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

**RECEIVED**  
MAR 12 2013  
**COGCC**

IN THE MATTER OF THE APPLICATION OF AXIA )  
ENERGY, LLC FOR AN ORDER TO ESTABLISH )  
AN APPROXIMATE 2463.28-ACRE UNIT IN )  
SECTIONS 23, 24, 25, 26 AND 36, TOWNSHIP 8 )  
NORTH, RANGE 91 WEST, 6TH P.M.,AND )  
SECTION 31, TOWNSHIP 8 NORTH, RANGE 91 )  
WEST, 6TH P.M., UNNAMED FIELD, MANCOS )  
AND NIOBRARA FORMATIONS, MOFFAT )  
COUNTY, COLORADO )

CAUSE NO. 540

DOCKET NO. 1303-SP-43

ORIGINAL

REQUEST FOR RECOMMENDATION OF  
APPROVAL OF APPLICATION WITHOUT A HEARING

Axia Energy, 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 January 24, 2013, amended January 31, 2013, 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 12th day of March, 2013.

Respectfully submitted,

**AXIA ENERGY, LLC**

By:   
Jamie L. Post

Gregory J. Nibert Jr.  
Beatty & Wozniak, P.C.  
Attorneys for Applicant  
216 16<sup>th</sup> Street, Suite 1100  
Denver, Colorado 80202  
(303) 407-4499

# **Axia Energy, LLC**

Cause No. 540  
Docket No. 1303-SP-43

**AXIA ENERGY, LLC**  
**Tab McGinley – Land Testimony**

Cause 540; Docket No. 1303-SP-43  
Drilling and Spacing Unit Application – Mancos-Niobrara Formations  
Unnamed Field, Moffat County, Colorado

March 2013 Colorado Oil and Gas Conservation Commission Hearing

My name is Tab McGinley, and I am currently employed as Vice President of Land for Axia Energy LLC (“Applicant”). I graduated from Rice University in Houston, Texas in 1983 with a degree in Energy Land Management. I have over 29 years of experience in oil and gas land work. I have worked directly or in a supervisory role with the properties that are subject of this matter.

In support of Applicant’s application and my sworn testimony herein, I am submitting five (5) exhibits. This testimony and exhibits provide the supporting basis for approval of the Applicant’s request for an order establishing an approximate 2,463.28-acre drilling and spacing unit for the production of oil, gas and associated hydrocarbons from the Mancos and Niobrara formations underlying the following lands (“Application Lands”):

Township 8 North, Range 92 West, 6<sup>TH</sup> P.M.  
Section 23: SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$   
Section 24: W $\frac{1}{2}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$   
Section 25: Lots 1-5, N $\frac{1}{2}$ N $\frac{1}{2}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ ; a/d/a ALL  
Section 26: W $\frac{1}{2}$ , NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$   
Section 36: Lots 1, 5; a/d/a N $\frac{1}{2}$   
Township 8 North, Range 91 West, 6<sup>TH</sup> P.M.  
Section 31: Lots 8, 9, 14, 15; a/d/a W $\frac{1}{2}$ W $\frac{1}{2}$

Moffat County, Colorado.

Exhibit L-1: Location Map; Mineral and Leasehold Ownership Map:

Exhibit L-1 is a map showing the location of the Application Lands and the leasehold ownership. The Application Lands consist of 73.48% fee mineral interests, .48% federal mineral interests and 26.04% state mineral interests. The following parties own leasehold or unleased mineral interests in the Application Lands:

INTEREST HOLDER	% WI
AXIA ENERGY, LLC	57.78555%
OXY USA INC.	19.32302%
ALLEN & KIRMSE, LTD.	1.94862%
PETRO-HUNT, LLC	0.37888%
QUICKSILVER RESOURCES, INC.	3.62241%
U.S.A. C/O BUREAU OF LAND MANAGEMENT	0.48553%
A.D. GENECOV, <i>ET. AL.</i>	16.45599%
TOTAL:	100.00000%

Exhibit L-2: Property Location Plat:

The property location plat and well survey for the Bulldog 23-41H-892 well are currently in progress. The Well has a projected surface location of 1320' Feet From North Line and 300' Feet From East Line in the NE1/4NE1/4 of Section 23, Township 8 North, Range 92 West and a projected bottomhole location of 1945' Feet From South Line and 600' Feet From East Line in the NE1/4SE1/4 of Section 26, Township 8 North, Range 92 West. The Applicant has conformed to its statement that the initial perforation of the Mancos and Niobrara formations, and the ultimate bottom hole location of the well, is not closer than 600' feet from the boundaries of the 2,463.28-acre drilling and spacing unit.

Exhibit L-3: Surface Ownership Map:

Exhibit L-3 is a map showing the surface ownership of the Application lands. The Applicant holds a surface use agreement with the surface owner John G. & Steve G. Raftopolous, owning 100% of the surface being used on the Application Lands.

Exhibit L-4: Topographic Map:

Exhibit L-4 is a map showing the topography of the Application lands.

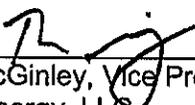
Approval of a drilling and spacing unit would allow for a less impactful surface development plan. Given common interest within the unit, tank batteries would be smaller by virtue of combining oil and water tanks. Multiple well pad development allows for fewer impactful rig moves as well as centralized completion pits. Centralized completion pits allow for the construction of water gathering and supply lines. By constructing fewer completion pits and by pumping the needed water to location, thousands of trucked water loads are saved for each well completion. Fewer truck loads results in less dust, road damage and less traffic. By allowing for these spacing units, over 40 acres of potential surface pads can be saved for the landowner.

Exhibit A: Interested Parties:

Attached as Exhibit A are all interested parties within the Application Lands. Based upon our examination of relevant documents all of the interested parties received proper notice. As of the date of this testimony, the Applicant is not aware of any unresolved protests or objections to the Application.

**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.

  
\_\_\_\_\_  
Tab McGinley, Vice President of Land  
Axia Energy, LLC

STATE OF COLORADO

)  
) ss.  
)

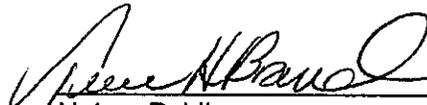
CITY AND COUNTY OF DENVER

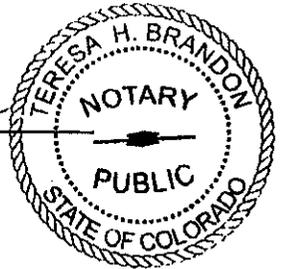
The foregoing instrument was subscribed and sworn to before me this 11<sup>th</sup> day of March, 2013, by Tab McGinley, as Vice President of Land for Axia Energy, LLC.

Witness my hand and official seal.

[SEAL]

My commission expires: 8/7/16

  
Notary Public



## ***Tab McGinley***

2993 South Milwaukee Circle, Denver CO 80210

Email: [tmcginley@axiaenergy.com](mailto:tmcginley@axiaenergy.com)

Phone (720) 371-6473

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### ***Professional Experience***

#### ***Axia Energy, LLC***

**Vice President of Land**

**October 2010 to Present, Denver, CO**

- Currently working projects in Piceance and Sand Wash Basins of Colorado and Uinta Basin of Utah

#### ***Ultra Resources, Inc.***

**Land Manager**

**May 2005 to April 2010, Englewood, CO**

- Managed assets in Pinedale & Jonah Fields of Wyoming and Marcellus Shale play in Pennsylvania

#### ***Bill Barrett Corporation***

**Senior Landman**

**July 2002 to May 2005, Denver, CO**

- Assembled projects and initiated drilling programs in Colorado, Montana, North Dakota, Utah, and Wyoming

#### ***The St. Croix Group***

**Land Manager and Working Interest Partner,**

**Manager of Operations/Corporate Secretary for St. Croix Operating Inc.**

**1989 to 2002, Denver, CO**

- Assembled, marketed, negotiated, and conducted closings on over 50 drilling, exploratory, seismic, and producing projects and properties located in Louisiana, Utah, Wyoming, North and South Dakota, Montana, and Colorado
- Acted as Corporate Secretary and Manager of Operations for St. Croix Operating Inc.

