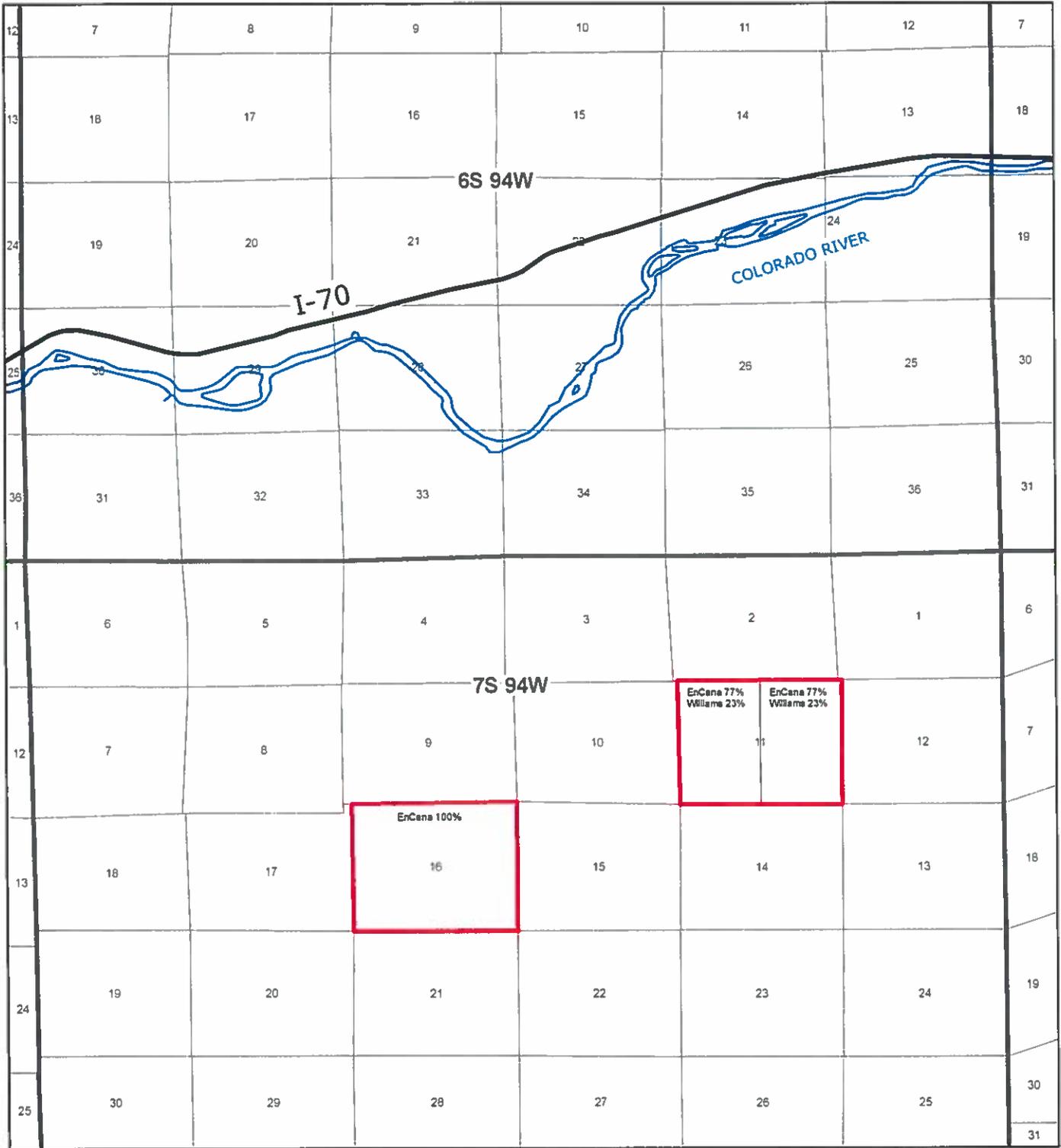




**ENCANA**  
 EnCana Oil & Gas (USA) Inc.  
 Exhibit L2  
 Surface Ownership  
 Cause #139, 140  
 Docket # 0809-AW-27

 Application Area





**ENCANA**  
 EnCana Oil & Gas (USA) Inc.  
 Exhibit L4  
 Leasehold Ownership  
 Cause #139, 140  
 Docket # 0809-AW-27

 Application Area



**Geologic Testimony  
Rulison Field  
Garfield County, Colorado  
Cause Nos. 139 & 440, Docket No. 0809-AW-27  
EnCana Oil & Gas (USA) Inc.  
Increased Density Application  
Williams Fork Formation**

My name is Terrence J. Dewane. I am currently a geologist with EnCana Oil & Gas (USA) Inc. and have been a geologist since 2007. I have also secured my Masters of Science in Geology from the University of Kansas. I am familiar with the Williams Fork and Iles Formations underlying the Application lands. A copy of my curriculum vitae is included in the exhibit booklet submitted by EnCana.

