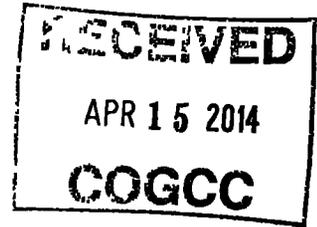




BEFORE THE OIL & GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO



IN THE MATTER OF THE PROMULGATION AND ) CAUSE NO. 527  
ESTABLISHMENT OF FIELD RULES TO GOVERN )  
OPERATIONS FOR THE WILLIAMS FORK AND ILES ) DOCKET NO. 1404-EX-01  
FORMATIONS, SULPHUR CREEK FIELD, RIO BLANCO )  
COUNTY, COLORADO )

REQUEST FOR RECOMMENDATION OF  
APPROVAL OF APPLICATION WITHOUT A HEARING

ORIGINAL

WPX Energy Rocky Mountain, LLC ("Applicant"), by and through its undersigned attorneys, hereby requests pursuant to Rule 511.a. of the Rules and Regulations of the Colorado Oil and Gas Conservation Commission for the Director to recommend approval of its February 27, 2014 verified application ("Application") and the supporting exhibits without a hearing.

Applicant requests that the above-captioned matter be approved based upon: (i) the merits of the Application, and (ii) Applicant's sworn written testimony verifying sufficient facts along with exhibits that adequately support the relief requested in the Application. To Applicant's information and belief, no protests were timely filed in this matter.

WHEREFORE, Applicant requests that its request for a recommendation for approval of its Application without a hearing be granted.

DATED this 15<sup>th</sup> day of April, 2014.

Respectfully submitted,

WPX ENERGY ROCKY MOUNTAIN, LLC

By:

Robert A. Willis  
Jillian Fulcher  
Beatty & Wozniak, P.C.  
Attorneys for Applicant  
216 16<sup>th</sup> Street, Suite 1100  
Denver, Colorado 80202  
(303) 407-4499

***WPX ENERGY  
ROCKY MOUNTAIN,  
LLC***

**Cause No. 527  
Docket No. 1404-EX-01**

**Land Testimony – Maxwell Faith, CPL**  
**Cause No. 527; Docket No. 1404-EX-01**  
**Exception Location Application – Williams Fork and Iles Formations**  
**Rio Blanco County, CO**

**April 28/29, 2014, COGCC Hearing**

My name is Maxwell Faith, and I am currently employed as a Senior Landman – Piceance Basin for WPX Energy Rocky Mountain, LLC (“Applicant” or “WPX”). I graduated from Tulane University in 2002 and received a Bachelor of Arts in Communications, additionally I graduated from the University of Colorado – Denver and received a Master’s of Science in Global Energy Management. I have ten (10) years of experience in oil and gas land and contract work. I have worked directly or in a supervisory role with the properties that are subject of this matter. My resume is enclosed with this testimony.

The Applicant has filed this application seeking exception from Rule 318.a and to authorize two (2) wells to be drilled adjacent to a lease in Lot 1 of Section 36, Township 1 South, Range 98 West for the production of gas and associated hydrocarbon from Williams Fork and Iles Formations. Well #1 is planned to be 359 feet from the adjacent lease, Well #2 is planned to be 426 feet from the adjacent lease. WPX is the operator of the adjacent lease and has been unable to secure a waiver from the underlying mineral interest owner.

In support of this application (“Application”) and my sworn testimony herein, I have prepared three (3) exhibits. This testimony and the accompanying exhibits provide the supporting basis for approval of Applicant’s request for an exception location for wells to be drilled on the following lands (the “Subject Lands”):

**Township 1 South, Range 98 West, 6<sup>th</sup> P.M**  
**Section 25: Lots 15 (SW¼SE¼) and 16 (SE¼SE¼)**

**Rio Blanco County, Colorado**

**1. Exhibit No. L-1**

Exhibit C-1 contains a map showing WPX- operated Ryan Gulch Federal Unit; all lands shaded in yellow contained within the dashed blue border are fully committed to the Ryan Gulch Unit. The lands shaded in orange are within the boundaries of the unit but are uncommitted. The green markers represent location of the wells in the unit, they are not to scale with respect to their proximity to the uncommitted lease and are for illustrative purposes only.

**2. Exhibit No. L-2**

Exhibit C-2 is copies of the survey plats for the two subject wells. They plats show the location of the wells with respect to the border lines of Section 25, T1S-R98W. Well #1 is 359 feet from the south line of Section 25 in Lot 16, which is directly adjacent to the lands contained in the encroached upon lease to the south in Section 36, T1S-R98W. Well #2 is 312 feet from the south line of Section 25 in Lot 15, however the adjacent lands to the south of Lot 15 in Sec. 36 are not contained in the encroached upon lease. Instead, the distance to the encroached upon lease is found in a diagonal fashion adjacent to the lands in Lot 16. The diagonal distance to the encroached upon lease is 426 feet. Sec. 36 of T1S-R98W has been approved for 10-acre density per Cause/Order 527-6.

**3. Exhibit No. L-3**

Exhibit C-3 is a plat showing all the leasehold comprising WPX's Ryan Gulch Prospect shaded in green. The WPX-operated Ryan Gulch Federal Unit is shown within the blue dashed line. The area of the subject wells (Sec. 25) are shown in the red box. Shown in cross-hatch are all the WPX operated lands that have been approved for 10-acre density.

**4. Exhibit No. L-4**

Exhibit C-4 is a copy of my resume

WPX has operated numerous wells on a 10-acre density pattern both in the Piceance Valley of Garfield County and in Rio Blanco County inside and outside the boundaries of the Ryan Gulch Federal Unit. WPX feels this well spacing which utilizes 100 foot or 200 foot setback is the most efficient way to protect against waste, capture the gas reserves while best protecting our correlative rights along with those of our partners and mineral/royalty interest owners. Our current requested exception location fall no less than 300 feet from unit boundaries and are consistent with previous applications of development on 10-acre density.

Based upon examination of relevant contracts and records, all owners of an oil and gas interest in the tracts to be affected (who could be located by Applicant) received timely notice of the Application. In addition, at least thirty (30) days will have elapsed prior to the hearing on this matter since the information required by Rule 530 was provided to those interested parties. To date, Applicant has been unable to obtain a waiver of objection from the adjacent mineral owner. As of the date of this testimony, Applicant has not received any notice of objection or protest to the Application.

Accordingly, Applicant requests that its Application be approved without the necessity of a hearing, that the Commission grant exception to Rule 318.a to allow the subject well, being greater than 2,500 feet in depth, to be drilled less than 600 feet from an uncommitted tract of the Ryan Gulch Federal Unit.

**Affirmation**

The matters described herein were all conducted under my direction and control. To the best of my knowledge and belief, all of the matters set forth herein and in the exhibits are true, correct, and accurate.



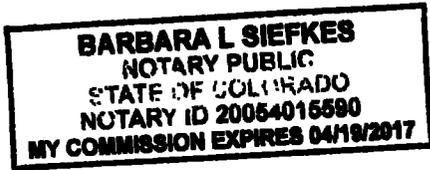
Maxwell Faith, CPL  
Senior Landman – Piceance Basin  
WPX Energy Rocky Mountain, LLC

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

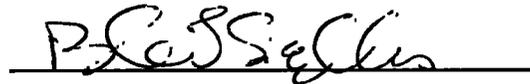
The foregoing instrument was subscribed and sworn to before me this 15<sup>th</sup> day of April, 2014, by Maxwell Faith, CPL, Senior Landman for WPX Energy Rocky Mountain, LLC.

Witness my hand and official seal.

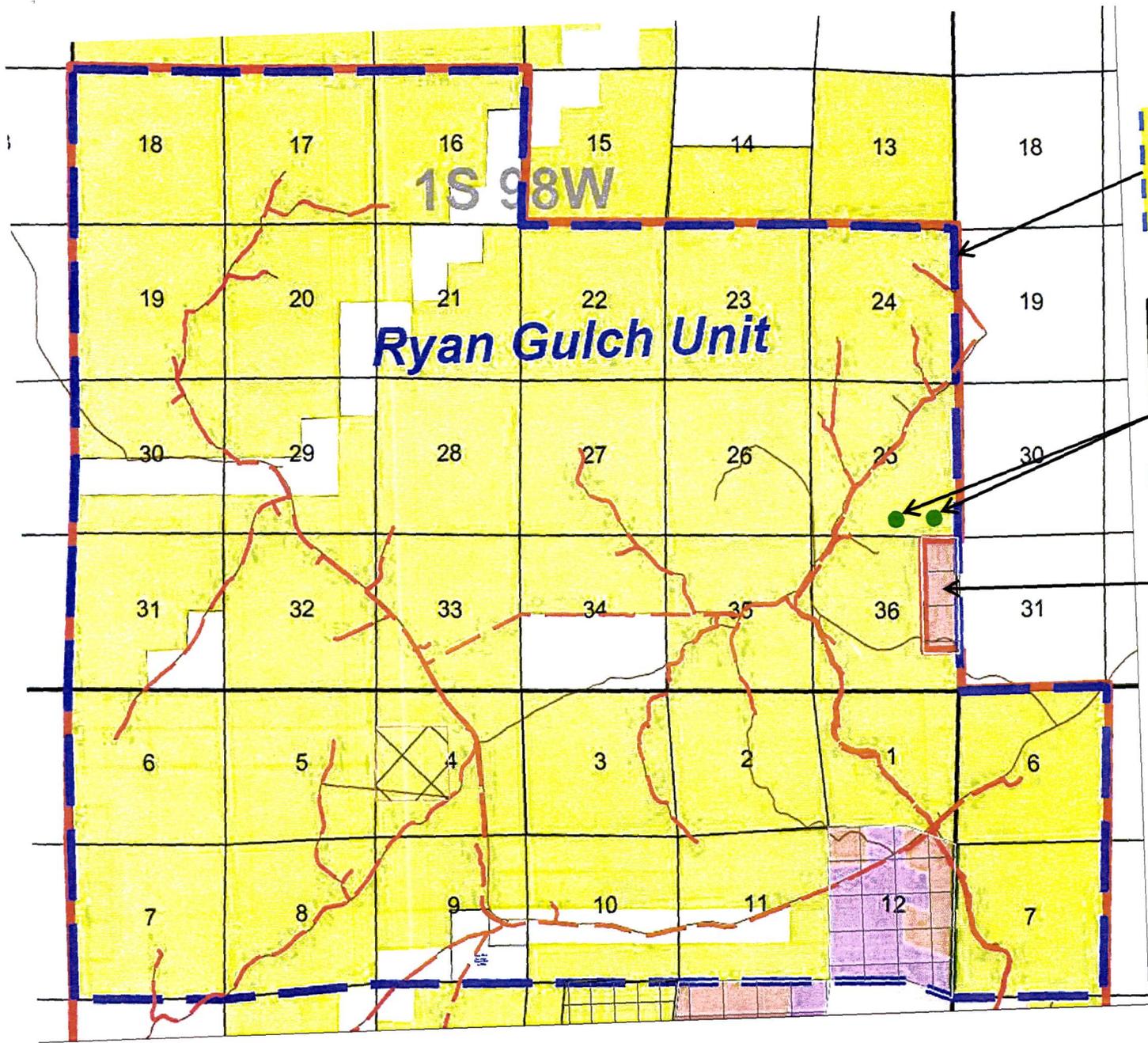
[SEAL]



My commission expires: 4/19/17



Notary Public



Ryan Gulch Federal Unit  
Outline (Yellow lands  
inside border committed)

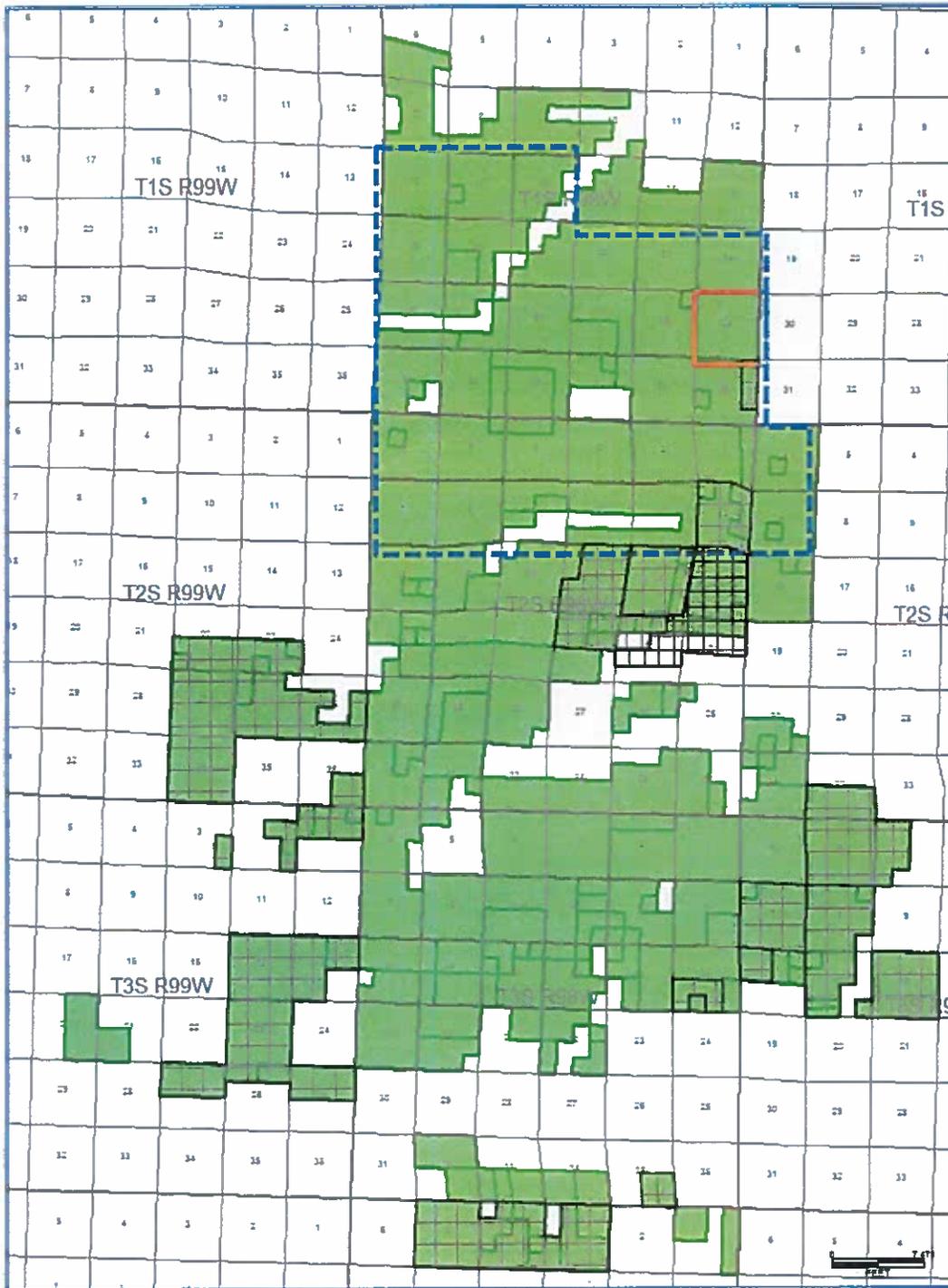
2 wells with BHL in Sec. 25  
requesting exception to  
Rule 318.a (not to scale)

Adjacent Lease in Sec. 36  
Federal OGL COC-73648  
not committed to Ryan  
Gulch Unit. Approved for  
10-acre density  
Case/Order 527-6

Exhibit L-1  
Cause No. 527  
Docket No. 1404-EX-01







WPX leasehold



Sec. 25 – location of subject lands/wells



WPX Operated Ryan Gulch Federal Unit



WPX lands approved for 10-acre density

**Exhibit L-3**  
 Cause No. 527  
 Docket No. 1404-EX-01



**MAXWELL G. FAITH, CPL**  
WPX Energy Rocky Mountain, LLC  
1001 17<sup>th</sup> Street, Suite 1200  
Denver, CO 80202  
(303) 606-4058  
[maxwell.faith@WPXenergy.com](mailto:maxwell.faith@WPXenergy.com)

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## **EXPERIENCE**

**Williams Production RMT Company/WPX Energy Rocky Mountain, LLC**      **Denver, CO**  
**Senior Landman**      **December 2007 - Present**

Responsible for all land related functions in assigned areas, provide land support to all disciplines of asset team for annual drilling program, including review of drilling title opinions, perform necessary curative; preparation and negotiation of joint operating agreements, farmout agreements, acreage trades/swaps with third parties, negotiation of lease terms and all other typical oil and gas land related agreements. Interaction with internal drilling operations and planning groups as well as interaction with outside third party operators and partners, organize and supervise efforts of outside lease brokers, contract Landmen and title attorneys.