#### ***Stephen Smith, Inc.***

**Staff Landman**

**1986 to 1989, Denver, CO**

- Staff Landman for Independent Oil Producer working in California, Louisiana, North Dakota, Wyoming, Utah, and Oklahoma Panhandle.

## Professional Experience (Continued)

***Murff F. Bledsoe, III***

**Independent Lease Broker**

**1984 to 1986, Houston, TX and Denver, CO**

- Ran title and bought leases in South Texas, East Texas, Western Louisiana, North Dakota, Nebraska, and Western Wyoming

## ***Professional Affiliations***

- **2008 to 2010** Former Board Member of *Petroleum Association of Wyoming (PAW)*
- **2009 to 2010** Former Board Member of *Marcellus Shale Coalition*
- **2002 to 2005** Member of Uintah Basin Advisory Committee (UBAC) for IPAMS; former chairman of Energy Days, an annual IPAMS event held in Vernal Utah.
- **2000 to 2004** Former Board Member and Sponsorship Chairman, *Denver Prospect Fair & Technofest*, an annual event held at the Colorado Convention Center in Denver, CO
- **1986 to present** Member of *American Association of Professional Landmen*
- **1986 to present** Member, former Vice President & Treasurer, *Denver Association of Petroleum Landmen*

## ***Education***

- **1983 B.A** *Energy Land Management*, Rice University, Houston, Texas

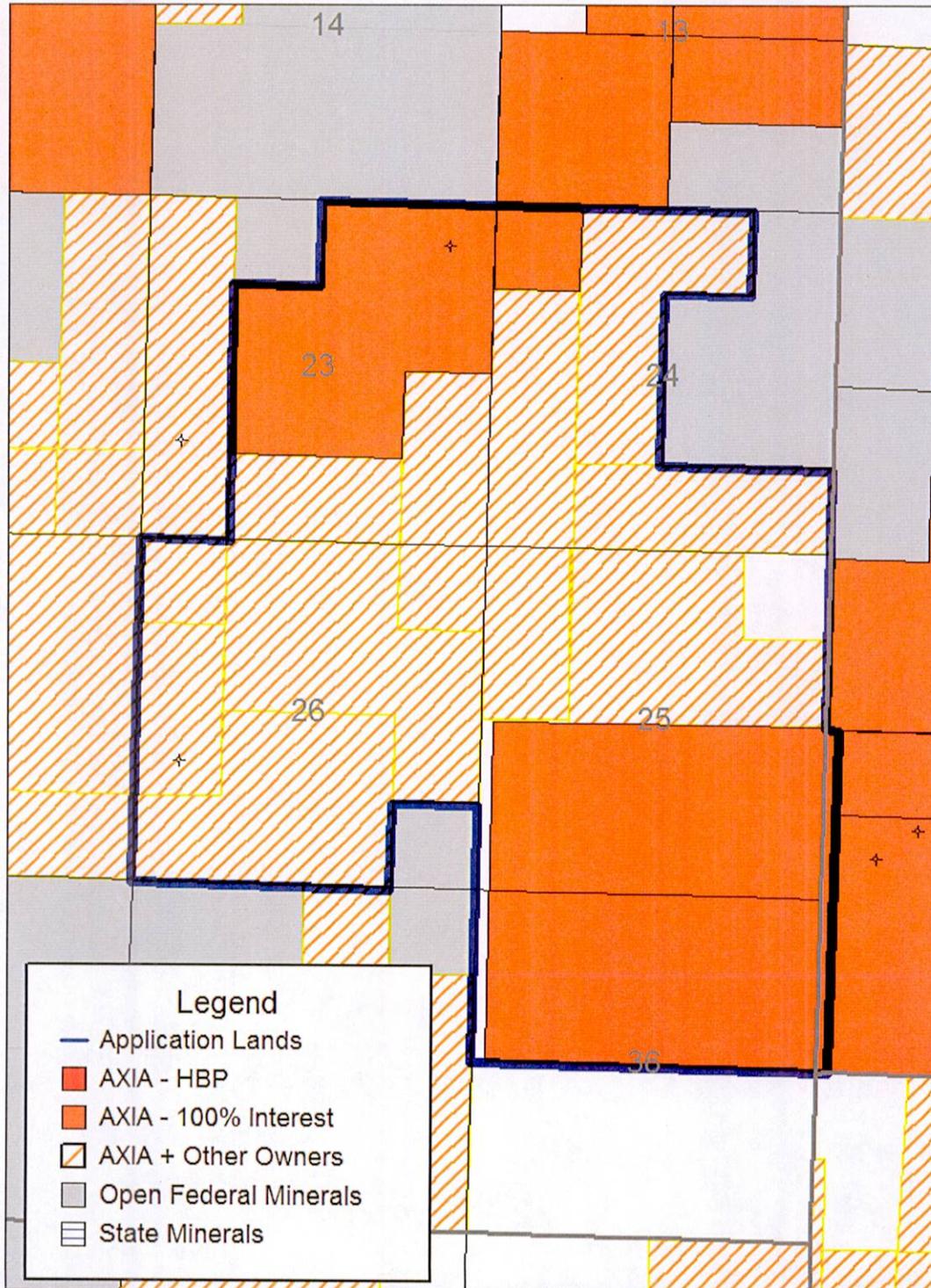
**Exhibit L-1: Cause 540, Docket No. 1303-SP-43**  
**Location Map; Mineral and Leasehold Ownership Map**

Well Survey Pending

Sections 23, 24, 25, 26 and 36, Township 8 North, Range 92 West

Section 31, Township 8 North, Range 91 West

Moffat County, Colorado



**Exhibit L-2: Cause 540, Docket No. 1303-SP-43**

**Property Location Plat: Surface Location**

**Well Survey Pending**

Sections 23, 24, 25, 26 and 36, Township 8 North, Range 92 West

Section 31, Township 8 North, Range 91 West

Moffat County, Colorado

**Exhibit L-2: Cause 540, Docket No. 1303-SP-43**

**Property Location Plat: Bottom Hole Location**

**Well Survey Pending**

Sections 23, 24, 25, 26 and 36, Township 8 North, Range 92 West

Section 31, Township 8 North, Range 91 West

Moffat County, Colorado

Exhibit L-3: Cause 540, Docket No. 1303-SP-43  
Surface Ownership Map

Well Survey Pending

Sections 23, 24, 25, 26 and 36, Township 8 North, Range 92 West  
Section 31, Township 8 North, Range 91 West  
Moffat County, Colorado