**Exhibit G-1 Stratigraphic Charts – Rulison Field**

Exhibit G-1 is a stratigraphic column which reflects the depositional environment in the Rulison Area particularly that of the Williams Fork and Iles Formations which are part of the Mesaverde Group.

**Exhibit G-2 Spacing Application Area**

Exhibit G-2 reflects the location proposed spacing units for which increased density is requested. Also shown on this exhibit are existing Mesaverde wells and the drill depth to the top of the Rollins Member of the Iles Formation.

**Exhibit G-3 Williams Fork-Original Gas in Place**

Exhibit G-3 is a depiction of the original gas in place for the Williams Fork Formation. The contour interval on this map is 10 BCF per section. This exhibit reflects that the OGIP for the Application area is between 80 and 100 BCF per section for the Williams Fork Formation. In my estimation these lands require increased density to satisfactorily drain the Williams Fork on an economic and efficient basis.

**Exhibit G-4 Williams Fork Core Data**

Exhibit G-4 reflects the locations of two wells that have core data available for the Williams Fork and their proximity to the spacing application area. These data exhibit that in the MWX #1 and the MWX #2 wells, the Williams Fork Formation has an average porosity of 7.4 % and an average permeability of 2.1  $\mu$ d.

**Exhibit G-5 Williams Fork Outcrop**

Exhibit G-5 illustrates the fluvial nature of the Williams Fork formation. Please take notice of the highly lenticular and heterogeneous deposition of sand bodies. Black lines

represent wells, demonstrating the intersection of a well bore with individual sand body reservoirs.

I would like the Commission to take administrative notice of the numerous other exhibits which we have presented in the past with respect to the fluvial nature of the Williams Fork Formation, its extreme heterogeneity, and the necessity of infill drilling on a 10-acre basis efficiently and economically recover the reserves. While the Williams Fork Formation is a common source of supply, due to the heterogeneity of these formations, the application requesting increased density is necessary to recover these reserves. Exhibits G-1 through G-5 were prepared under my direction and control.

*Terrence Dewane*

Terrence J. Dewane  
EnCana Oil & Gas (USA) Inc.  
Geologist

ACKNOWLEDGMENT

STATE OF COLORADO )  
 ) ss.  
CITY AND COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 3<sup>rd</sup> day of September, 2008, by Terrence J. Dewane.

Witness my hand and official seal.

My commission expires: 6/23/09

*Diana K. Weber*  
Notary Public  
Address: 370 17<sup>th</sup> St. Denver, Co 80202

(SEAL)

\_\_\_\_\_



My Commission Expires 06/23/2009

# Terrence J. Dewane

3341 Vrain Street  
Denver, CO 80212  
(720) 379-7315

Terrence.Dewane@EnCana.com

## EDUCATION

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**Ph.D.** Geology (Estimated May 2009), University of Kansas, Department of Geology, Lawrence, Kansas.

**M.S.** Geology (May 2003), University of Kansas, Department of Geology, Lawrence, Kansas.

**B.S.** Geology (May 1998), University of Wisconsin-Oshkosh, Department of Geology, Oshkosh, Wisconsin.

**A.A.S.** (May 1995), University of Wisconsin Center – Manitowoc, Manitowoc, Wisconsin.

## WORK EXPERIENCE

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EnCana Oil & Gas (USA) Inc.                      Denver, Colorado                      June, 2007 – Present

### Operations Geologist

- Worked geologic operations in the Mamm Creek field of the Piceance Basin in Colorado. Responsibilities include determining well locations, creating geologic prognoses, establishing logging programs, characterizing reservoir, determining various formation and bench tops used in correlation and deciding completion intervals.

University of Kansas                      Lawrence, Kansas                      August, 1998 – June, 2007

### Instructor

- Lectured and led class discussions. Substituted for professors when needed including teaching classes and proctoring exams. Supervised student activities. Created worksheets and other activities for students to complete. Corrected students' work and provided feedback. Created the laboratory workbooks currently used in Mineralogy, Petrology, and Structural Geology.