**Strata Oil & Gas Company, LLC**      **Denver, CO**  
**Independent Landman**      **May 2005 - December 2007**

Worked in numerous counties in Colorado, New Mexico, Washington and Wyoming performing cursory and curative title searches. Negotiated and prepared oil and gas leases and surface-use agreements for mineral and surface owners. Performed due diligence for client acquisitions. Prepared abstracts of title from county records for drilling title opinions.

**Fitzsimmons, LLC**      **Gillette, WY**  
**Independent Landman**      **April 2004 - May 2005**

Worked in various counties in Colorado and Wyoming negotiating and preparing oil and gas leases and surface-use agreements for mineral and surface owners. Conducted research to secure title for leases in title companies and in county records.

**E & G Energy**      **Shelby County, TX**  
**Independent Landman**      **February - March 2004**

Worked with lease and right-of-way brokers in Texas, processed title for mineral and property owners with oil and gas landmen.

**Enterprise Leasing**      **Washington, DC**  
**Management Trainee**      **November 2002 - January 2004**

Involved in Management Training program focusing on all aspects of a managerial position. Responsible for daily operation of car rental branch, including contract underwriting, inside sales to customers and outside sales to local businesses, marketing to client accounts, and customer service.

## **EDUCATION**

**University of Colorado – Denver**      **Denver, CO**  
**Masters of Science – Global Energy Management**      **June 2010**

**Tulane University**      **New Orleans, LA**  
**Bachelor of Arts in Communications**      **May 2002**  
**Minor in Business**

## **PROFESSIONAL ASSOCIATIONS**

**American Association of Professional Landmen – Certified Professional Landman #71276**  
**Denver Association of Petroleum Landmen**

# **WPX Energy Rocky Mountain, LLC**

## **Renee Wild – Geologic Testimony Cause 527, Docket No. 1404-EX-01**

### ***Request for an order approving the exception of bottomhole locations of two wells in Section 25, Township 1 South, Range 98 West, 6<sup>th</sup> P.M. for the production of gas and associated hydrocarbons from the Williams Fork and Iles Formations***

My name is Renee Wild, and I am currently employed as a Geologist for WPX Energy Rocky Mountain, LLC (“WPX”). I graduated from the Central Michigan University with a Bachelor of Science degree in Geology and a Masters degree in Geology from the University of Colorado. I have not previously testified as an expert witness in petroleum geology matters before Hearing Officers of the COGCC. My resume outlines my years of experience working in the petroleum industry (See Exhibit G-9). I am familiar with the lands subject to, and the matters set forth in, the April 15th, 2014, verified application (the “Application”) filed herein. Attached exhibits G-1 through G-8 were either prepared or compiled by me. I have reviewed each of those exhibits, and to the best of my knowledge and belief, each of those exhibits is correct and accurate as of the date of this Verified Statement. My resume is attached to this submission.

In support of the Application, I am submitting one exhibit detailing the wells and leases in question and additional exhibits from our 10-acre density application. The exhibits are attached to my sworn testimony and form the basis for the Application requesting an order approving the exception of bottom hole locations of two wells for the below-described lands (“Application Lands”), for the production of gas and associated hydrocarbons from the Williams Fork and Iles Formations:

Township 1 South, Range 98 West, 6<sup>th</sup> P.M.  
Section 25: Lot 15; Lot 16

#### **1. Exhibit No. G-1**

Exhibit No. G-1 is a drainage area map of the planned locations of the wells in question and their position to the Ryan Gulch Unit boundary (red line) and adjacent WPX lease COC73648 represented by the orange cross-hatch pattern. It highlights the planned bottom hole distance from the lease boundary in red. Superposed over the bottom hole locations are the expected 10-acre drainage ellipses for each respective well. These ellipses are orientated at the angle of maximum principle stress, which is interpreted from Formation Micro-imager Logs (FMI) taken from nearby wells. The RGU 544-25-198 and RGU 534-25-198 are oriented at this NW-SE plane, as the well should stimulate via hydraulic fracturing in this direction.

To the south of the RGU 33-25-198 proposed pad location is the existing RGU 33-36-198 pad, where the RGU 344-36-198 well was permitted and drilled within the 600’ unit boundary setback in 2012. Here demonstrated again, the expected reservoir drainage area as it relates to the respective lease areas.

#### **2. Exhibit G-2**

Exhibit G-2 is a type log for the Mesaverde Group. The well in Exhibit G-2 is located in Section 25, Township 1S, Range 98W and is situated adjacent to application lands. The well name is the Federal RGU 43-25-198.

The Mesaverde Group is Upper Cretaceous in age and consists of, from youngest to oldest, the Williams Fork, Iles, and Sego Formations. This application requests 10-acre spacing for all of these formations.

The Williams Fork Formation is comprised of sandstones, shales, and coals deposited in an upper to lower coastal plain setting. The lower 400 feet of the Williams Fork Formation is a coal bearing member commonly known as the Cameo Coal Interval. The sandstones in the Williams Fork Formation are fluvial in origin and were deposited in meandering to braided stream depositional environments.

Shown on this type log is the Top of Gas Saturation. This is the point below which sands that are perforated will produce essentially water-free gas. The productive sandstones throughout the Williams Fork Formation are laterally discontinuous and naturally fractured, and have microdarcy permeability and porosities ranging from 6% to 10%. Gross productive interval ranges from 2000' to 3000'. Because of the tight nature of these sands, they will not produce economic volumes of gas unless they are fracture stimulated.

The Iles formation consists of three members; the Rollins Sandstone, and the Cozzette and Corcoran members.

The Rollins Sandstone was deposited in a shoreline environment and is laterally continuous except where faulted. This sandstone, which is about 100' thick, is generally not a target in the application lands due to its tendency to produce high volumes of water. However, where trapping conditions are suitable it can produce in isolated areas. Porosity ranges between 6% and 12% and permeability is in the microdarcy range.

The Cozzette Member is an interval of approximately 220' thick and consists of interbedded sandstones and shales with some thin coals and carbonaceous shales. The very top sandstone of the member appears to be of marine shoreline origin similar to the Rollins but much thinner. It is not usually targeted because like the Rollins it is prone to produce water. The remaining sandstones within the Cozzette Member *are* targets and are thought to have been deposited in lower coastal plain fluvial meandering streams with possible tidal influences. From observations of many electric logs in the application area, the sandstones appear to be discontinuous as would be expected from sandstones deposited in channel environments. Porosity ranges between 6% and 10% and permeability is in the microdarcy range.

The Corcoran Member is approximately 360' thick and consists of interbedded sandstones and shales with some thin coals and carbonaceous shales. The sandstones of this member are very similar to the fluvial, discontinuous sandstones of the overlying Cozzette Member.

The Sego Formation consists of two intervals, the Upper Sego and Lower Sego Sandstones. The Upper Sego is approximately 240' thick, while the Lower Sego is about 150' thick. Like the Cozzette and Corcoran members, these sandstones are thought to have been deposited in a lower coastal plain environment with possible tidal influences. The predominant depositional environment is thought to be meandering streams. As in the Cozzette and Corcoran members, observations of electric logs suggest that these sandstones are discontinuous in nature. However, in some places within the application lands the sandstones in the Upper Sego can be quite thick. It is thought that these thick sandstones represent amalgamated or stacked channel sands that have questionable reservoir continuity between adjacent sandstones. Porosity ranges between 6% to 10% and permeability is in the microdarcy range. In this area the Lower Sego sandstone is the oldest sandstone of the Mesaverde Group, and overlies the first marine shale tongue of the Mancos Group.

### 3. Exhibit G-3

Exhibit G-3 is an index map showing the location of the stratigraphic cross-sections in this application. Cross-section A-A' is a local cross-section of two wells approximately 641' apart.

### 4. Exhibit G-4

Exhibit G-4 is stratigraphic cross-section A-A' located within Section 25 T1S-R98W. This section includes two wells spaced 641' apart. This section shows that all of the formations under consideration for 10 acre spacing are present in this area. In addition, the numerous sands and variable nature of the channel sand development in the Williams Fork, Cameo, Cozzette, Corcoran, and Segó intervals is displayed.

### 5. Exhibit G-5

Exhibit G-5 is a photograph of the Williams Fork outcrop northeast of Grand Junction, near Cameo, Colorado, approximately 45 miles south of the application lands. The sediments visible in this outcrop are very similar to the lower portion of the productive Williams Fork section in the application lands area. In the bottom of the photograph, we can see the laterally continuous marine Rollins Sandstone which defines the base of the Williams Fork Formation. The reddish colored sediments just above the Rollins define the Cameo member and the middle and upper portions of the photograph show a significant section of the sands and shales of the remaining Williams Fork Formation. The primary purpose of this photograph is to show the discontinuous nature of the channel sands and their approximate dimensions. Two hypothetical 10-acre wells spaced 660ft apart are shown intersecting different sandstones separated by shales. A study of this particular outcrop was performed by Dr. Rex Cole of Mesa State. Dr. Cole and his students physically measured the widths of 137 of the sand bodies shown in this photograph and the results of their work are outlined in Exhibit G-7.

### 6. Exhibit G-6

Exhibit G-6 is shows the frequency of different Williams Fork sand body widths in outcrop and their cumulative frequency. The graph shows that 80% of the measured sand bodies have widths of less than 750 ft and that over 60% of the sand bodies have widths less than 500 ft. The average width of the 137 sand bodies measured in the study is 682 ft. For reference, 10-acre density is equivalent to wells that are 660 feet apart. Again, this study shows that significant reserves would likely be bypassed with a well spacing larger than 10 acres.

### 7. Exhibit G-7

Exhibit G-7 is a sketch of a portion of the Williams Fork outcrop on the west side of Rifle Gap, on the eastern margin of the Piceance Basin. This diagram shows two sands in the same stratigraphic horizon with two hypothetical 10-acre wells, spaced 660 ft apart. This figure shows that nearby sand bodies in the same stratigraphic horizon are in fact, different sands.

### 8. Exhibit G-8

Exhibit G-8 is a stratigraphic cross-section of the Williams Fork and Iles interval between two closely spaced wells (641' apart) shown in Exhibit B-2. The wells in Exhibit G-8 are located in Section 25, Township 1S, Range 98W and situated north of the application lands. The wells are named the Federal RGU 43-25-198 and RGU 442-25-198. The purpose of this exhibit is to demonstrate the limited

continuity of most of the productive channel sands within this interval, especially of the thinner sands. Note also that the Rollins and uppermost Cozzette sandstones *are* continuous due to their marine origin. As noted above, these two continuous sands are not often completed due to high water cut. As in the Williams Fork-Cameo interval, this cross-section demonstrates that significant reserves would likely be bypassed with a well spacing larger than 10 acres.

#### 9. Exhibit G-9

Exhibit G-9 is a copy of my resume.

#### *Conclusions*

WPX Energy is proposing to drill the RGU 544-25-198 well with a BHL of 359' FSL 670' FEL of Sec 25 T1S R98W. The BHL is located within the boundary of Ryan Gulch Unit COC68239X which requires a 600' setback from adjoining lease line, per 318.d(3). The proposed location places the proposed well, RGU 544-25-198, approximately 359' from the adjoining lease, COC73648.

Additionally, WPX Energy is proposing to drill the RGU 534-25-198 well with a BHL of 312' FSL 1565' FEL of sec 25 T1S R98W. The BHL is located within the boundary of Ryan Gulch Unit COC68239X which requires a 600' setback from adjoining lease line, per 318.d(3). The proposed location places the proposed well, RGU 534-25-198, approximately 426' from the adjoining lease COC73648.

The offsetting lease Federal COC73648 is 100% owned by WPX Energy who is also operator of record. Since the bottom hole locations of the proposed wells are encroaching upon a lease we own, we take no exception with location of the bottom holes and believe the drainage of such wells will not affect the reservoir of the offsetting lease (COC73648) and future wells to be drilled in this offsetting lease based on our research on the 10-acre development strategy outlined in Exhibits G-2 through G-8.

Based on the above, WPX Energy respectfully requests an exception location be granted for the proposed bottom hole locations for the RGU 544-25-198 and RGU 534-25-198 wells.

Dated this 14th day of April, 2014.

  
\_\_\_\_\_  
Renee Wild, WPX Geologist  
WPX Energy Rocky Mountain, LLC

VERIFICATION

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

The foregoing instrument was subscribed and sworn to before me this 14th day of April, 2014, by Renee Wild, Geologist for WPX.