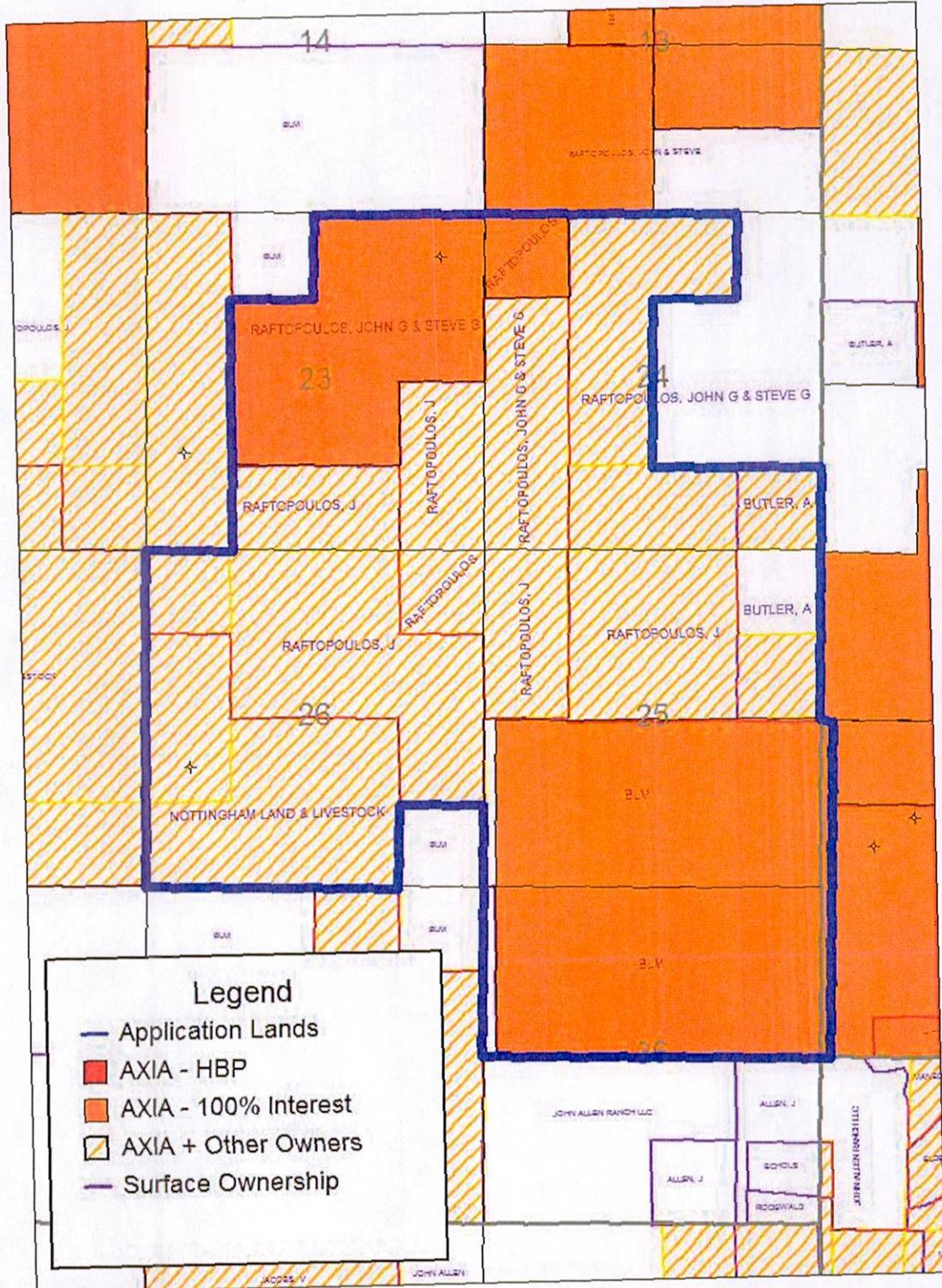


Exhibit L-4: Cause 540, Docket No. 1303-SP-43

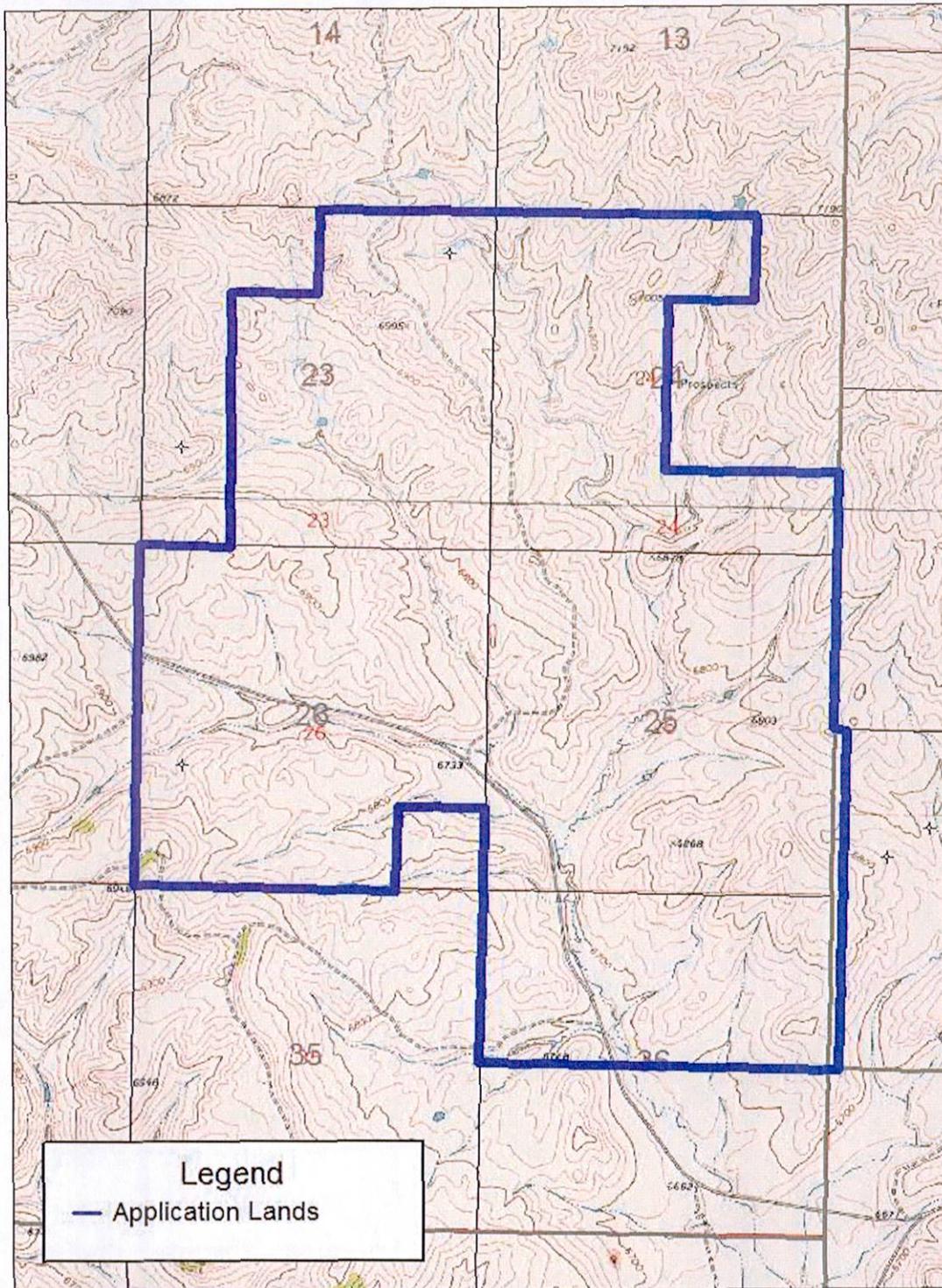
Topographic Map

Well Survey Pending

Sections 23, 24, 25, 26 and 36, Township 8 North, Range 92 West

Section 31, Township 8 North, Range 91 West

Moffat County, Colorado



**Exhibit A:  
Interested Parties**

AXIA ENERGY, LLC  
1430 LARIMER STREET, SUITE 400  
DENVER, CO 80202

GEORGE VAUGHT, JR  
PO BOX 13557  
DENVER, CO, 80201-3557

OXY USA INC.  
5 GREENWAY PLAZA, SUITE 110  
HOUSTON, TEXAS 77046

GLENN H. BRACKEN  
3420 BLACKBURN  
DALLAS, TX, 75219

PETRO-HUNT LLC  
400 E. BROADWAY AVE., SUITE 414  
BISMARCK, ND 58501

GLENN H. BRACKEN TRUST C/O JOHN A &  
RHODA S. BRACKEN, TR.  
3420 BLACKBURN  
DALLAS, TX, 75219

ALLEN & KIRMSE, LTD  
209 5TH ST.  
LAFAYETTE, LOUISIANA, LA 70501

GRANT FLENKER, JR.  
2231 RODNEY ST.  
COUNCIL BLUFFS, IA 57501

A.D. GENECOV  
PO BOX 132450,  
TYLER, TX, 75713-2450

IDA BRACKEN LEWIS TRUST, J.A. & R.S.  
BRACKEN TRUSTEES  
P.O. BOX 180  
TYLER, TX 75710

ADDIE BRACKEN PRICE  
C/O BRACKEN OIL CO  
PO BOX 130129, TYLER, TX, 75713-012

J. PAUL PRICE C/O BRACKEN OIL CO.  
P.O. BOX 334087  
SAN ANTONIO, TX 78625-4087

ADDIE BRACKEN PRICE TRUST  
C/O BRACKEN OIL CO  
PO BOX 130129, TYLER, TX, 75713-012

JAMES GARRETT  
8826 VISTA OAKS CIRCLE  
DALLAS, TX 75243

C-WALL INVESTMENTS  
685 WEST ESCALANTE DR.  
ST. GEORGE, UT 84790

JEFF M. BRACKEN  
3600 OLD BULLARD RD  
TYLER, TX, 75701

JEFF M. BRACKEN TRUST  
3600 OLD BULLARD RD  
TYLER, TX, 75701

TAX FREE STRATEGIES, LLC  
C/O KEITH OWENS  
12853 BANYAN CREEK DRIVE  
FORT MYERS, FL 33908

MICHAEL J. SHANNON  
722 STEINER ST.  
SAN FRANCISCO, CA 94117

THE BOARD OF COUNTY COMMISSIONERS  
OF MOFFAT COUNTY, STATE OF  
COLORADO  
221 W. VICTORY WAY  
CRAIG, CO 81625

NOTTINGHAM LAND & LIVESTOCK  
PO BOX 969  
CRAIG, CO, 81626-0969

THE JOHN N. CLAWSON FAMILY  
PARTNERSHIP  
PO BOX 29585  
SAN FRANCISCO, CA, 94129-0585

RESOURCE MANAGEMENT CO.  
782 E. LOGAN, AVE.  
SALT LAKE CITY, UT 84105

THE RUDMAN PARTNERSHIP, LTD  
4700 FIRST CITY CENTER,  
1700J PACIFIC AVE, DALLAS, TX 75201-4670

ROSS OIL COMPANY  
1012 FIRST PLACE  
TYLER, TX, 74702-0000

THE SATER FAMILY PARTNERSHIP, LP  
C/O RONALD SATER  
P.O. BOX 2509  
EVANSVILLE, IN 47728-0509

REX ROSS WALKER  
911 KIMBARK ST.  
LONGMONT, CO 80501

THE SKEETERS COMPANY  
3708 CANYON PASS TRAIL  
BURLESON, TX 76083

RICHARD H. WINDER, TRUSTEE  
9115 BONTURA DRIVE  
GRANBURY, TX, 76049

TRACY WINDER  
BOX 276, CRAIG  
CO, 81626-0000

SAM T. BRACKEN  
C/O NANCY BRACKEN WALDEN,  
POB 8029, TYLER, TX, 75711-8029

VAUGHEY & VAUGHEY  
PO BOX 14006  
JACKSON, MS 39236

SAM T. BRACKEN TRUST  
C/O NANCY BRACKEN WALDEN,  
POB 8029, TYLER, TX, 75711-8029

LITTLE SNAKE FIELD OFFICE  
BUREAU OF LAND MANAGEMENT  
ATTENTION: MARTY O'MARA  
455 EMERSON STREET  
CRAIG, COLORADO 81625

JEFF COMSTOCK  
MOFFAT COUNTY  
221 W VICTOR WAY, SUITE 130  
CRAIG, CO 81625

KENT KUSTER  
COLORADO DEPARTMENT OF  
PUBLIC HEALTH & ENVIRONMENT  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530

MICHAEL WARREN  
ENERGY LIAISON  
COLORADO PARKS AND WILDLIFE  
NORTHWEST REGIONAL OFFICE  
711 INDEPENDENT AVE.  
GRAND JUNCTION, CO 81505

Wells currently being staked

**AXIA ENERGY, LLC**

**Brian Berwick – Geology Testimony**

Cause 540; Docket No. 1303-SP-43

Mancos-Niobrara Formations

Unnamed Field, Moffat County, Colorado

March 2013 Colorado Oil and Gas Conservation Commission Hearing

My Name is Brian Berwick and I am currently employed as Senior Geologist by Axia Energy ("Axia"). I received a Bachelors of Science in Geology degree from the University of Colorado, Denver in 2003 and a Master's of Science degree in Petroleum Geology from the Colorado School of Mines in 2008. I have 10 years of experience in oil and gas geology. I am familiar with the lands described, and the matters set forth in the March 25<sup>th</sup> and 26<sup>th</sup> verified application ("Application").