### Laboratory Technician/Researcher

- Supervised, operated and aided development of a variety of geologic laboratories for the University of Kansas including but not limited to the state-of-the-art Helium Extraction Laboratory, Isotope Geochemistry Laboratory and a Thin-section/Mineralogy Laboratory. Responsibilities included supervising and organizing daily lab work conducted by both in-house and visiting users of these facilities, developing new pioneering techniques used in geochronology and thermochemistry and conducting research in a variety of locations, for example Iran, western USA, Antarctica and Tibet, some of which are outlined in Research Experience.

## RESEARCH EXPERIENCE

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Ph.D. research: *E-W Extension in the Tangra Yum Co rift in south-central Tibet.* (U-Th)/He and fission track analyses of rocks from Tertiary rift systems will reveal timing of E-W extension on the Tibetan Plateau. In addition, detailed structural mapping will disclose temporal and spatial significance of these extensional systems and their kinematic interaction with strike-slip faulting.

Other current research:

- Development of technique to measure U-Th concentrations using Laser Ablation ICP-MS for apatite fission track analyzes.
- Determination of helium diffusion in fluorite. Fluorite is a common mineral found in many sandstones and granitic rocks but currently remains unexplored as a thermochronometer.

Master's thesis title: *U/Pb and Sm/Nd geochronological constraints of the Wolf River Batholith, Wisconsin.*

High-precision U/Pb zircon geochronology and Sm/Nd whole-rock studies of the rocks from various phases of the Wolf River Batholith were used to date pluton emplacement and source rock homogeneity. This study contributes to the understanding of A-type magmatism in both precisely constraining timing of pluton emplacement and evaluating source area of the rocks formed.

Other research:

- Analyzed fluid inclusions to obtain temperatures and pressures of faulting and P-T paths of fault rocks. This study allowed evaluation of viability of using metamorphic fluid inclusions to determine high temperatures/pressures
- Interpreted paleoenvironment by analysis of microfossils. Involved identification of microfossils at species level and analysis of shell type and shape for determination of general living environment.
- Evaluated the practicality of geologic mapping using laptop computers in the field. This study was designed to compare traditional paper geologic mapping techniques to mapping with use of laptop computers and GPS. This study resulted in a publication.

## LABORATORY DEVELOPMENT

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ICP-MS: Led the development of technique to routinely measure uranium and thorium using inductively coupled plasma mass spectroscopy (ICP-MS) at the University of Kansas for use in (U-Th)/He thermochronometry.

Helium Extraction Lab: Assisted principle investigator Daniel Stockli in setup of laser helium extraction noble gas line at the University of Kansas for use in (U-Th)/He thermochronometry.

## PUBLICATIONS

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Dewane, T.J., and Van Schmus, W.R., 2007, U-Pb geochronology of the Wolf River batholith, north-central Wisconsin: Evidence for successive magmatism between 1484 Ma and 1468 Ma., Precambrian Research, Volume 157, Issues 1-4, Pages 215-234.

Dewane, T.J., Hager, C., Stockli, D.F., Lee, J., Ding, L., 2006, Structure, kinematics, and timing of rifting in Tangra Yum Co rift, south-central Tibet, European Geosciences Union, Vienna, Austria.