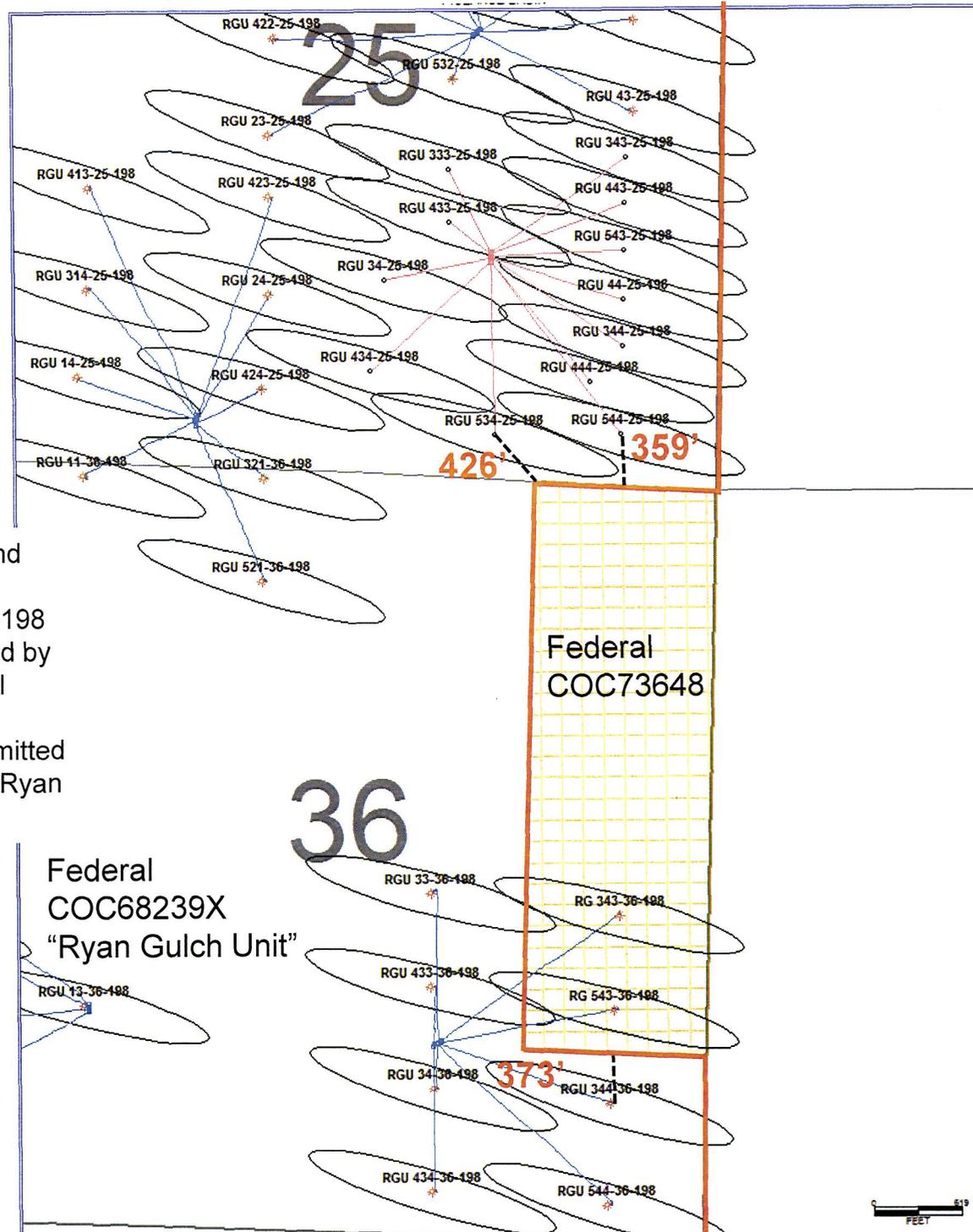
Witness my hand and official seal.

My commission expires: 01-06-2015.



  
\_\_\_\_\_  
Notary Public

# Drainage Area Map



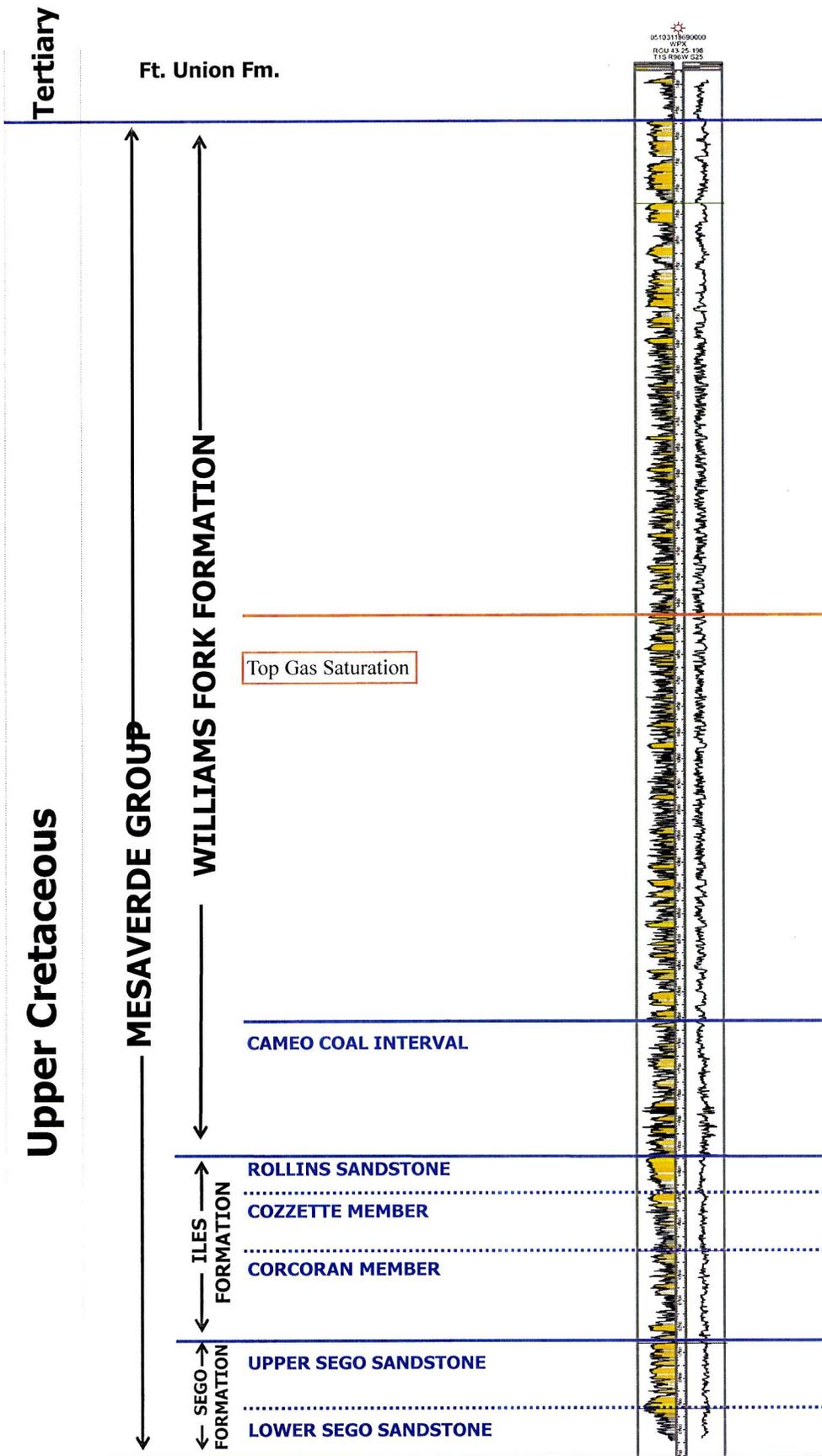
Expected 10-acre drainage area and orientation of wells at planned bottomhole locations RGU 544-25-198 and RGU 534-25-198 demonstrated by ellipse boundaries centered on well location.

RGU 344-36-198 well location permitted in 2012 with similar <600' offset to Ryan Gulch Unit boundary.

**Exhibit G-1**  
**Cause No. 527**  
**Docket No. 1404-EX-01**



Type Log for the Mesaverde Group,  
 Ryan Gulch Field Area, Rio Blanco County, Colorado



# Cross-Section Index Map

Application Locations:  
Township 1 South, Range 98 West  
Section 25  
SESE RGU 544-25-198  
SWSE RGU 534-25-198

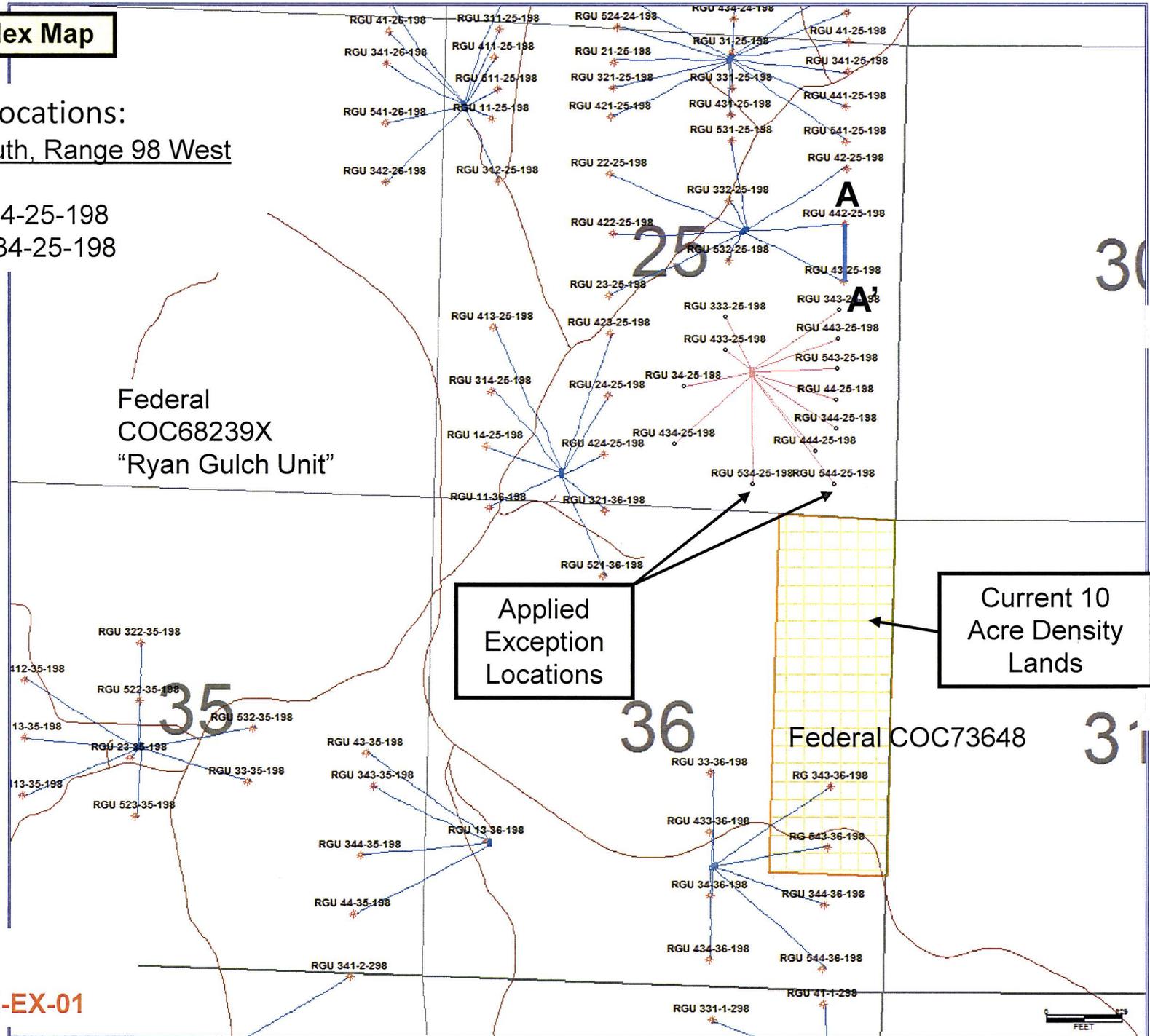
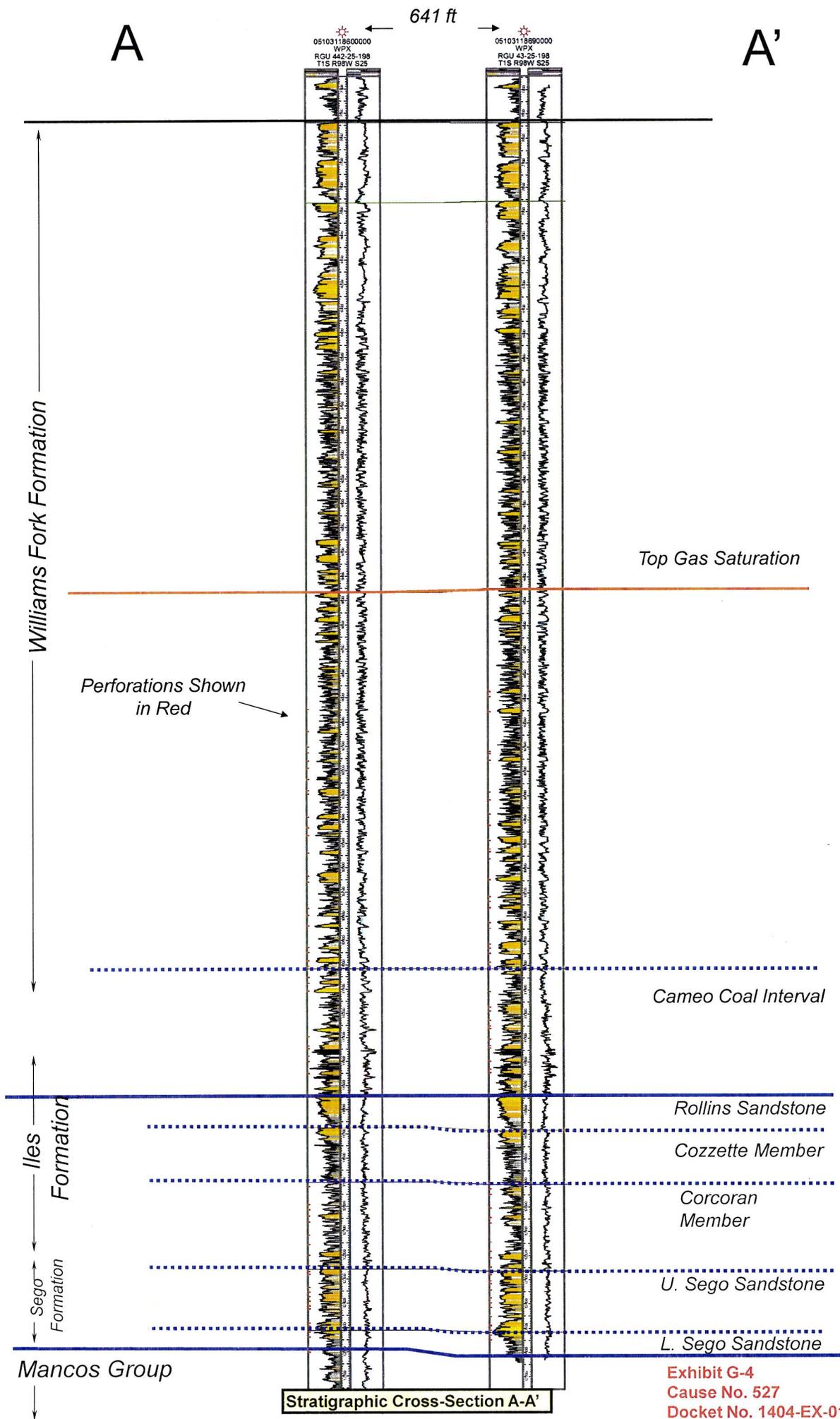
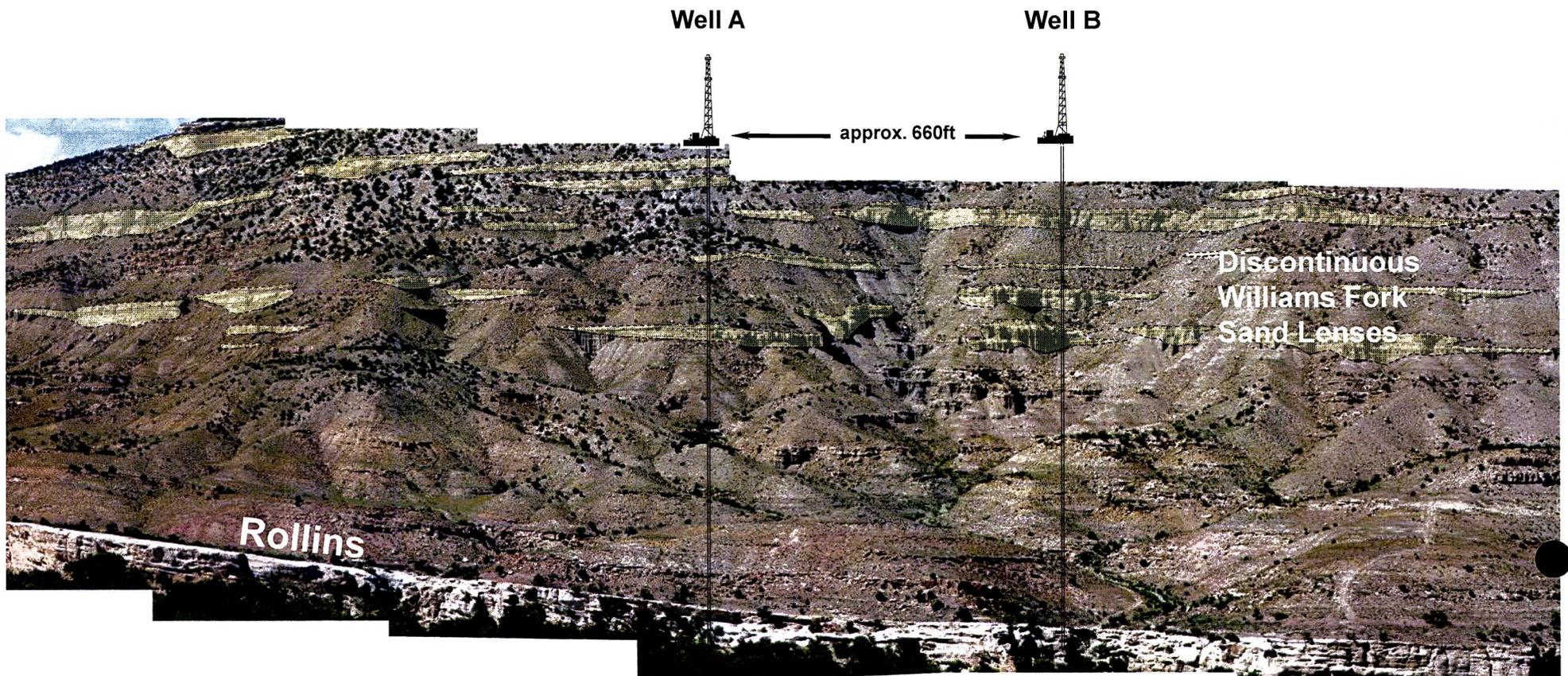