In support of Axia's application in the above referenced docket, I am submitting the following nine exhibits. These exhibits are attached to my sworn testimony and form the bases of Axia's application for an order establishing one 2463.28 acre spacing unit for the drilling of one or more horizontal or vertical wells for production of oil, gas and associated hydrocarbons from the Mancos and Niobrara formations underlying sections 23, 24, 25, 26 and 36 of Township 8 North, Range 92 West, Moffat County, Colorado.

**Exhibit #G1 – Type Log**

Exhibit #G1 is a type log that shows the Mancos and Niobrara formations. The inset map shows the location of the type log relative to the Application Land. The log has two tracks: gamma ray and resistivity. The top of the Niobrara is marked by a sharp increase in gamma ray intensity as well as a general increase in resistivity. In the Mancos several relatively sandy intervals are indicated by a decrease in gamma ray intensity. In the Sand Wash Basin production has been established from both the Niobrara and Mancos, predominantly from vertical well bores. On the south and east flank of the basin historic Niobrara producers average more than 150,000 barrels of oil per well.

#### Exhibit #G2 – Correlation Cross-Section and Mancos and Niobrara logs

Exhibit #G2 shows a two well cross-section in the general area of the Application Lands. The logs have up to three tracks: gamma ray, resistivity and density porosity. The cross section shows the regional relationships of the Mancos and Niobrara and the isopach interval that is included in exhibit #4. This cross section demonstrates that the Mancos and Niobrara formations are present throughout the Application Lands to be spaced.

#### Exhibit #G3 – Structure Contour Map

Exhibit #G3 is a subsea structure map constructed on the top of the Niobrara formation. The contour interval of the map is 200 feet. Structural dip in the Application lands is approximately 6.0 degrees to the north – northeast. Production from the Niobrara formation has been established in all three Bulldog wells independent of structural closure. Production of this nature demonstrates the characteristic of a shale resource play throughout the Application Lands to be spaced.

#### Exhibit #G4 – Isopach Map: Top Mancos to Base Niobrara

Exhibit #G4 is an isopach map of the interval from the top of the Mancos to the base of the Niobrara. Total thickness of this interval on the Application lands averages 4050'. This isopach map demonstrates that the Mancos and Niobrara formations are present throughout the Application Lands to be spaced.

#### Exhibit #G5

Exhibit #G5 is a Horizontal Wellbore Overview of the Bulldog 26-34H through the Niobrara formation. The log has three tracks: gamma ray, total gas and mud weight. The total gas curve in track #2 of the wellbore overview exhibits elevated levels of formation gas throughout the curve and lateral sections of the well. This demonstrates continuous hydrocarbon saturation characteristic of a shale resource play. Additionally, the elevated mud weight necessary to control formation gas– shown on track #3– demonstrates the Niobrara formation hydrocarbon reservoir is over-pressured. This over-pressured condition is a characteristic of shale resource plays. All three Bulldog wells encountered similar over-pressured conditions demonstrating that over-pressured Niobrara formation hydrocarbon reservoirs are present throughout the Application Lands to be spaced.