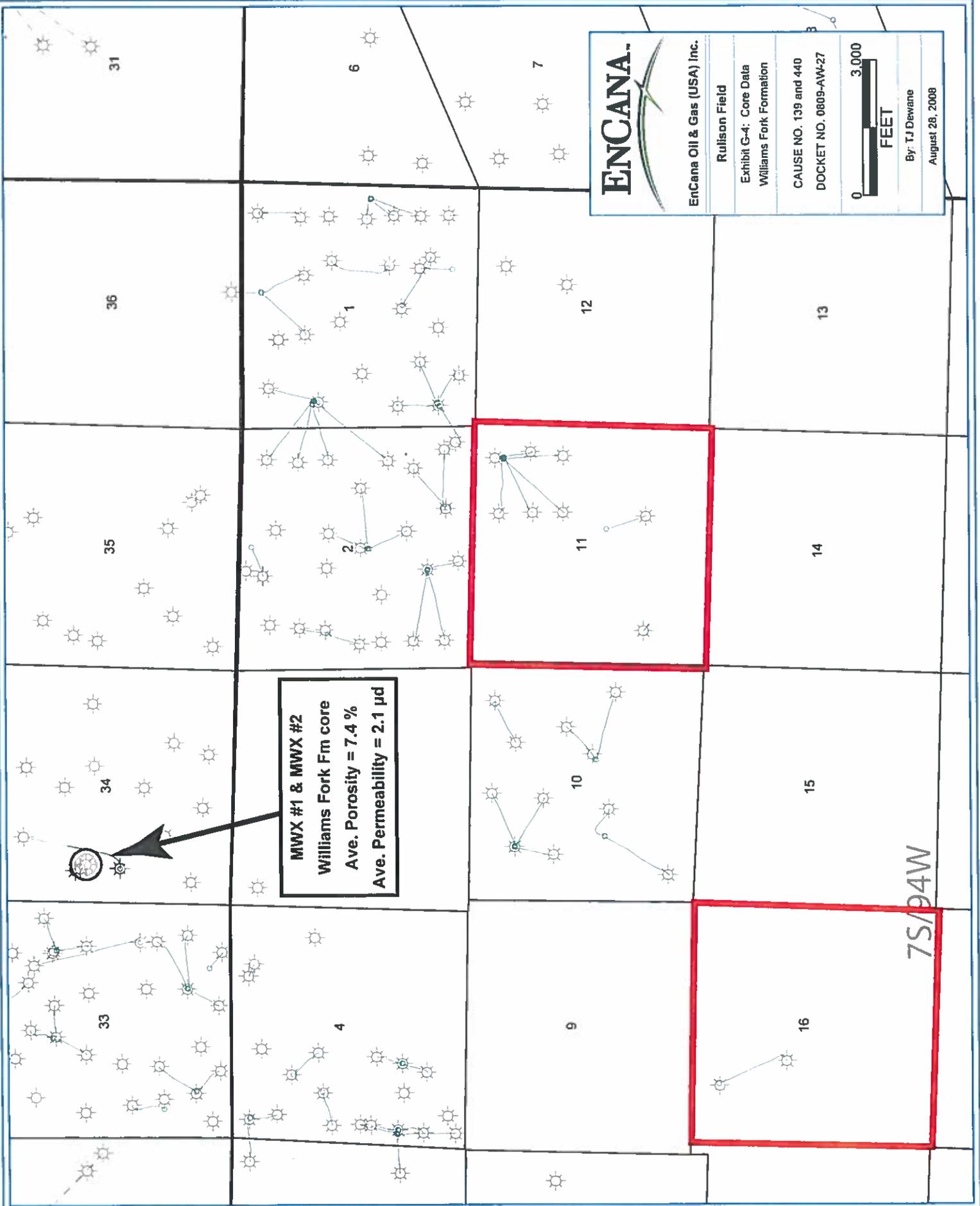
Dewane, T.J., Stockli, D.F., Hager, C., Taylor, M., Ding, L., Lee, J., 2006, Timing of Cenozoic E-W extension in Tangra Yum Co rift, Central Tibet, 21st Himalaya-Karakoram-Tibet Workshop, Cambridge, UK.

Dewane, T.J., and Van Schmus, W.R., 2003, Detailed U-Pb geochronology of the Wolf River Batholith, northcentral Wisconsin: evidence for a short-lived magmatic event ca. 1470 Ma., Abstracts with Programs – Geological Society of America (NE Section Meeting).

## REFERENCES

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Available upon request



**ENCANA**



Encana Oil & Gas (USA) Inc.

Rulison Field

Exhibit G-4: Core Data  
Williams Fork Formation

CAUSE NO. 139 and 440  
DOCKET NO. 0809-AW-27



By: T.J. Dewane  
August 28, 2008

**MWX #1 & MWX #2**  
Williams Fork Fm core  
Ave. Porosity = 7.4 %  
Ave. Permeability = 2.1  $\mu$ d

7S/94W

**Engineering Testimony  
Rulison Field  
Garfield County, Colorado  
Cause Nos. 139 & 440, Docket No. 0809-AW-27  
EnCana Oil & Gas (USA) Inc.  
Spacing and Increased Density Application  
Williams Fork Formation**

My name is Aaron Johnson. I am currently a Reservoir Engineer in the South Piceance development team of EnCana Oil & Gas (USA) Inc. I have 3 years of petroleum engineering experience, primarily in reservoir engineering of tight gas basins in the Rocky Mountain Region. Pertaining to the scope of this document, I am familiar with the engineering conditions in the Application area. For reference, a copy of my curriculum vitae is included in the exhibit booklet submitted by EnCana.