Exhibit G-3  
Cause No. 527  
Docket No. 1404-EX-01



# Mesaverde Outcrop, Coal Canyon Near Cameo, Colorado

## Williams Fork Sandstone Bodies With Hypothetical 10-acre wells

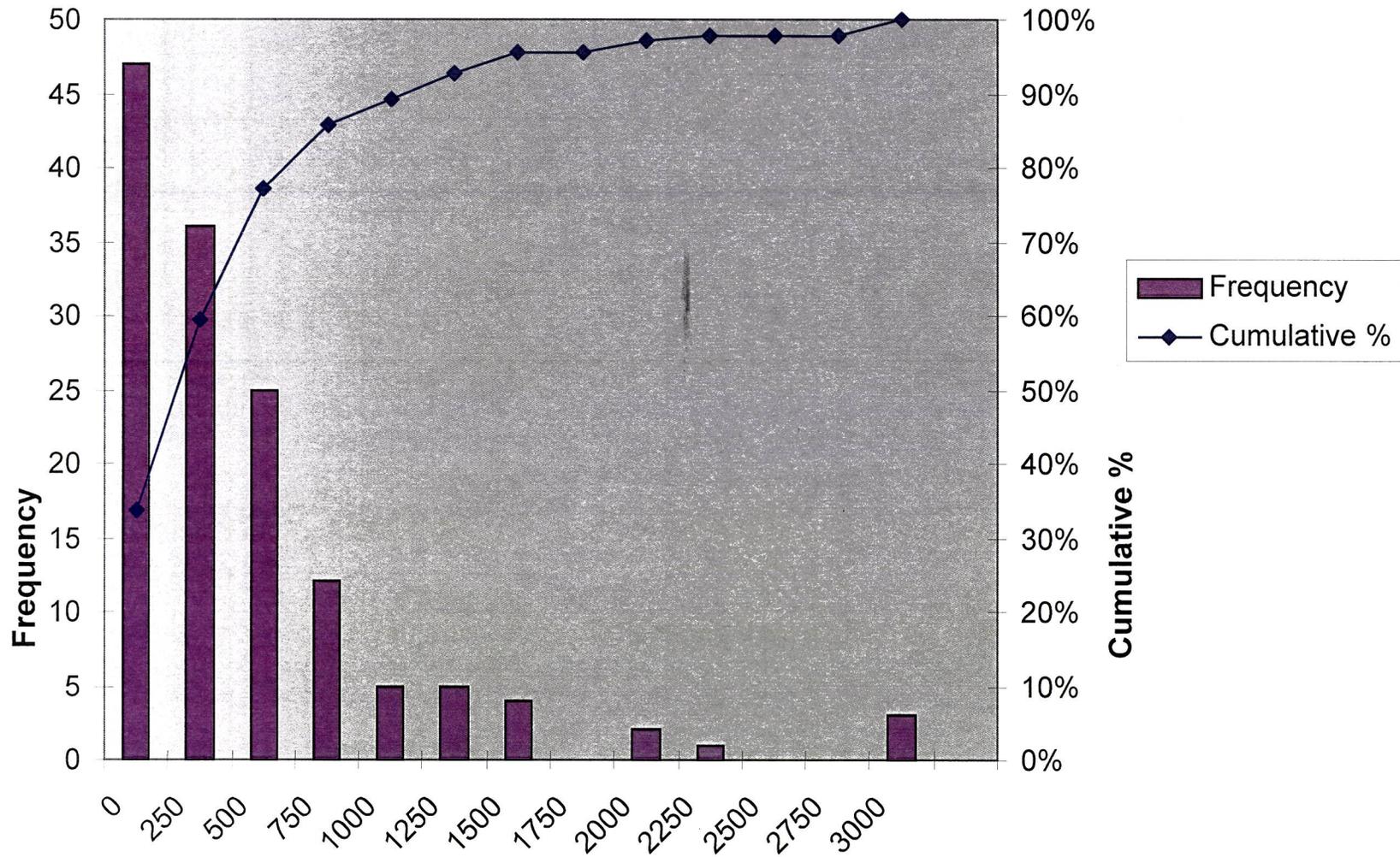


Approximately 45 miles south of 10 acre spacing application lands, very similar lower Williams Fork section to that in the application area.

Outcrop study of excellent exposures near Cameo, Colorado was undertaken to gather data on Williams Fork and Cameo sand body extents

Exhibit G-5  
Cause No. 527  
Docket No. 1404-EX-01

# Williams Fork Outcrop Sand Body Sizes

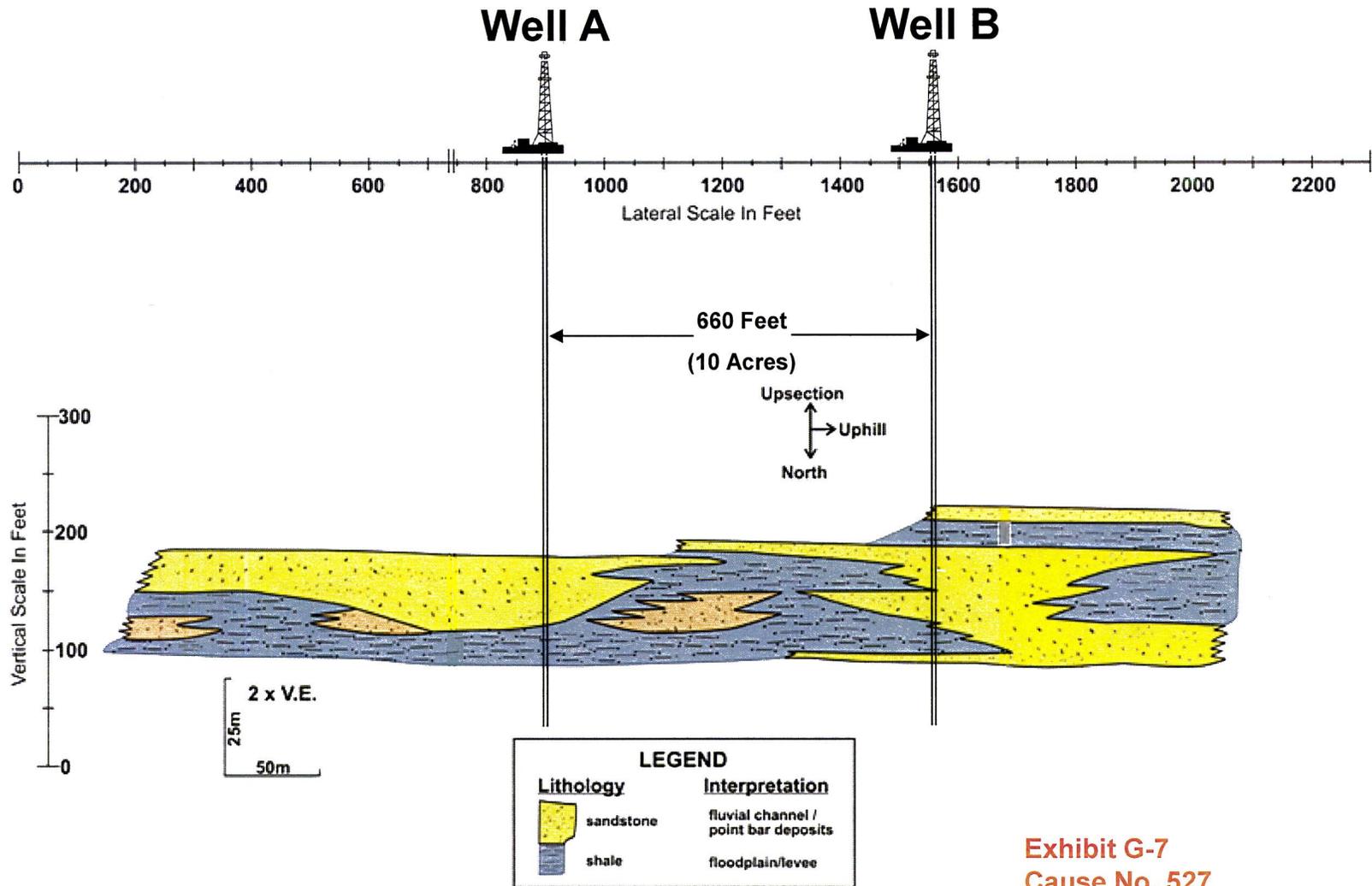


**Average Extents of 137 Sand Bodies=682 ft**

**Exhibit G-6  
Cause No. 527  
Docket No. 1404-EX-01**

# Williams Fork Sandstone Bodies With Hypothetical 10-Acre Wells

Eastern Margin of Piceance Basin - Mesaverde Outcrop at Rifle Gap (near Rifle, Colorado)

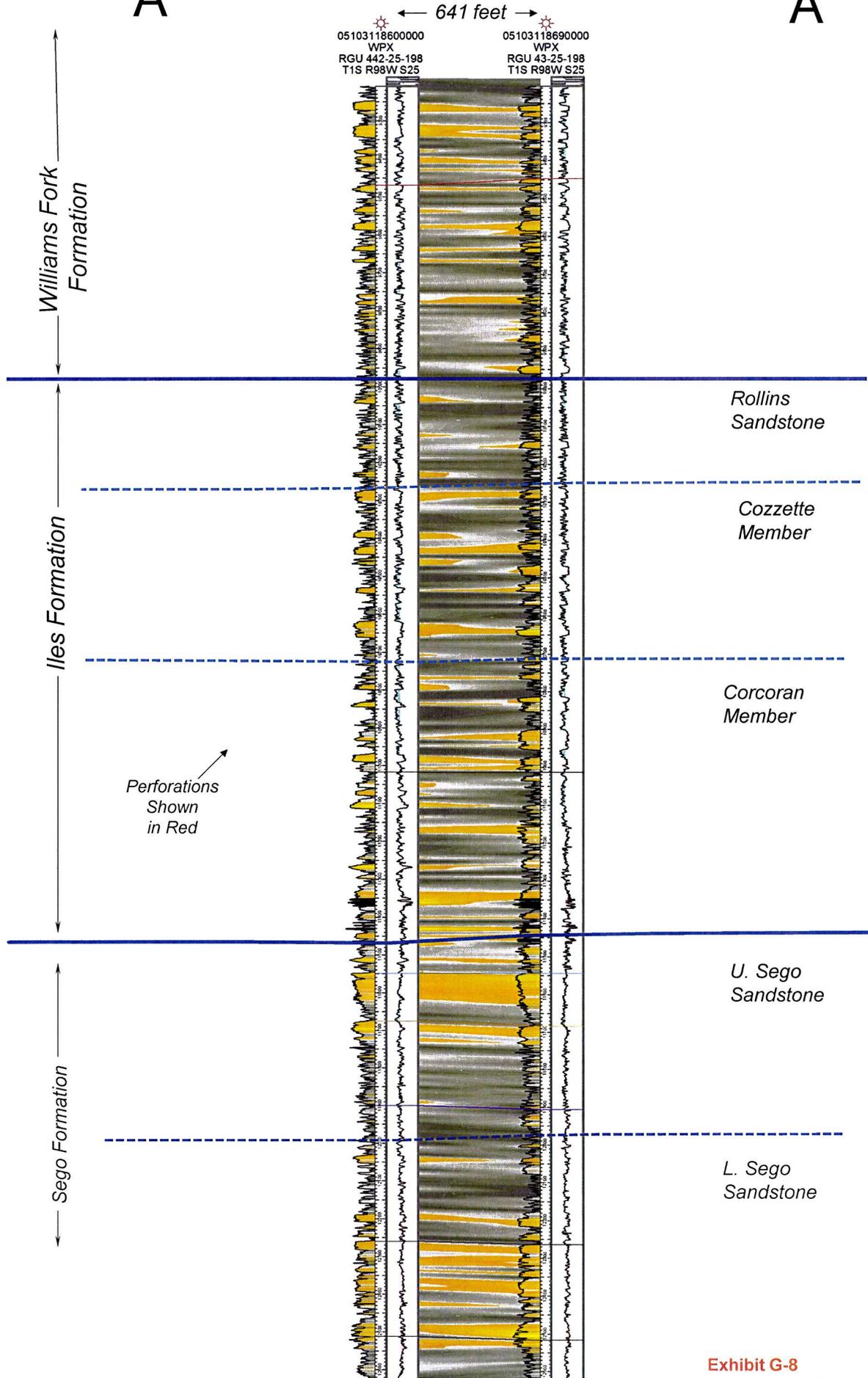


Outcrop of lens 8, west side of Rifle Gap, modified from Lorenz, 1982 (Pg. 28, Fig. 12).