#### Exhibit #G6

Exhibit #G6 is a Horizontal Wellbore Overview accompanied by the Pilot-Hole Log of the Bulldog 20-12H through the Niobrara formation. The horizontal log has three tracks: gamma ray, total gas and mud weight. The pilot-hole log has three tracks: gamma ray, resistivity and total gas. The total gas curve in track #2 of the wellbore overview exhibits elevated levels of formation gas throughout the curve and lateral sections of the well. This demonstrates continuous hydrocarbon saturation characteristic of a shale resource play. Additionally, the elevated mud weight necessary to control formation gas– shown

on track #3— demonstrates the Niobrara formation hydrocarbon reservoir is over-pressured. This over-pressured condition is a characteristic of shale resource plays. All three Bulldog wells encountered similar over-pressured conditions demonstrating that over-pressured Niobrara formation hydrocarbon reservoirs are present throughout the Application Lands to be spaced.

#### Exhibit #G7

Exhibit #G7 is a Horizontal Wellbore Overview of the Bulldog 5-31H through the Niobrara formation. The log has three tracks: gamma ray, total gas and mud weight. The total gas curve in track #2 of the wellbore overview exhibits elevated levels of formation gas throughout the curve and lateral sections of the well. This demonstrates continuous hydrocarbon saturation characteristic of a shale resource play. Additionally, the elevated mud weight necessary to control formation gas— shown on track #3— demonstrates the Niobrara formation hydrocarbon reservoir is over-pressured. This over-pressured condition is a characteristic of shale resource plays. All three Bulldog wells encountered similar over-pressured conditions demonstrating that over-pressured Niobrara formation hydrocarbon reservoirs are present throughout the Application Lands to be spaced.

#### Exhibit #G8

Exhibit #G8 is a well log that shows typical mud gas characteristics of the Mancos and Niobrara formations throughout the area of the Application Lands. Track one contains a gamma ray curve while track two contains a total gas curve. The total gas curve exhibits elevated levels of formation gas throughout the Mancos and Niobrara formations. This suggests the presence of hydrocarbons throughout both formations and presents the potential to exploit the resource with multiple, stacked lateral wellbores.

#### Exhibit #G9— Offset Well Locations

Exhibit #G9 shows all existing well locations on and in the vicinity of the Application lands. Note that very few wells currently exist within the Application lands. Those that are present are either dry holes, or produce from formations above the Mancos and Niobrara formations.

The Niobrara formation is a calcareous shale deposited throughout a broad area in the Cretaceous Western Interior Seaway. In addition to clay and carbonate, silt and clay sized quartz grains are common constituents of the Niobrara formation. Due to its fine grained nature, the reservoir permeability of Niobrara formation is very low - typically in the microdarcy range.

The Mancos formation is composed of predominantly of clay rich shale, and like the Niobrara formation, it was deposited throughout a broad area in the Cretaceous Western Interior Seaway. In addition to clay, siltstone and fine grained sandstone are common constituents of

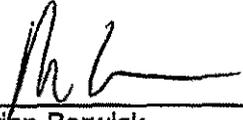
the Mancos formation. Due to its fine grained nature, the reservoir permeability of Niobrara formation is very low - typically in the microdarcy range.

Due to the widespread nature of deposition of the Mancos and Niobrara within the Cretaceous Seaway, it is my conclusion that both formations underlie the Application Lands to be spaced.

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, my testimony and in the exhibits are true, correct and accurate.

**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.



\_\_\_\_\_  
Brian Berwick  
Senior Geologist  
Axia Energy, LLC

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

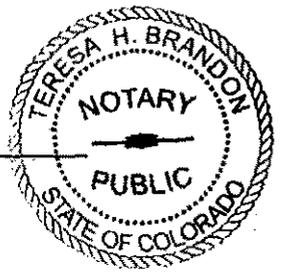
The foregoing instrument was subscribed and sworn to before me this 11<sup>th</sup> day of March, 2012, by Brian Berwick, as Senior Geologist for Axia Energy, LLC.

Witness my hand and official seal.

[SEAL]

My commission expires: 8/7/16

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



## Brian R. Berwick

7634 Bison Court  
Littleton, Colorado 80125  
303.204.2356  
[bercycle@gmail.com](mailto:bercycle@gmail.com)

### Petroleum Exploration Geologist

#### PROFESSIONAL WORK HISTORY

##### Axia Energy

February 2012 - Current

*Senior Geologist - Denver, CO*

Exploration Geologist with primary responsibility for prospect generation in several Rocky Mountain Basins to include the Sand Wash Basin, Powder River Basin Uintah Basin, Greater Green River Basin, Wind River Basin, Rock Springs Uplift as well as the Illinois and Michigan Basins.

##### Samson Resources Company

June 2004-February 2012

*District Geologist - Denver, CO  
Williston Basin, ND & MT*

Developed and marketed normally pressured and over-pressured Bakken/Three Forks prospects. Defined the petroleum systems, stratigraphy, depositional environment, petrophysics, rock mechanics and geochemistry for both the Three Forks and Bakken Formations throughout the Williston Basin.

Generated multiple non-Bakken oil prospects in carbonate rocks within the Williston basin to include:

- Fractured resource play within the Lodgepole Formation encompassing 250,000 acres and recoverable reserves of 80 - 100 MBO
- Two prospects and 6 leads within the Dawson Bay Formation. Potential recovery of 20 MBO within the prospects and lead areas
- Generated multiple Red River prospects throughout the Williston Basin utilizing DST interpretation, log analysis and 2-D mapping
- Generated multiple prospects in the Mission Canyon and Ratcliffe Formations in both Montana and North Dakota

Successfully drilled and steered 37 horizontal wells (640 & 1280s) within the Sanish member of the Three Forks Formation, 8 horizontal wells with the Middle Bakken member of the Bakken Formation and 1 horizontal well in the Lodgepole Formation.

- Integrate all subsurface data in mapping including formation tops, fault cuts, sequence stratigraphic framework and reservoir rock properties

- Used industry standard software (Powerlog) to identify and map by-passed pay within the Williston Basin. Currently using my petrophysical and rock mechanics/physics models to identify areas of new potential for ductile vs. brittle zones.

*Green River Basin, WY*

- Re-defined the Lower Almond member of the Almond Formation within the Greater Wamsutter area. Added nearly 200 additional drilling locations within the acreage position. Drilled and completed 9 successful wells within the Lower Almond returning a average Proved Value Index of 1.28
- Provided operational support including overseeing well-site work, mud logging, open-hole logging and open-hole testing (cores, perfs and DST's) on many vertical, directional and horizontal wells in several basins
- Successfully drilled 20 vertical wells within the Greater Wamsutter area

**Savant Resources LLC**

**June 2002-May 2004**

*Geological Technician - Denver, CO*

**EDUCATION and PROFESSIONAL AFFILIATIONS**

**Colorado School of Mines, Golden, Colorado (2008)**

Masters of Science: **Petroleum Geology**

*DEPOSITIONAL ENVIRONMENT, MINERALOGY, AND SEQUENCE  
STRATIGRAPHY OF THE LATE DEVONIAN SANISH MEMBER (UPPER  
THREE FORKS FORMATION), WILLISTON BASIN, NORTH DAKOTA*

**University of Colorado, Denver, Colorado (2003)**

Bachelor of Liberal Arts and Sciences

Major: **Geology**

American Association of Petroleum Geologists (AAPG) / Rocky Mountain Association of Geologists (RMAG)/ Society of Sedimentary Geology - Rocky Mountain Section (RMS - SEPM) / Society of Petrophysicists and Well Log Analysts (SPWLA) / Denver Well Logging Society (DWLS) / American Rock Mechanics Association (ARMA) / Society of Petroleum Engineers (SPE)

Expert witness with the State of North Dakota

## PUBLICATIONS AND PRESENTATIONS

Berwick, B.R. and M. L. Hendricks, 2011, Depositional lithofacies of the Upper Devonian Three Forks Formation and the Grassy Butte member of the Lower Bakken Shale, Chapter 7, Rocky Mountain Association of Geologist, Bakken - Three Forks Petroleum Systems in the Williston Basin. (*Released Sept. 2011*)

Berwick, B.R., March 2009, RMS - SEPM Luncheon Speaker. Depositional environment, mineralogy, and sequence stratigraphy of the Late Devonian Sanish member (Upper Three Forks), Williston Basin, North Dakota.