**Exhibit E-1 Spacing Application Area**

Exhibit E-1 is the basic outline of the current application area that is requested for infill drilling.

**Exhibit E-2 Ultimate Recoveries**

Exhibit E-2 shows the statistical distribution for the expected ultimate recovery (EUR) from Williams Fork wells currently producing under well density of approximately 20-acres in the Rulison area. Our engineering analyses suggest that the average EUR in most of Rulison is approximately 1.1 Bcf per Williams Fork well, based on a 30-year well life. Reservoir volumetric calculations, using the average EUR value for a Rulison Williams Fork well, are consistent with drainage areas approximating 20-acres.

**Exhibit E-3 Incremental Recovery-Williams Fork**

Exhibit E-3 shows a comparison of the anticipated impact on the average expected reserves recovery from the existing 20-acre drilling density, as well as the proposed 10-acre density in the Application area. An average gas in place of 80 Bcf per section was used to estimate the recoveries per well. The results indicate that, when compared to the 20-acre, the 10-acre density increases the recovery factor from 44% to 64% of the original gas in place. The additional reserves realized by the increased density are estimated to be around 16 Bcf per section.

**Exhibit E-4 Economic Viability – Williams Fork 10-acre Drilling Density**

Exhibit E-4 shows the economic viability associated with the proposed 10-acre drilling density in the Williams Fork formation. Based on EnCana's cost structure and projected commodity prices for infill development in the Application area, the expected after tax rate of return is 18%. The expected after tax payout period is approximately 5 years, which demonstrates that 10-acre drilling density will result in positive returns to EnCana.



# Aaron Johnson

10978 Bluegate Way Highlands Ranch, CO 80130 (720) 876-5670  
atjohnson\_@hotmail.com

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## EDUCATION:

**Montana Tech of the University of Montana 2001-2006**  
Butte, Montana  
*Bachelor of the Arts- Petroleum Engineering*  
GPA: 3.93

## QUALIFICATIONS:

- Time Management and Organization
- Experience with Aries, Word, Excel, Powerpoint, Petra, Wellcore, PI Dwigths
- Development program leadership
- Dependability
- Rocky Mountain tight gas experience
- Significant group work

## WORK EXPERIENCE:

**EnCana Oil & Gas (USA) Inc, Denver, CO** June 2006- Present  
Reservoir Engineer, South Piceance Basin

- Coordinating Development Program and implementation with geology, drilling, operations, and land
- Acquisition and divestiture evaluation
- Economic and reserves assessment
- Volumetrics and well density evaluation
- Budget and PAR coordination