Exhibit G-7  
Cause No. 527  
Docket No. 1404-EX-01

A

A'



Stratigraphic Cross-Section A-A' Interpretive Fill over Producing Zone

Exhibit G-8  
Cause No. 527  
Docket No. 1404-EX-01

## **Renee M. Wild**

**WPX Energy Rocky Mountain LLC**  
1001 17<sup>th</sup> Street, Suite 1200  
Denver, Colorado 80202  
(303) 260-4551  
renee.wild@wpxenergy.com

### **Professional Experience:**

- |                             |   |                  |
|-----------------------------|---|------------------|
| January 2012<br>to Current  | <b>WPX Energy Rocky Mountain LLC</b><br><b>Geologist, Piceance Asset</b>  | Denver, Colorado |
|                             | <ul style="list-style-type: none"><li>• Responsible for all Mesaverde geologic operations in Williams-operated Ryan Gulch and Barcus Creek field areas in the northern Piceance Basin, Colorado.</li><li>• Duties require an understanding of the stratigraphy, structure, and reservoir qualities of the Williams Fork, Iles, and Segó Formations.</li><li>• Other duties include well planning, monitoring drilling wells and well logging, and the identification of pay intervals for well completions.</li></ul>   |                  |
| Nov. 2010<br>to Dec. 2011   | <b>Williams Production RMT</b><br><b>Geologist I, Piceance Asset</b>  | Denver, Colorado |
|                             | <ul style="list-style-type: none"><li>• Responsible for all Mesaverde geologic operations in Williams-operated Trail Ridge field area in the northern Piceance Basin, Colorado.</li><li>• Duties require an understanding of the stratigraphy, structure, and reservoir qualities of the Williams Fork, Iles, and Segó formations.</li><li>• Other duties include well planning, monitoring drilling wells and well logging, and the identification of pay intervals for well completions.</li><li>• Responsible for all Williams-non-operated joint interests operations in the Piceance Basin, Colorado</li></ul> |                  |
| Sept. 2010<br>to Nov. 2010  | <b>Williams Production RMT</b><br><b>Contract Employee</b>  | Denver, Colorado |
|                             | <ul style="list-style-type: none"><li>• Regional cross section index and continued structural/stratigraphic interpretation of the Piceance Basin.</li></ul>   |                  |
| June 2010<br>to August 2010 | <b>Williams Production RMT</b><br><b>Geology Intern</b>   | Denver, Colorado |
|                             | <ul style="list-style-type: none"><li>• Project identified outcrop expression and extent of the "Big Kahuna" and subsurface expression.</li><li>• Participate in William's Company Intern field trip and final presentations</li></ul>  |                  |
| June 2009<br>to August 2009 | <b>Cabot Oil and Gas</b><br><b>Geology Intern</b>   | Denver, Colorado |
|                             | <ul style="list-style-type: none"><li>• Evaluate abandoned basin for recompletion potential using well data,</li></ul>  |                  |

**Exhibit G-9**  
**Cause No. 527**  
**Docket No. 1404-EX-01**

core analysis, and seismic interpretation. Recommended locations for new development and lease interests.

<b>Education:</b>	University of Colorado <b>M.S. in Geology</b>	Boulder, Colorado 2010
	Central Michigan University <b>B.S. in Geology</b>	Mount Pleasant, Michigan 2007

**Professional Affiliations:**

- American Association of Petroleum Geologists
- Rocky Mountain Association of Geologists
- Geological Society of America

**Exhibit G-9**  
**Cause No. 527**  
**Docket No. 1404-EX-01**



**e. Exhibit E-3**

Each 160-acre pilot area is shown with full 10-acre development. The 10-acre wells were drilled with no consideration of fracture orientation. Note the two wells (GM 443-33, RWF 434-20) in each field that are on direct orientation (based off of microseismic and FMI data) with the older parent wells. These two "orientation wells" were the poorer performers of the 10-acre pilot wells and measured more depletion. All other 10-acre wells, including those as close as 300-ft from the parent well but off fracture orientation, performed at field average.

**f. Exhibit E-4**

This is a geological log representation of one of the Rulison 10-acre pilot wells that had every completed sand body individually tested for reservoir pressure. This was done on 8 total wells. Each sand was perforated (pink dots) and tested prior to performing the fracturing treatment (black line connecting the perforations) – this was repeated for each frac interval. Most of the pressure measurements (blue numbers) fall within the natural progression of increasing reservoir pressure with depth. Three sands (red numbers) showed some partial depletion and didn't fall within the other tests.

**g. Exhibit E-5**

This is a geological log representation of another Rulison 10-acre pilot well in which one sand per frac interval was tested with a bottom hole pressure build-up and also a injection fall-off test. This was done on 8 total wells. Both testing methods were performed on the same sand to validate the injection fall-off testing analysis which was performed on majority of the sands in the pilot. Each sand tested was chosen to be the most correlative to offset producing wells and had the highest likelihood of depletion in the well bore. All the pressure tests in this well were shown to be near virgin reservoir pressure.

**h. Exhibit E-6**

The table represents a summary of the pressure testing that has been performed in the Grand Valley field pilot area. 95 tests were completed on the new 10-acre pilot wells. 78 of the 95 tests (82%) were measured and shown to have no depletion (virgin pressure or more than 85% of virgin pressure). If you eliminate the "orientation wells" pressure tests, due to the fact that wells would not be placed on direct orientation in the future, the percentage of no depletion sands increase to 88%. This illustrates that majority of the sand bodies completed within 10-acre wells have no or limited depletion.

**i. Exhibit E-7**

The table represents a summary of the pressure testing that has been performed in the Rulison field pilot area. 124 tests were completed on the new 10-acre pilot wells. 109 of the 124 tests (88%) were measured and shown to have no depletion (virgin pressure or more than 85% of virgin pressure). If you eliminate the "orientation wells" pressure tests, due to the fact that wells would not be placed on direct orientation in the future, the percentage of no depletion sands increase to 94%. This illustrates that majority of the sand bodies completed within 10-acre wells have no or limited depletion.

**j. Exhibit E-8**

Minimal depletion was measured throughout the sixteen 10-acre pilot wells. More depletion was observed when wells are on exact fracture orientation with older parent wells. Pressure test results confirm the geological model. Even with some pressure reduction, 10-acre density wells will produce substantial incremental gas reserves.

**k. Exhibit E-9**

This graph displays monthly production of the four wells discussed from the previous exhibit. The production is plotted against time in months and the volume of gas per month in mcf. Each well depicts a typical hyperbolic production decline for a tight gas sand reservoir from the Piceance basin. Another way to see the effect of depletion or the presence of shared reservoirs is to note a production change or decline curve deviation of the existing developed well (GM 43-1, GM 247-1) when the new production is brought on by the 10-acre wells (GM 344-1, GM 543-1). As shown, the decline curve of the 40-acre and 20-acre wells does not deviate from their existing decline when the 10-acre wells are placed on production. A change is still not evident even after 2 years. This illustrates that very little if any pressure communication, between wells, exists on 10-acre density development.

**l. Exhibit E-10**

This graph represents average monthly production of all wells within the Grand Valley field that are normalized back to the same first production day. The production data is broken out into 40-acre (red line), 20-acre (blue line), and newer 10-acre wells (green line). Note that the new 10-acre wells (135 wells) are better performers than the older 40-acre parent wells and as good as the 20-acre development wells.

**m. Exhibit E-11**

This exhibit builds on the graph shown in Exhibit A-11 by comparing the original 10-acre pilot in the Grand Valley Field with and adjacent and recent 10-acre development. This graph illustrates that when bottom-hole locations are placed optimally (via the new 10-acre development in Section 3), 10-acre wells will perform optimally.

Therefore, reservoir depletion and performance can be optimized if development occurs on 10-acre density from the onset with optimally placed bottom-hole locations.

n. **Exhibit E-12**

This graph represents average monthly production of all wells within the Rulison field that are normalized back to the same first production day. The production data is broken out into 40-acre (red line), 20-acre (blue line), and newer 10-acre wells (green line). Note that the new 10-acre wells (104 wells) are better performers than the older 40-acre parent wells and as good as the 20-acre development wells. Again these 3 production graphs confirm the success and need of 10-acre density development to maximize gas in place recovery.

o. **Exhibit E-13**

This graph represents average monthly production of all wells within the Parachute field that are normalized back to the same first production day. The production data is broken out into 40-acre (red line), 20-acre (blue line), and newer 10-acre wells (green line). Note that the new 10-acre wells (123 wells) are better performers than the older 40-acre parent wells and as good as the 20-acre development wells.

p. **Exhibit E-14 and E-15**

This exhibit shows multiple Gas-In-Place (GIP) calculations for different independent research reports and from internal WPX Energy analysis. An analysis was performed at the time of the 10-acre pilots which is noted by the "2002 WPX Energy Analysis" values. An average GIP for a given 640-acre section was calculated for each of WPX Energy's three fields. The bottom portion of the exhibit shows the gas recovery factors based on the calculated GIP and using the average estimated ultimate recovery (EUR) for each field. Going from 40-acre to 20-acre to 10-acre development improves the average recovery factors from 19% to 79%. Limiting development to 20-acre density would leave over 60% of the GIP in the reservoir.

q. **Exhibit E-16 and E-17**

With early 10-acre density drilling approved development, we can take advantage of one rig move to a location to develop wells within reach which means less rig moves and re-disturbance of pads. This also will lessen the likelihood for well problems during drilling operations; stuck pipe, sidetracking, and well control issues due to possible pressure variations between individual sand bodies. Early 10-acre approval will also increase the fracture stimulation effectiveness of all targeted pay sands which can be compromised if differing pressured sands are encountered during completions. Approval will allow the ability to

optimally place bottom hole locations that will in turn minimize well interference and maximize ultimate recovery of gas-in-place. Community and environmental benefits would also be realized also with lessening operational time per well location and reduce prolonged road traffic.

r. **Exhibit E-18**

To summarize the data and results reviewed thus far, 10-acre development is the optimal development from a geologic, reservoir, production, and environmental standpoint.

s. **Exhibit E-19**

This exhibit states WPX Energy's intent to commingle the Williams Fork, Iles and Sego formations in a single wellbore on 10-acre density. The exhibit explains the reasoning behind commingling and states the fact that it is the most economic method of development.

t. **Exhibit E-20**

This exhibit illustrates recent FMI data taken at the Ryan Gulch Field. The results are very similar to those shown in Exhibit A-2. From the FMI log, natural fracture and drilling induced fracture direction can be obtained. This measurement will become very important to the optimization of the bottom hole well placement in 10-acre density development.

u. **Exhibit EA-21**

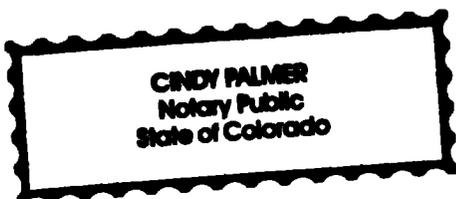
Attached is a copy of my resume.

It is my expert opinion that to maximize the ultimate recovery of gas in place in Williams Fork Formation underlying the Application Lands, ten (10) acre density drilling should be permitted and that by granting the Verified Application the waste of leaving recoverable Williams Fork gas in place will be avoided and that correlative rights will be protected.

Samuel T. Burt  
Samuel T. Burt

Subscribed to and sworn to before me this 14<sup>th</sup> day of April, 2014 by Samuel T. Burt, Senior Petroleum Engineer of WPX Energy.

My Commission expires: 01-06-2015



Cindy Palmer  
Notary Public  
Address: 1001 17<sup>th</sup> St  
Denver Co 80202

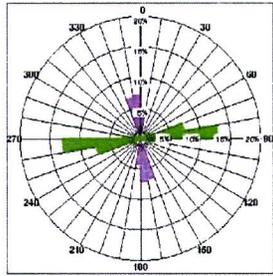
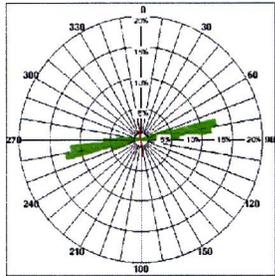
# 10-Acre Pilot Summary

	<u>Grand Valley</u>	<u>Rulison</u>	<u>Total</u>
Acres:	160	160	320
Existing Wells: (20-Acre Well Density)	8	8	16
Wells Drilled: (10-Acre Well Density)	8	8	16
Pressure Tests: (Individual Sands)	96	125	221
Microseismic Monitored Hydraulic Fracs:	6	8	14

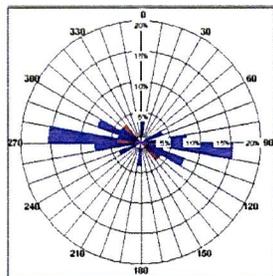
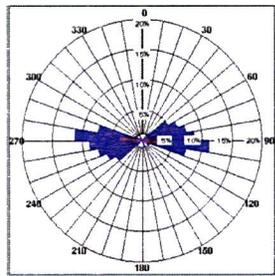
Other Tests: 4 Production Logs, 7 RFT tests, 4 FMI logs

# FMI and Microseismic Results

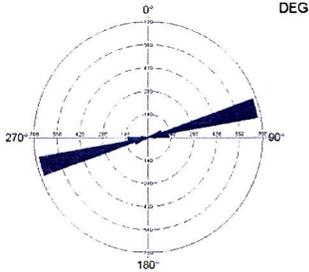
## Grand Valley



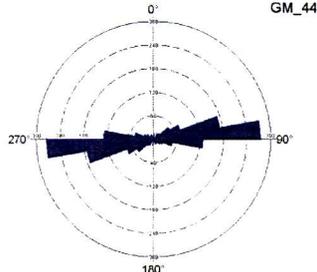
Drilling Induced Fractures



Natural Fractures



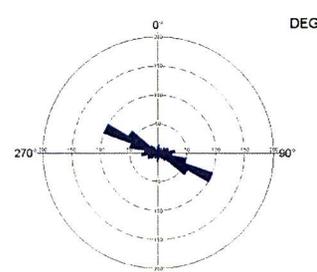
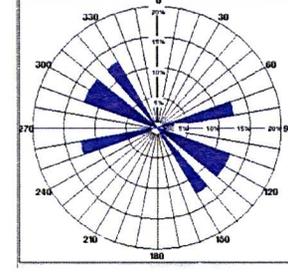
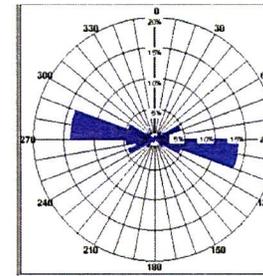
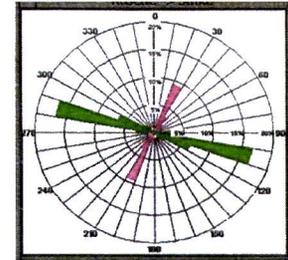
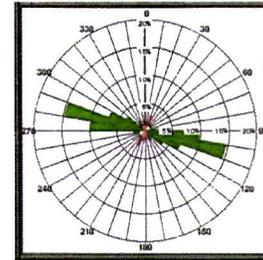
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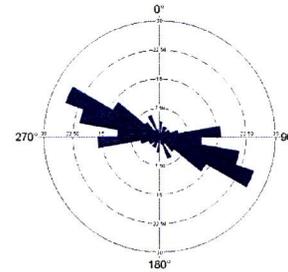
GM\_44

Hydraulic Fractures

## Rulison



DEG

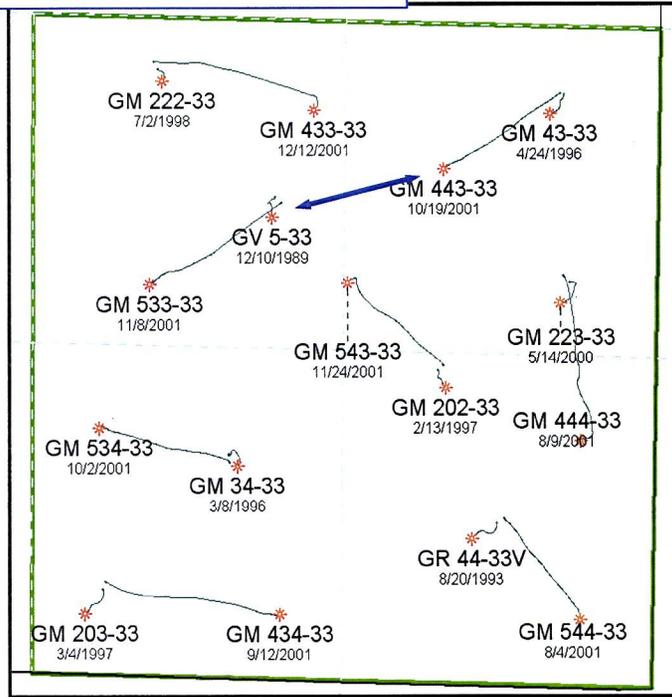


DEG

FMI and Microseismic confirm both hydraulic and natural fracture orientations are approximately the same