Berwick, B.R., 2008, Depositional environment, mineralogy, and sequence stratigraphy of the Late Devonian Sanish member (Upper Three Forks), Williston Basin, North Dakota: Master's Thesis, Colorado School of Mines, 263 p.

Exhibit G-1  
Cause 540  
Docket No. 1303 SP-43

# Type Log Mancos and Niobrara

TEXAS PACIFIC OIL CO  
BEAR 1  
T7N R89W S26  
9/7/1978  
05107060540000

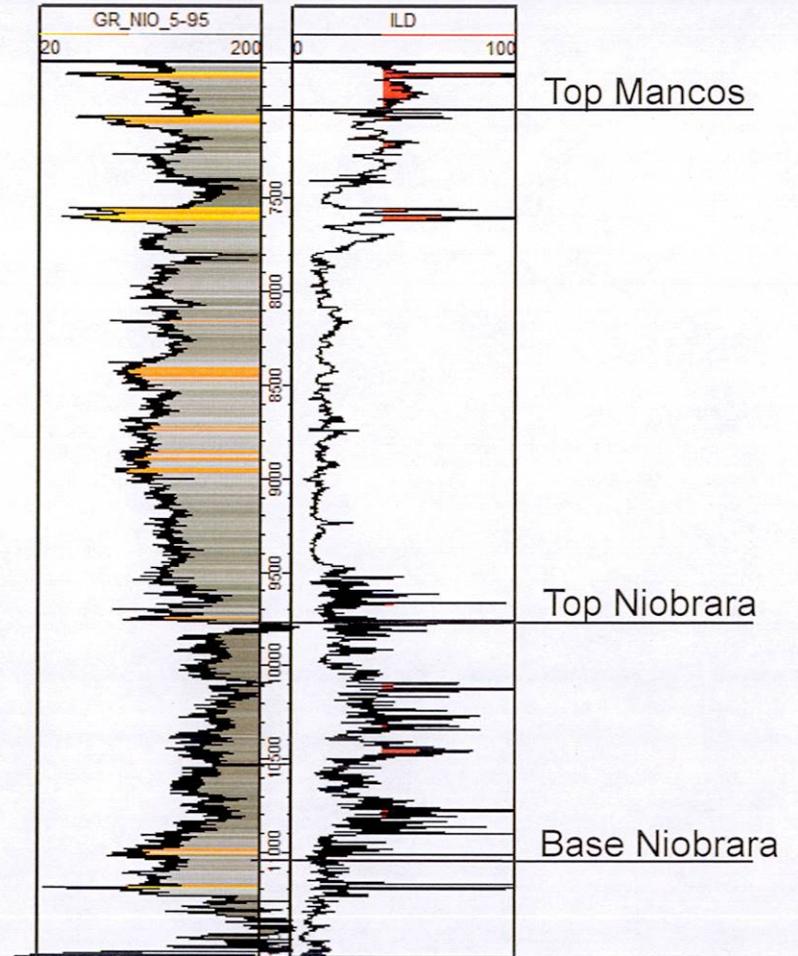
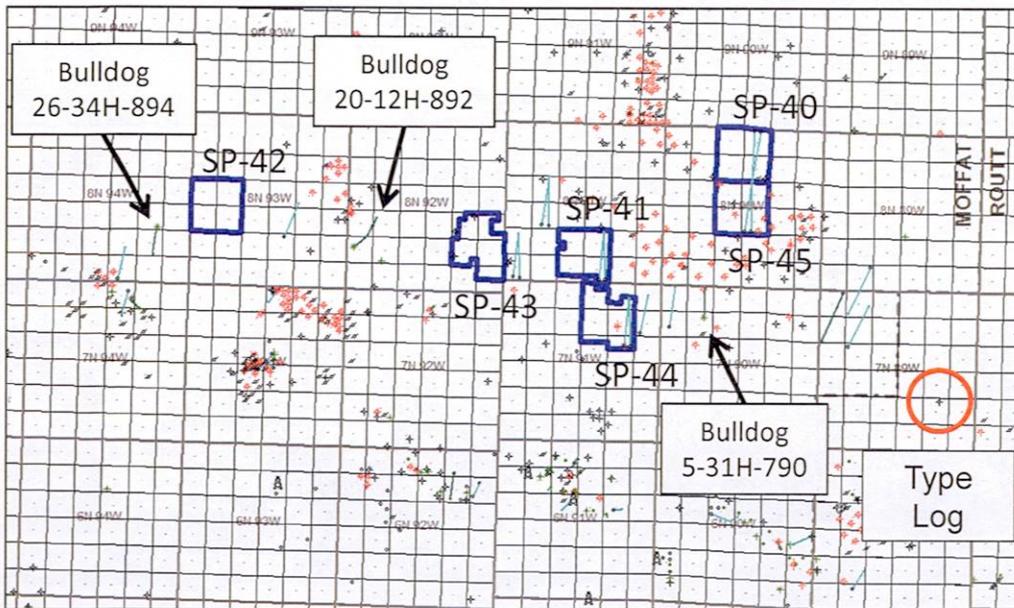
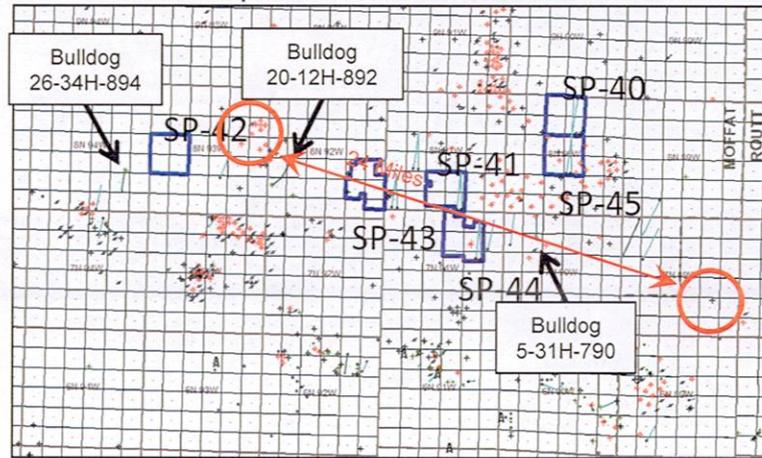