**EnCana Oil & Gas (USA) Inc, Denver, CO** May 2005-August 2005  
Production Engineer Intern, Paradox Basin

**Conoco Phillips, Anchorage, AK** May 2004-August 2004  
Drilling Engineer Intern, North Slope

**Burlington Resources, Baker, MT** May 2003-August 2003  
Production Field Intern, Cedar Creek Anticline

**Aera Energy LLC, Bakersfield, CA** May 2002-August 2002  
Petroleum Field Intern I

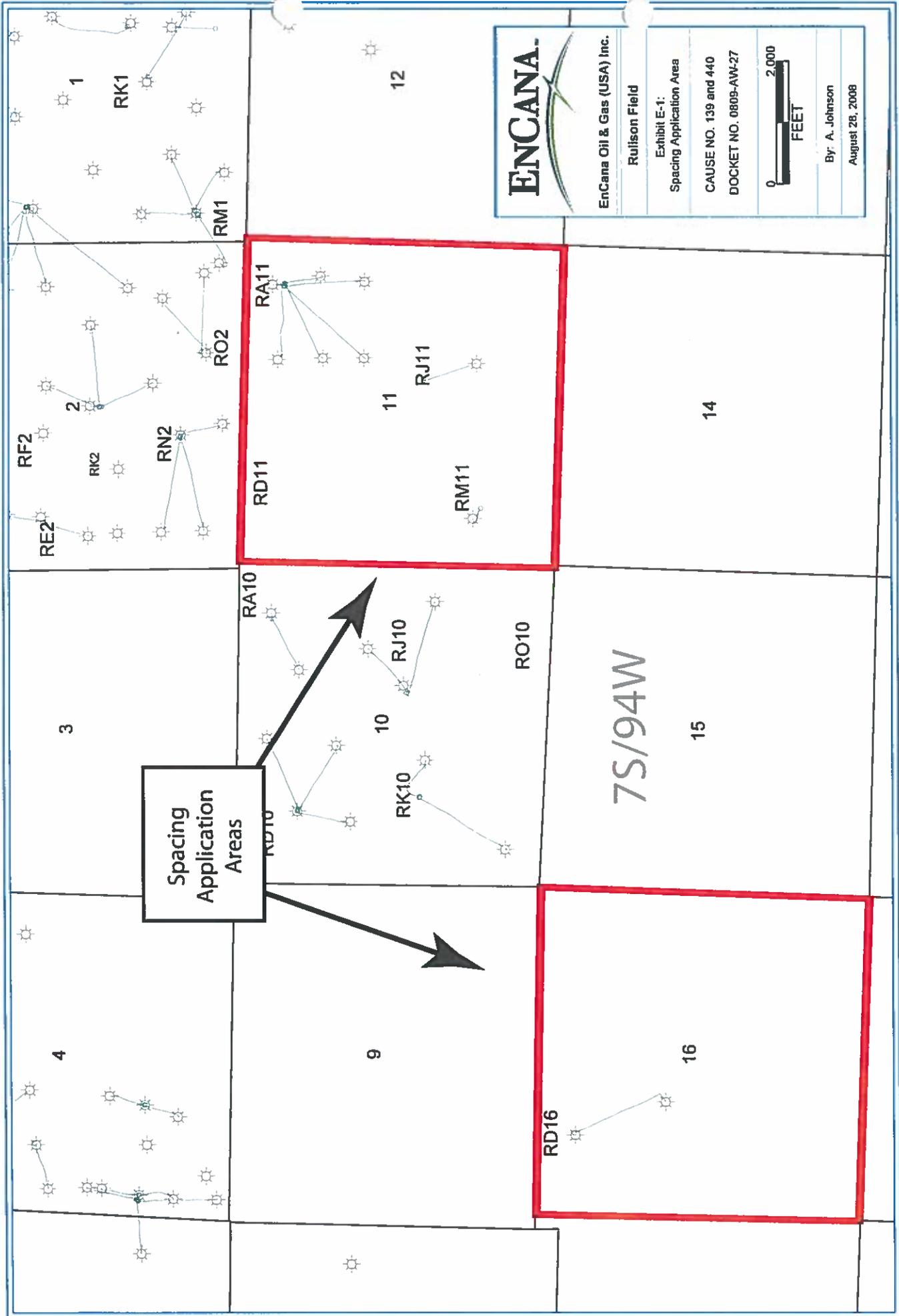
## RECOGNITION:

- Dean's List Award received
- 2002, 2003, 2004, 2005, 2006

## PROFESSIONAL ORGANIZATIONS:

Society of Petroleum Engineers –SPE

*References available upon request*



EnCana Oil & Gas (USA) Inc.

Rulison Field
Exhibit E-1: Spacing Application Area
CAUSE NO. 139 and 440
DOCKET NO. 0805-AW-27
0  2,000 FEET
By: A. Johnson
August 28, 2008

Spacing  
Application  
Areas

7S/94W

**EnCana Oil & Gas, USA**  
**Rulison 10-Acre WF Density**  
**Cause Nos. 139 & 440, Docket No. 0809-AW-27**  
**Exhibit: E-3**

	20-Acre	10-Acre
<b>OGIP</b>	80	80
<b>RF</b>	44%	64%
<b>EUR</b>	35	51
<b>Incremental EUR</b>	1.1	16
<b>EUR ***</b>	0.8	0.8

\*\*\* Assumes infinite well producing life

OGIP: original gas in place

RF: recovery factor

EUR: expected ultimate recovery

**EnCana Oil & Gas, USA**  
**Rulison 10-Acre WF Density**  
**Cause Nos. 139 & 440, Docket No. 0809-AW-27**  
**Exhibit: E-4**

<b>Capital Investment (\$MM)</b>	<b>Economic EUR (Bcf/Well)</b>	<b>Average Gas Price (\$/Mcf)</b>	<b>After Tax ROR (%)</b>	<b>After Tax Payout (years)</b>
<b>\$2.0</b>	<b>0.8</b>	<b>\$7 - \$8</b>	<b>18%</b>	<b>5.0</b>

ROR: rate of return

EUR: expected ultimate recovery