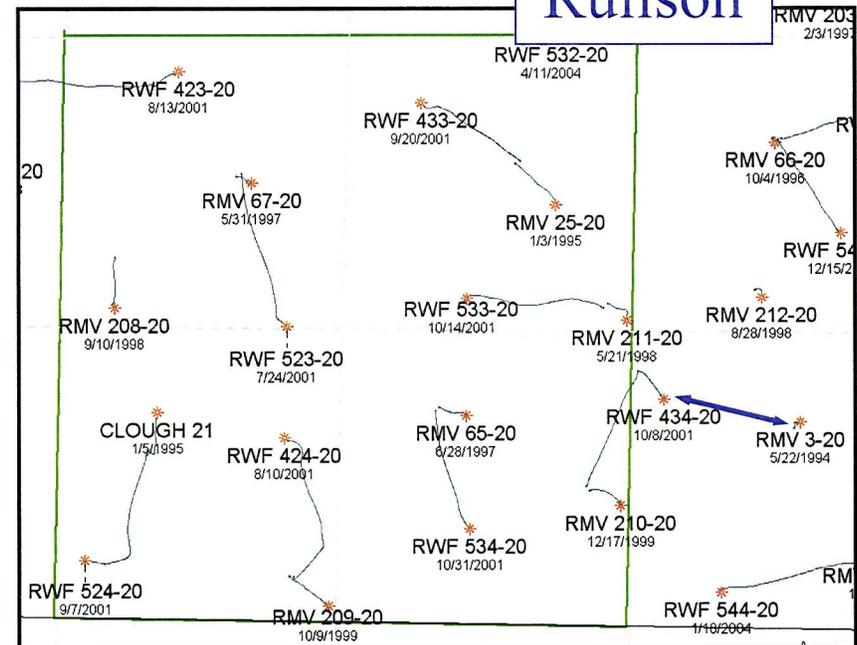
# Orientation is Critical

## Grand Valley



- 10-acre wells were drilled with no consideration of fracture orientation.
- Two wells in each pilot were on direct fracture orientation to a parent well (“Orientation wells”):  
GM 443-33  
RWF 434-20

## Rulison



- Those 2 wells on exact orientation were poorer performers and measured more depletion
- All other 10-Acre wells (including those as close as 300 feet off orientation) performed at field average

# Pore Pressure Tests – All Sands Completed

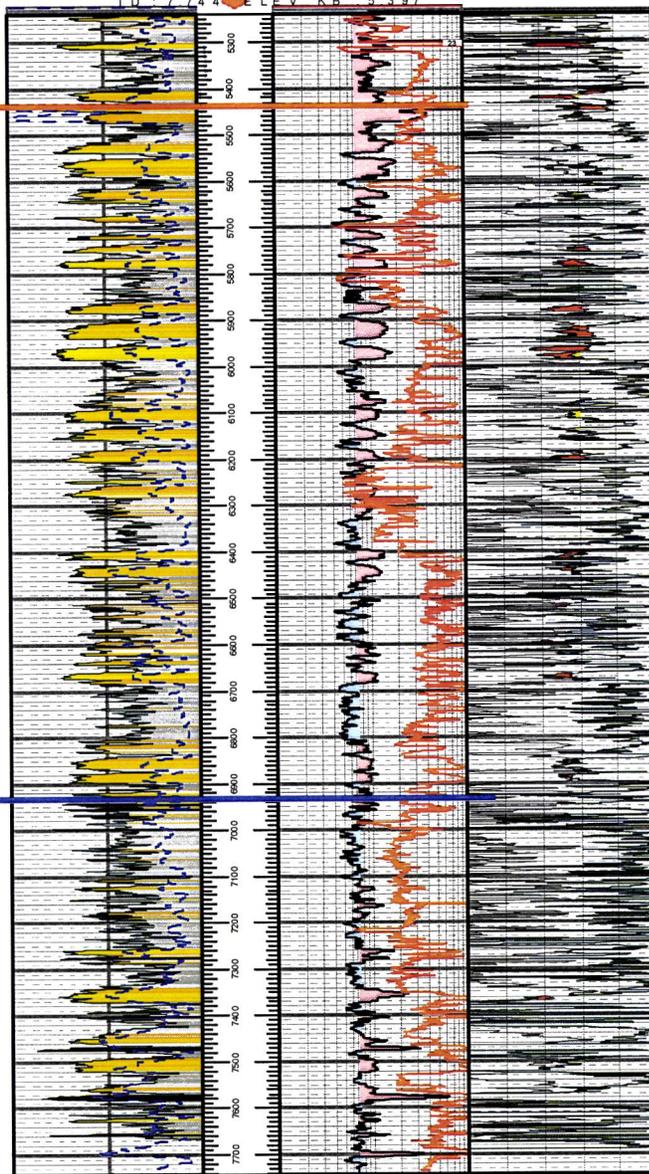
WILLIAMS FORK FORMATION

Top Gas Saturation

CAMEO FM TOP

ROLLINS MEMBER

R W F 4 3 3 - 2 0  
T 6 S 2 R 4 W S 2 0  
T D 7 7 4 2 4 W S 2 0  
L F V K B : 5 3 9 7

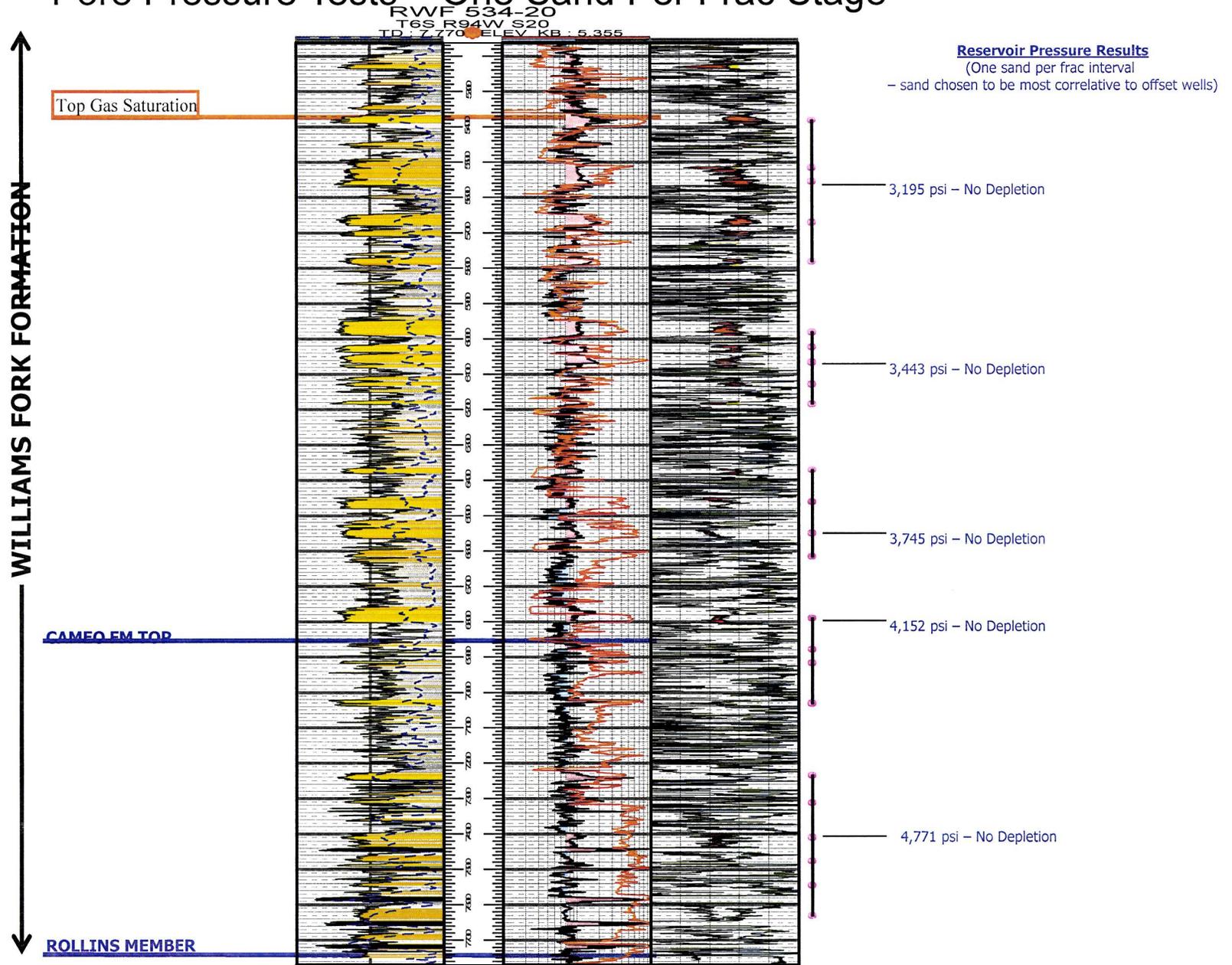


## Reservoir Pressure Results (Every sand tested that was completed)

- 2,516 psi – No Depletion
- 2,520 psi – No Depletion
- 2,522 psi – No Depletion
- 2,580 psi – No Depletion
- 2,597 psi – No Depletion
- 3,226 psi – No Depletion
- 3,297 psi – No Depletion
- 3,336 psi – No Depletion
- 2,931 psi – No Depletion
- 3,428 psi – No Depletion
- 1,987 psi – Partial Depletion
- 1,566 psi – Partial Depletion
- 3,242 psi – No Depletion
- 3,263 psi – No Depletion
- 2,793 psi – Partial Depletion
- 3,232 psi – No Depletion
- 3,020 psi – No Depletion
- 3,531 psi – No Depletion
- Bad Test
- 4,104 psi – No Depletion
- 4,050 psi – No Depletion
- 4,123 psi – No Depletion
- 4,141 psi – No Depletion
- 4,534 psi – No Depletion
- 4,788 psi – No Depletion
- 4,813 psi – No Depletion
- 5,110 psi – No Depletion
- 5,234 psi – No Depletion
- 4,905 psi – No Depletion



# Pore Pressure Tests – One Sand Per Frac Stage



## Grand Valley Pressure Testing Summary

Type of Test	# of Tests Performed	No Depletion Results	Partially Depleted Results
40-acre Pilot Pressure Tests	<b>6</b>	<b>6</b> 100%	<b>0</b> 0%
20-acre Pilot Pressure Tests	<b>7</b>	<b>6</b> 86%	<b>1</b> 14%
10-acre Pilot Total Pressure Tests	<b>96</b>	<b>71</b> 74%	<b>25</b> 26%
10-acre Pilot Pressure Tests (without "Orientation" Well)	<b>76</b>	<b>59</b> 78%	<b>17</b> 22%

**No Depletion:** Virgin reservoir pressure or slightly less than virgin reservoir pressure (gas is not being effectively produced from offset wells)

**Partially Depleted:** Less than 85% of virgin reservoir pressure (gas from some sand bodies is being produced from offset wells)

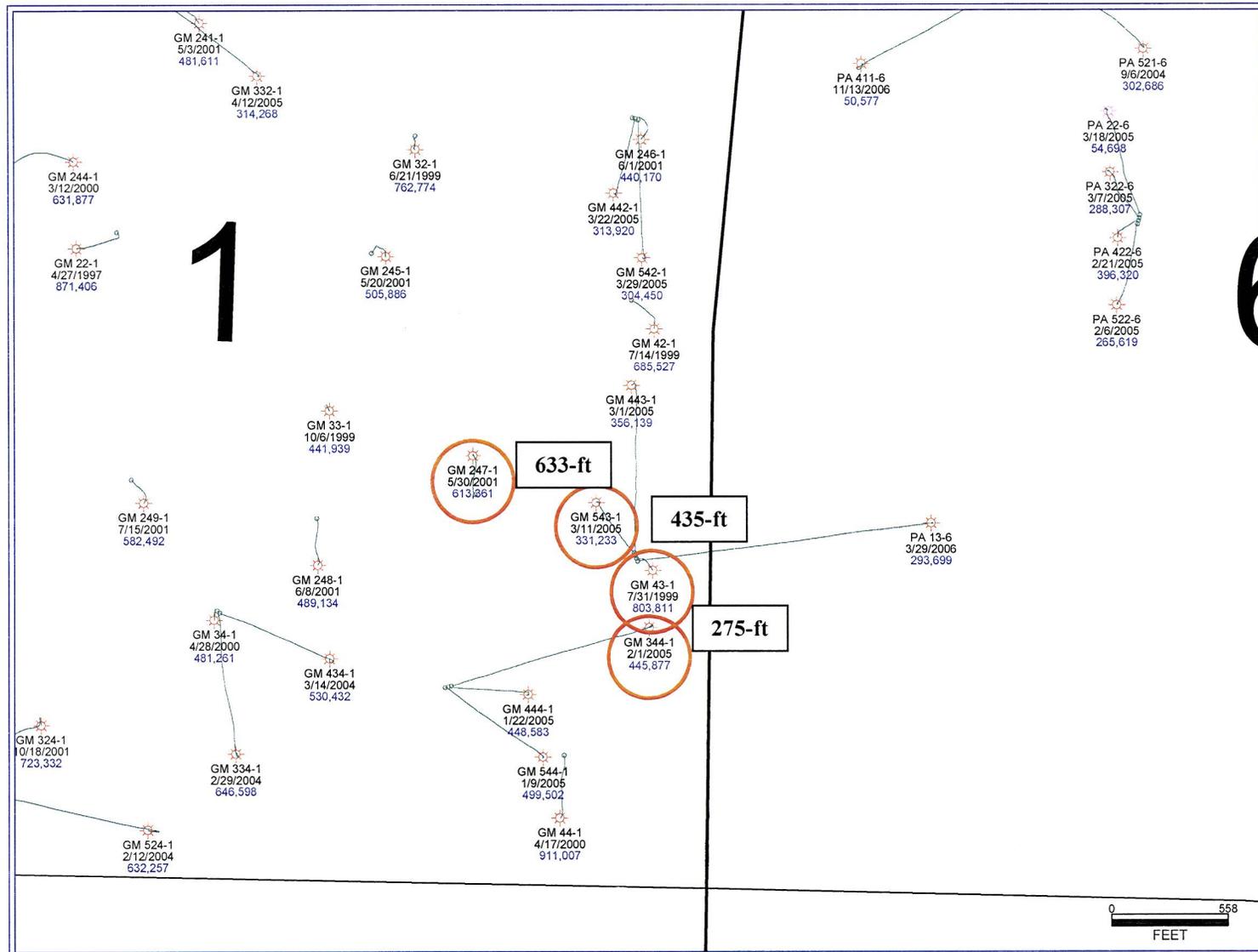
## Rulison Pressure Testing Summary

Type of Test	# of Tests Performed	No Depletion Results	Partially Depleted Results
MWX/M-site Pressure Tests	<b>7</b>	<b>7</b> 100%	<b>0</b> 0%
20-acre Pilot Pressure Tests	<b>7</b>	<b>7</b> 100%	<b>0</b> 0%
10-acre Pilot Total Pressure Tests	<b>125</b>	<b>104</b> 83%	<b>21</b> 17%
10-acre Pilot Pressure Tests (without "Orientation" Well)	<b>99</b>	<b>90</b> 90%	<b>9</b> 9%