Exhibit G-2  
 Cause 540  
 Docket No. 1303 SP-43

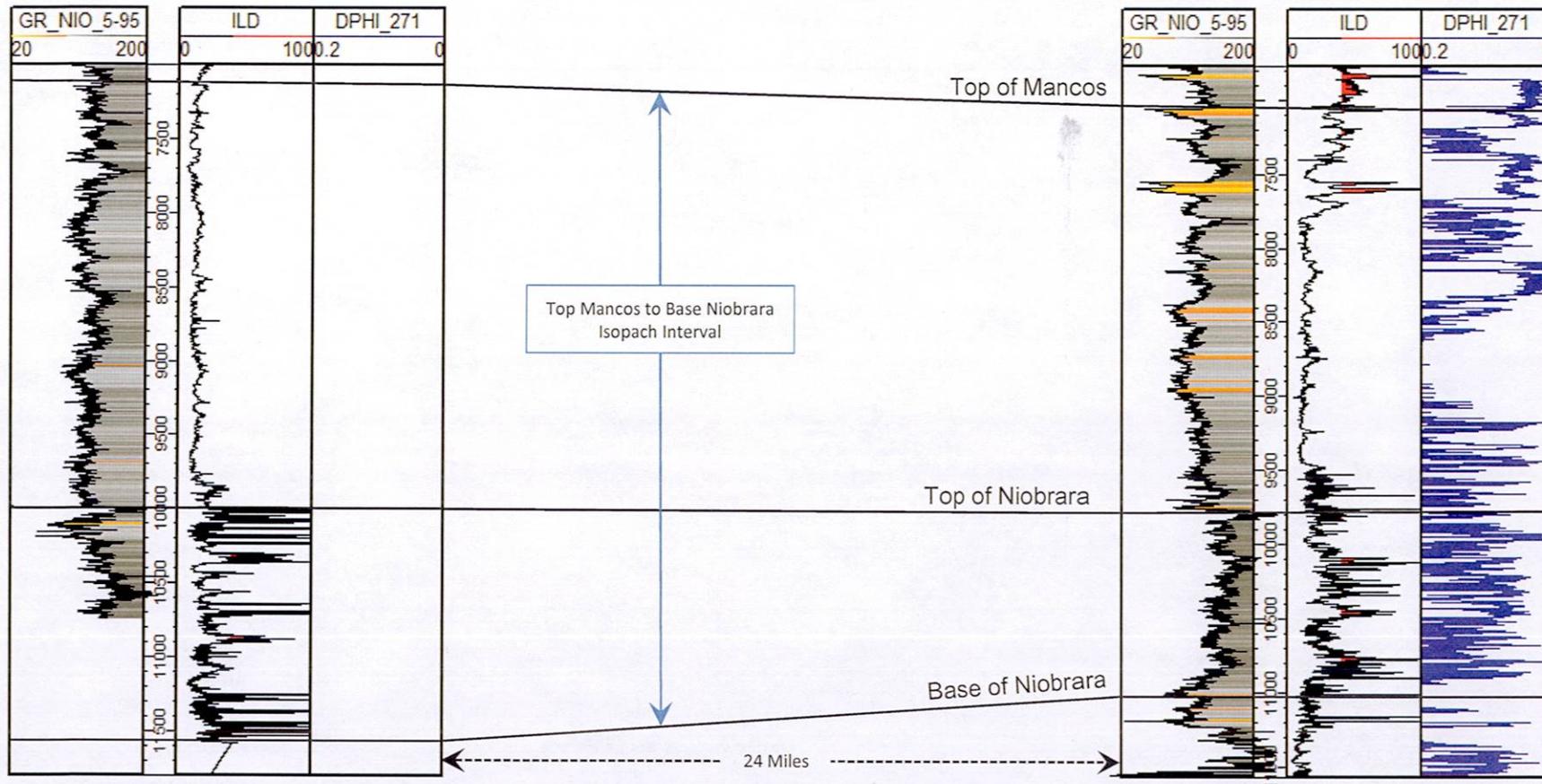
Index Map for Two Well Cross Section



Northwest – Southeast  
 Correlation Cross-Section  
 Showing  
 Mancos and Niobrara Thickness  
 and Porosity