**No Depletion:** Virgin reservoir pressure or slightly less than virgin reservoir pressure (gas is not being effectively produced from offset wells)

**Partially Depleted:** Less than 85% of virgin reservoir pressure (gas from some sand bodies is being produced from offset wells)

# Grand Valley Field – 10-acre Offset Examples

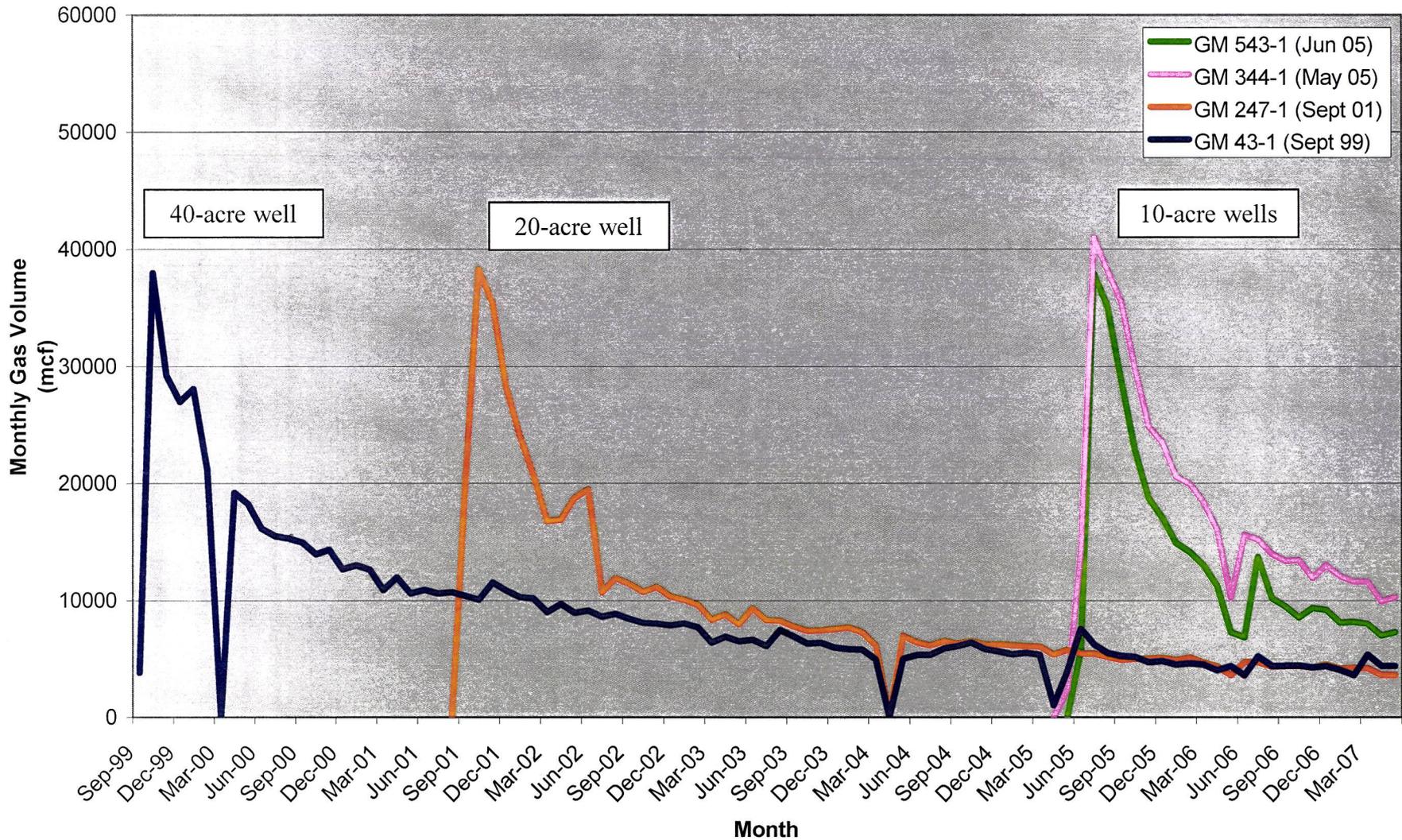


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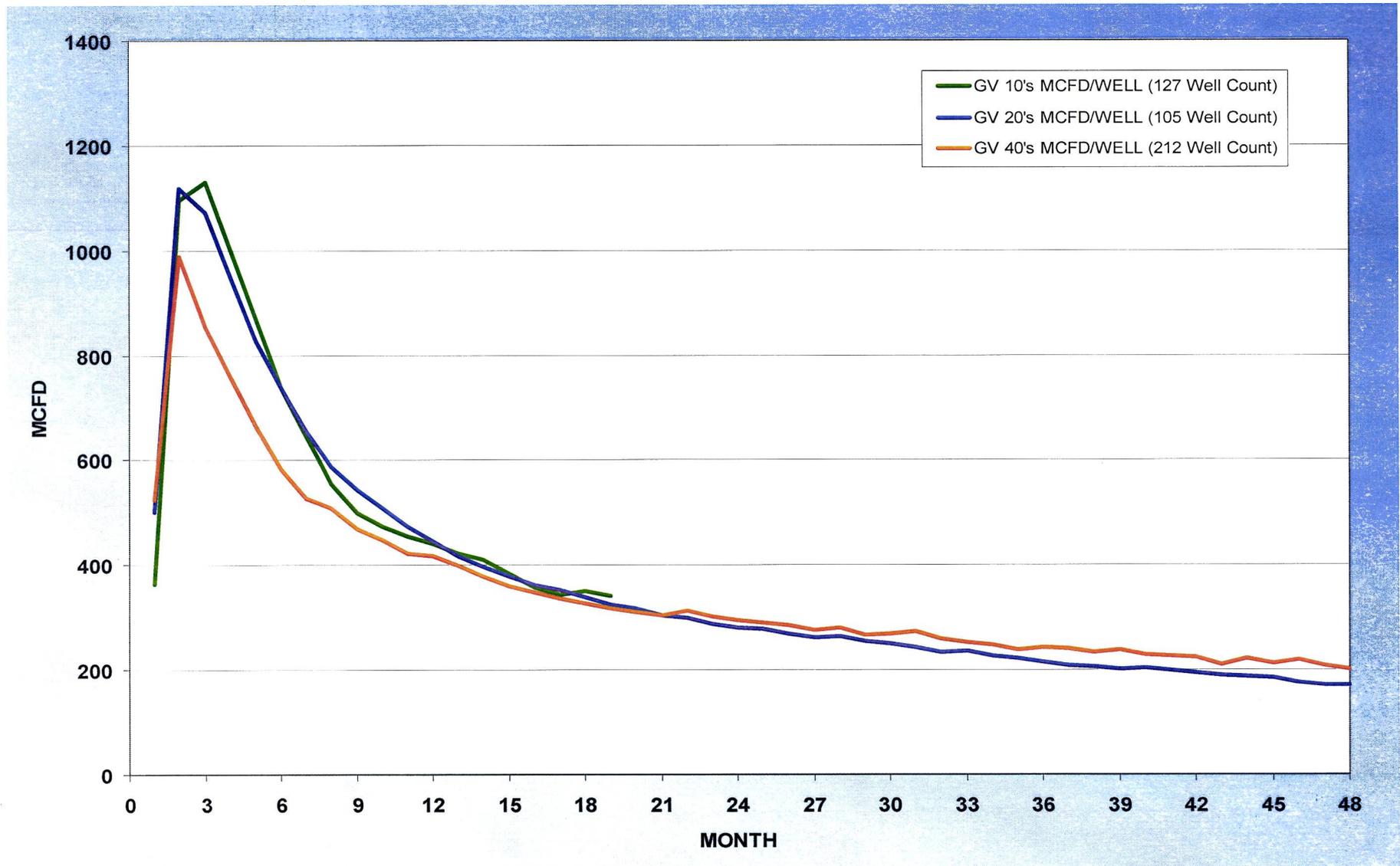


Exhibit E-8  
Cause No. 527  
Docket No. 1404-EX-01

**Grand Valley Field 4-well Example (Sec 1-7S-96W)  
10-acre Offsetting Production**

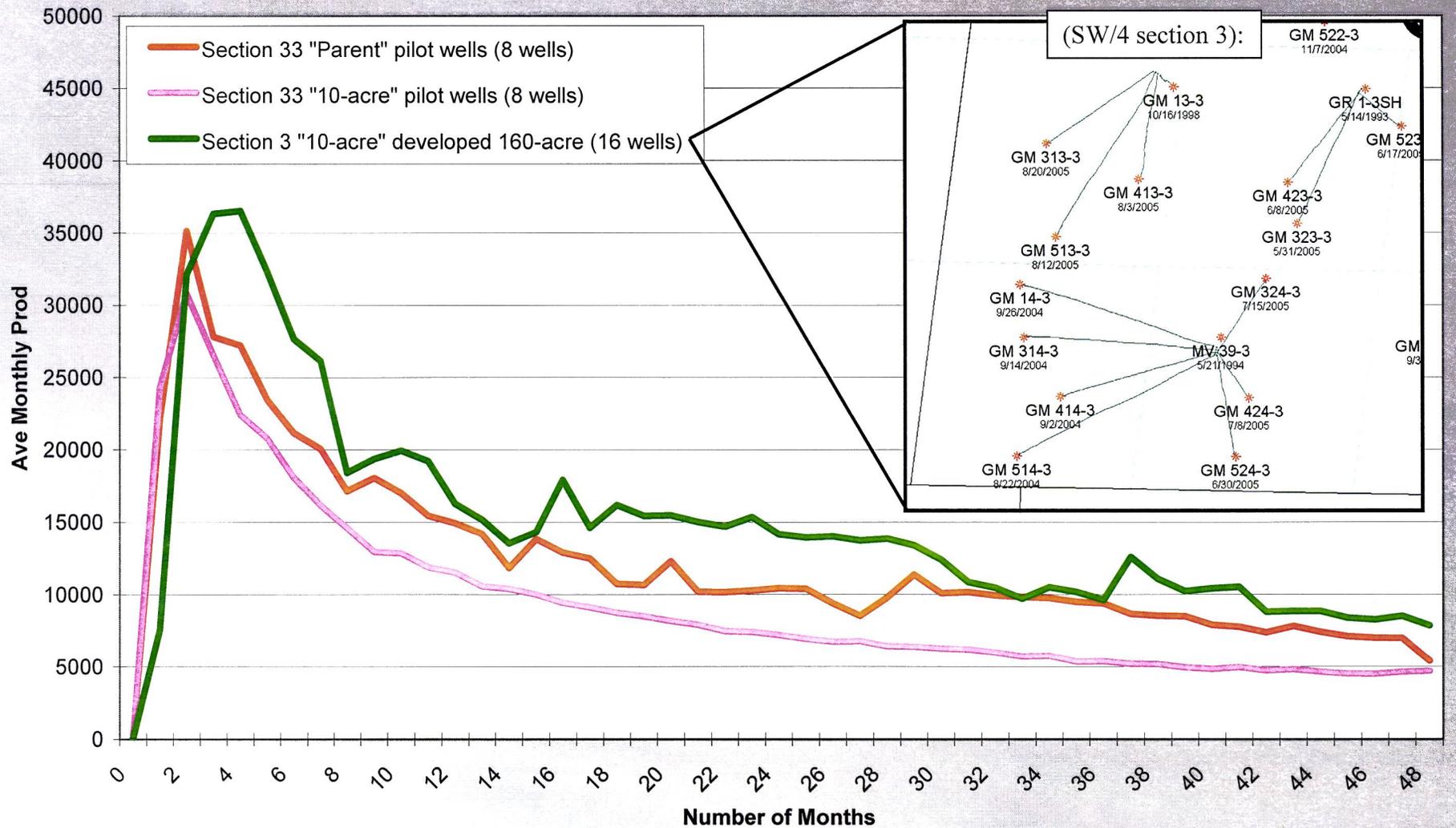


# Grand Valley Field Average Monthly Production Comparison

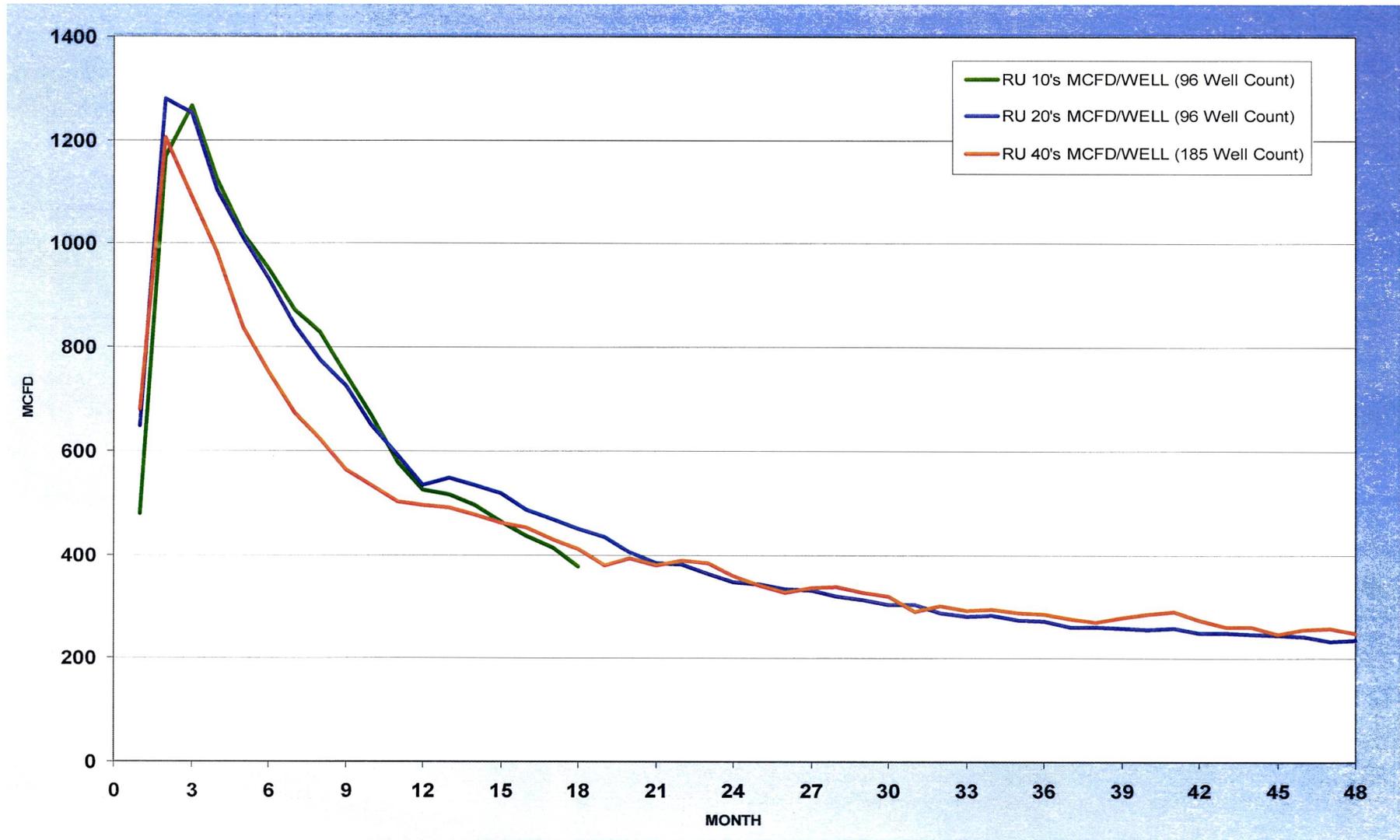


# Adjacent 160-acre in Grand Valley Field

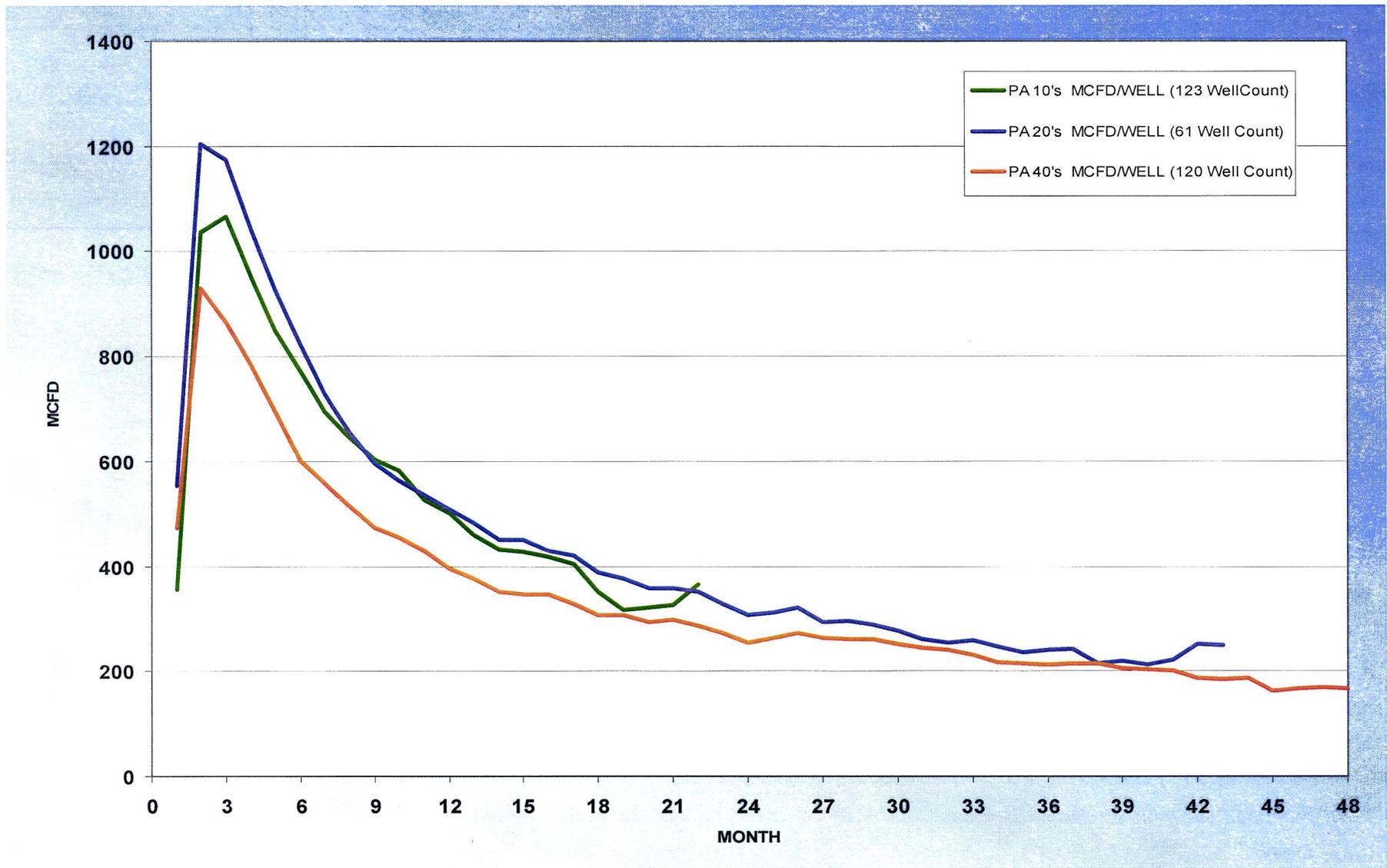
## Average Monthly Production with "Optimal" Well Placement



# Rulison Field Average Monthly Production Comparison



# Parachute Field Average Monthly Production Comparison



## Summary of Gas-In-Place Estimates and Recoverable Gas Estimates

### GAS IN PLACE PER 640 ACRES-WILLIAMS FORK

USGS 1987 Report	110.9 BCF	}	Independent Research Reports
MWX Project - Rulison	120.9 BCF		
GRI 1999 Report	70 – 170 BCF		

Barrett 1995 GIP Analysis	87.0 BCF	Grand Valley/Parachute
Barrett 93 Well Survey	122.0 BCF	Rulison

Grand Valley 2002 WXP Energy Analysis	105.0 BCF
Parachute 2002 WXP Energy Analysis	120.0 BCF
Rulison 2002 WXP Energy Analysis	135.0 BCF

### RECOVERY FACTORS AT DIFFERENT WELL DENSITIES

<u>Well Density</u>	<u>Grand Valley @ 1.20 BCF/Well</u>	<u>Parachute @ 1.35 BCF/Well</u>	<u>Rulison @ 1.55 BCF/Well</u>
640 Acres	1%	1%	1%
320 Acres	2%	2%	2%
160 Acres	5%	5%	5%
80 Acres	9%	9%	9%
40 Acres	18%	18%	18%
20 Acres	37%	36%	37%
10 Acres*	73%	72%	73%

\* Application Density



## Summary of Gas-In-Place Estimates and Recoverable Gas Estimates (cont.)

### 10-acre Pilot Area Recovery

#### **Gas in Place vs Recovery in 160 Acre Pilot area –Williams Fork**

Grand Valley 26.25 BCF per 160-acre (from 2002 analysis)

Rulison 33.75 BCF per 160-acre (from 2002 analysis)

#### **Grand Valley (SE/4 section 33):**

EUR from Parent Wells (20-Acre Density):

**11.3 BCF (43% Recovery)**

EUR from 10-Acre Wells (10-Acre Density):

**7.7 BCF + 11.3 BCF = 19.0 BCF (73% Recovery)**

#### **Rulison (E/2 SW, W/2 SE section 20):**

EUR from Parent Wells (20-Acre Density):

**12.1 BCF (36% Recovery)**

EUR from 10-Acre Wells (10-Acre Density):

**9.2 BCF + 12.1 BCF = 21.3 BCF (64% Recovery)**

# Benefits of Early 10-acre Density Drilling Approved Development

## Drilling

- Take advantage of one rig move to a location to develop 10-acre wells within reach. Less \$\$'s for rig moves and re-disturbance of pads.
- Lessening the likelihood for well problems during drilling operations; stuck pipe, sidetracking, well control issues due to possible pressure variations between individual sand bodies.

## Completions

- Increase the fracture stimulation effectiveness of all targeted pay sands which can be compromised if differing pressured sands are encountered during completions.
- Cost effective to complete multiple wells on one pad at the same time.

# Benefits of Early 10-acre Density Drilling Approved Development

## Reservoir

- Ability to optimally place bottom hole locations that will in turn minimize well interference and maximize ultimate recovery of gas-in-place.

## Community

- Lessens the assured return and re-disturbance of a well pad over and over for 40, 20, and 10-acre development.
- Would lessen operational time per well location and reduce prolonged road traffic.

# Engineering Summary

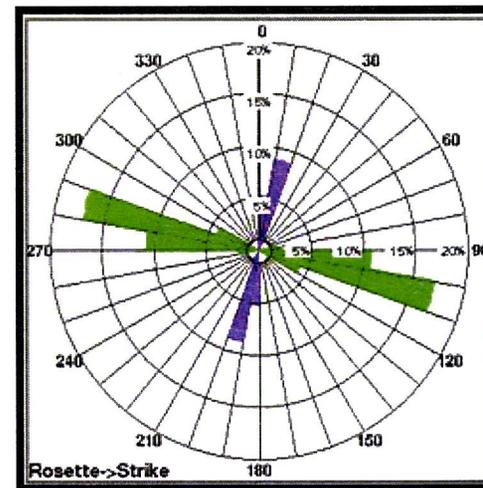
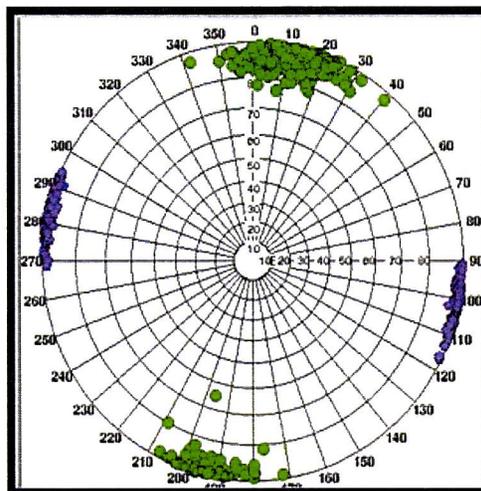
- Pressure testing and production analysis confirms geological model
- Unique opportunity to analyze an area with staggered time development (40's, 20's, and 10's)
- Bottom hole well placement very important to minimize interference
- Proven new gas recoveries on 10-acre development
- Minimize community impact – one time development

## Commingling Williams Fork with Iles and Sego

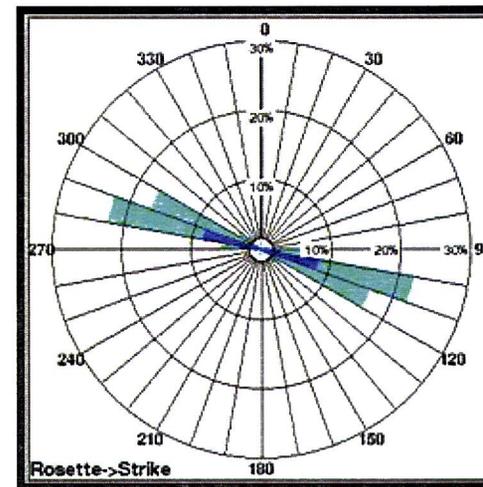
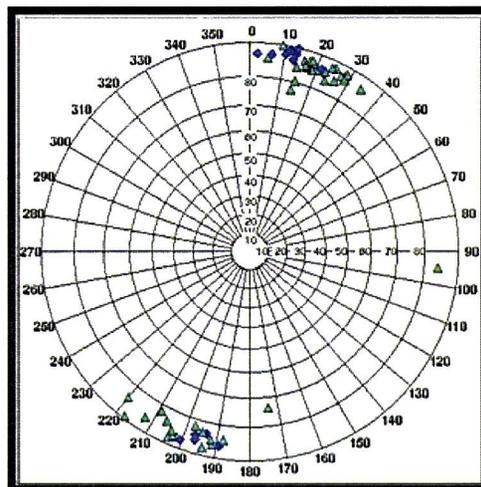
- It is our intent to drill wells, in which WPX Energy has deep rights, to the Iles and Sego formations. WPX Energy has already adopted the practice of commingling the Iles and Sego formations with the Williams Fork formation in the Piceance Basin. The results have been successful and WPX Energy believes that commingling these different horizons in a single wellbore is the most economic and efficient method.
- The economics which are shown in the attached exhibits show that drilling a stand alone Iles and Sego well is uneconomic. The incremental cost to drill and complete the Iles and Sego in a commingled Williams Fork wellbore is the most economic and efficient development scenario.
- The Iles and Sego formations are stimulated similarly to the Williams Fork during completion. Discontinuous sand bodies are present and limited entry hydraulic fracture design is implemented. Hydraulic fracture simulators have shown that fracture half lengths during a typical treatment are not propagating more than 600 feet.

# Ryan Gulch FMI Results

Drilling Induced  
Fractures



Natural Formation  
Fractures



## **Samuel "Tyler" Burt**

---

### **Experience**

09/2011 – Present      WPX Energy      Denver, CO

#### **Senior Petroleum Engineer**

- Manage completion operations in Rulison and Ryan Gulch Fields of the Piceance Basin,
- Meet production and EUR targets through first sales and use of new technology,
- Control capital spend by optimizing fracture stimulation designs,
- Interpret open and cased-hole logs, as well as cement bond logs,
- Review vendor services and performance to improve efficiency,
- Effectively communicate with field personnel regarding daily operations,
- Collaborate across disciplines (Engineering, Geology, and Ops) to solve problems,
- Communicate with regulatory agencies to maintain compliance,
- Mentor Completions summer interns and new engineers, and
- Head up frac chemical reporting to FracFocus for the asset.

07/2006 – 08/2011      FMC Technologies, Inc.      Denver, CO / Williston, ND

#### **Frac Specialist / Base Mgr / Sales Representative**

- 2.5 years in the field (Williston Basin)
- Served as company sole regional frac specialist,
- Awarded FMC Chairman's Award as part of fracturing business team,
- Analyzed and forecast future frac equipment rental market for Rocky Mt Region,
- Served as Surface Wellhead Base Mgr for Williston Basin startup facility,
- Managed safety processes,
- Coordinated service callouts and inventory management,
- Served as Northern Rockies Sales Representative,
- Helped to increase Williston revenue from \$264K 2007 to \$3.69MM in 2009,
- Decreased Williston base distribution costs from 160% of sales to 17%,
- Created and presented internal and external PowerPoint presentations, and
- Promoted positive image in community through participation in community and industry events

03/2001 – 06/2006      Halliburton Energy Services      North Sea / Rock Springs, WY  
**Stimulation Engineer / Technical Professional**

- Contributed to over 525 frac jobs, and mentored 5 new frac engineers,
- Modeled stimulations with FracPro PT and GOHFER,
- DFIT and step-rate analysis, as well as real-time pressure matching,
- Designed and executed various fracturing fluid systems (gel, water, CO2, and N2),
- Gave technical interpretation of fluid quality and pressure response,
- Proppant stimulation and matrix acidizing in both vertical and horizontal wellbores,
- Worked autonomously on technical issues,
- Maintained and ran Skandi Fjord stimulation vessel QA/QC lab and processes,
- Collaborated with Operations Mgr's to solve problems,
- Provided crew supervision on job locations,
- Forecast job chemical and proppant inventory requirements,
- Prepared post-job reports for customers, and
- Performed a North Sea well kill.

**Education**      09/1996–12/2000      Montana Tech of the University of Montana      Butte, MT  
Bachelor of Science, General Engineering (Mechanical Option) with a 3.28/4.00 graduating GPA, and passed the Engineer in Training (EIT) examination.

**Other Training**      Safety training - Halliburton, BP, Shell, and FMC; Halliburton training - Intro to Stim Design, Proppant Stim Design, Diagnostic Pumping 1, Formation Evaluation, GOHFER, Log Analysis, and Stim2001; FMC's Leadership Training Modules I & II; other - 7 Habits of Highly Effective People, Dealing With Unacceptable Employee Behavior, Defensive Driving, and Eagle Scout experience (BSA).

**Interests**      Family, my faith, hunting and fishing, sports and fitness, world travel, and music.