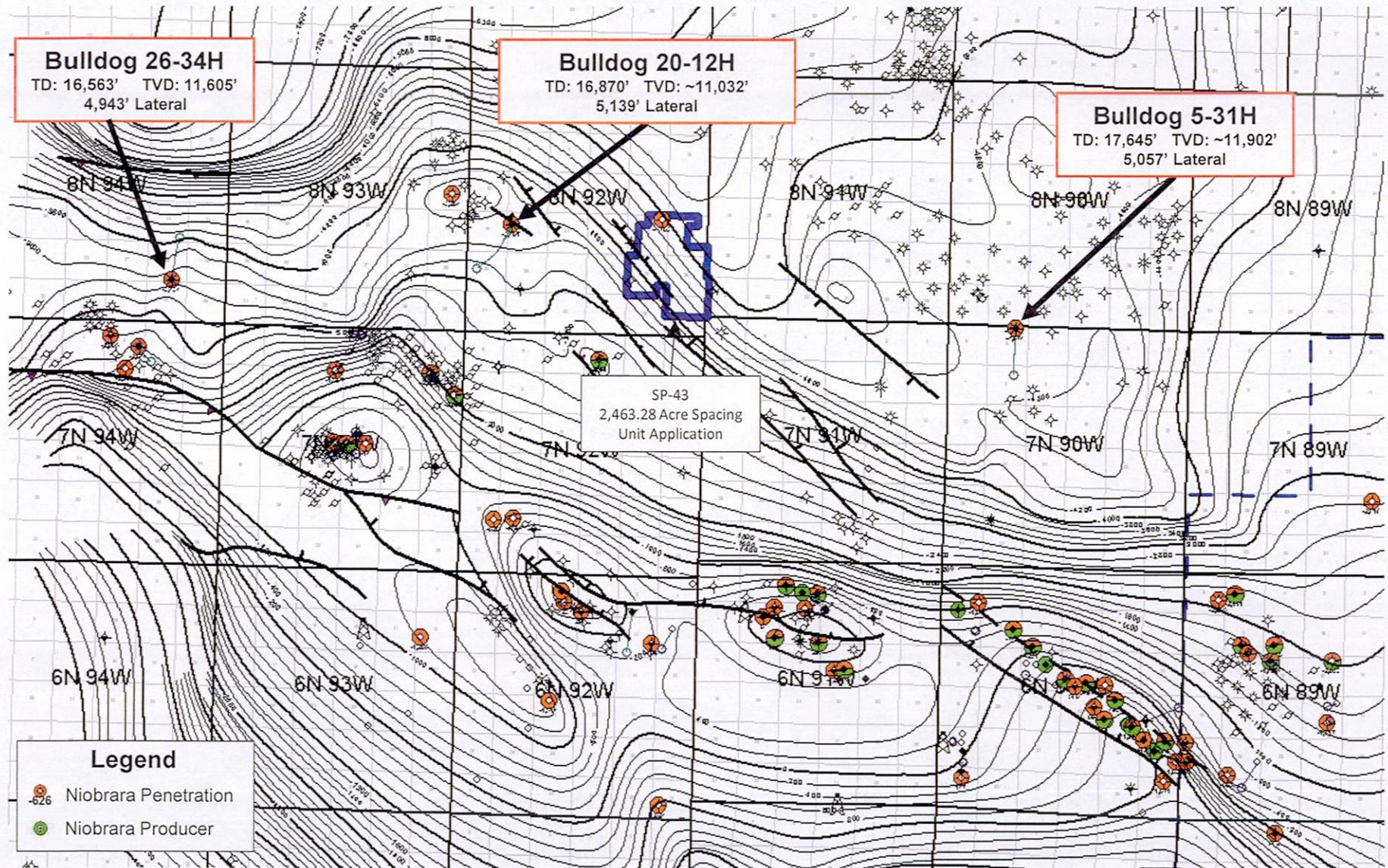
  
 HUMBLE OIL & REFG CO  
 LAY CREEK 1  
 T8N R93W S13  
 3/22/1969  
 05081060510000

  
 TEXAS PACIFIC OIL CO  
 BEAR 1  
 T7N R89W S26  
 9/7/1978  
 05107060540000

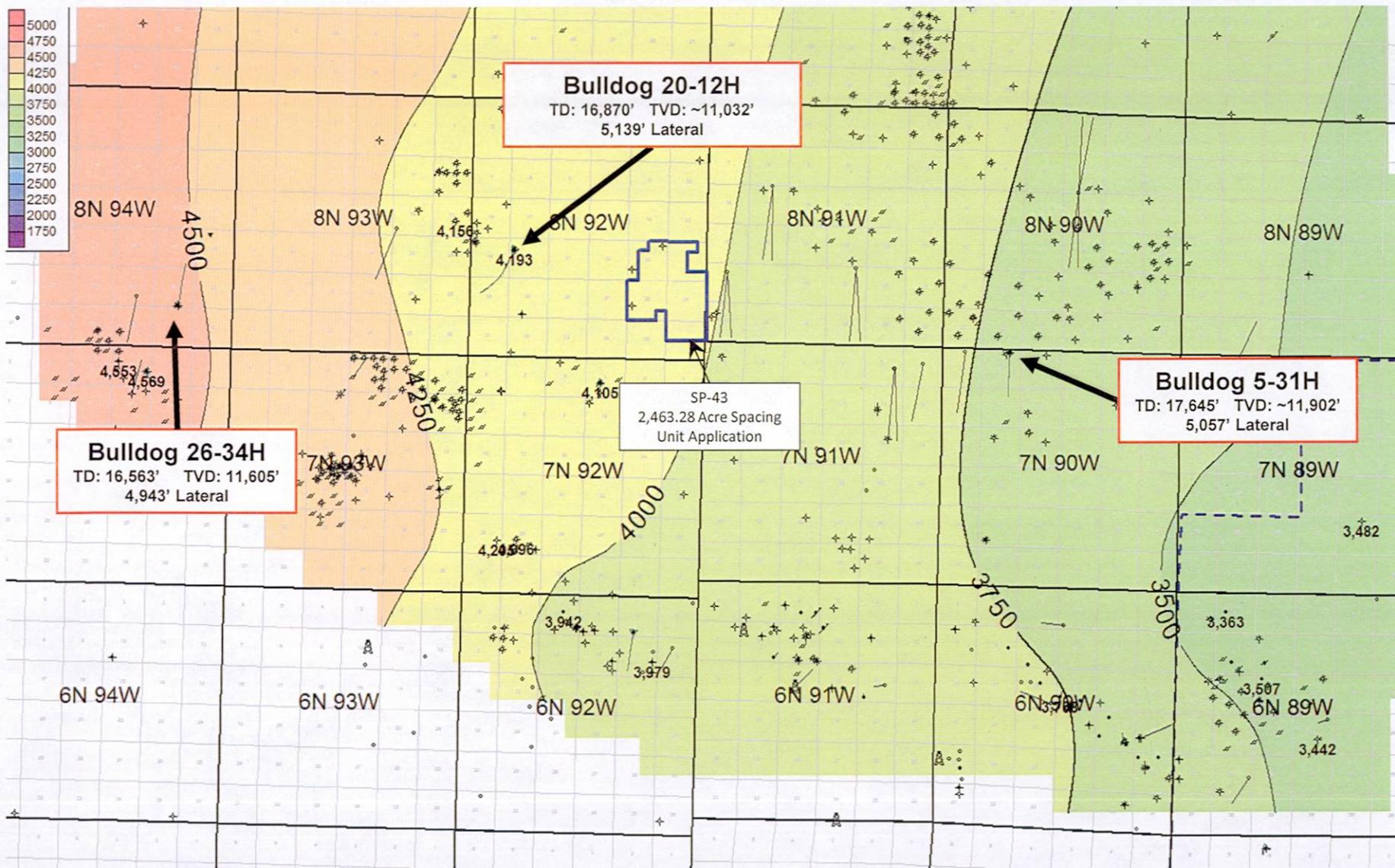


# Structure Top Niobrara

CI = 200'



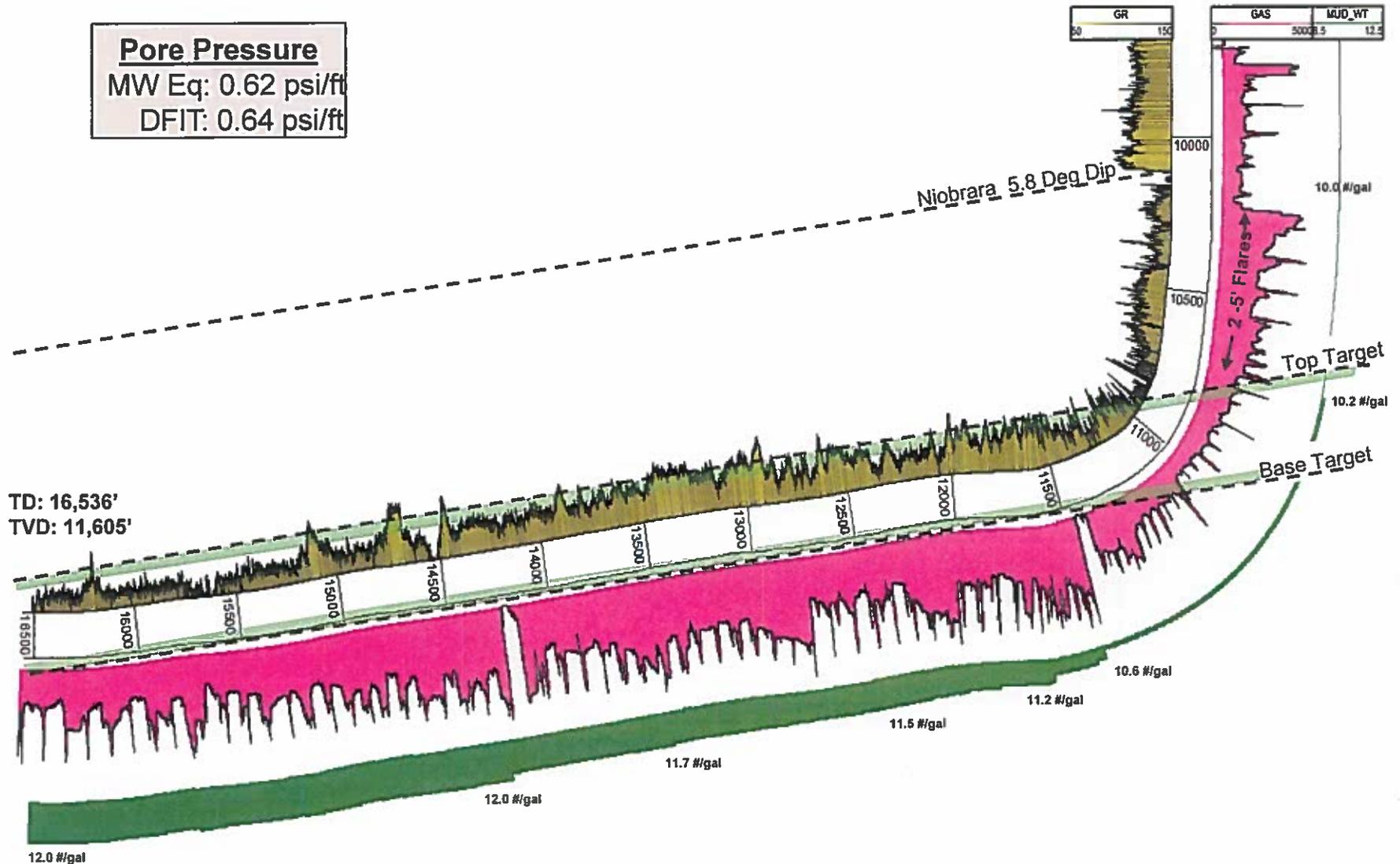
# Top Mancos to Base Niobrara Isopach Map CI = 250'



# Bulldog 26-34H – HZ Wellbore Overview

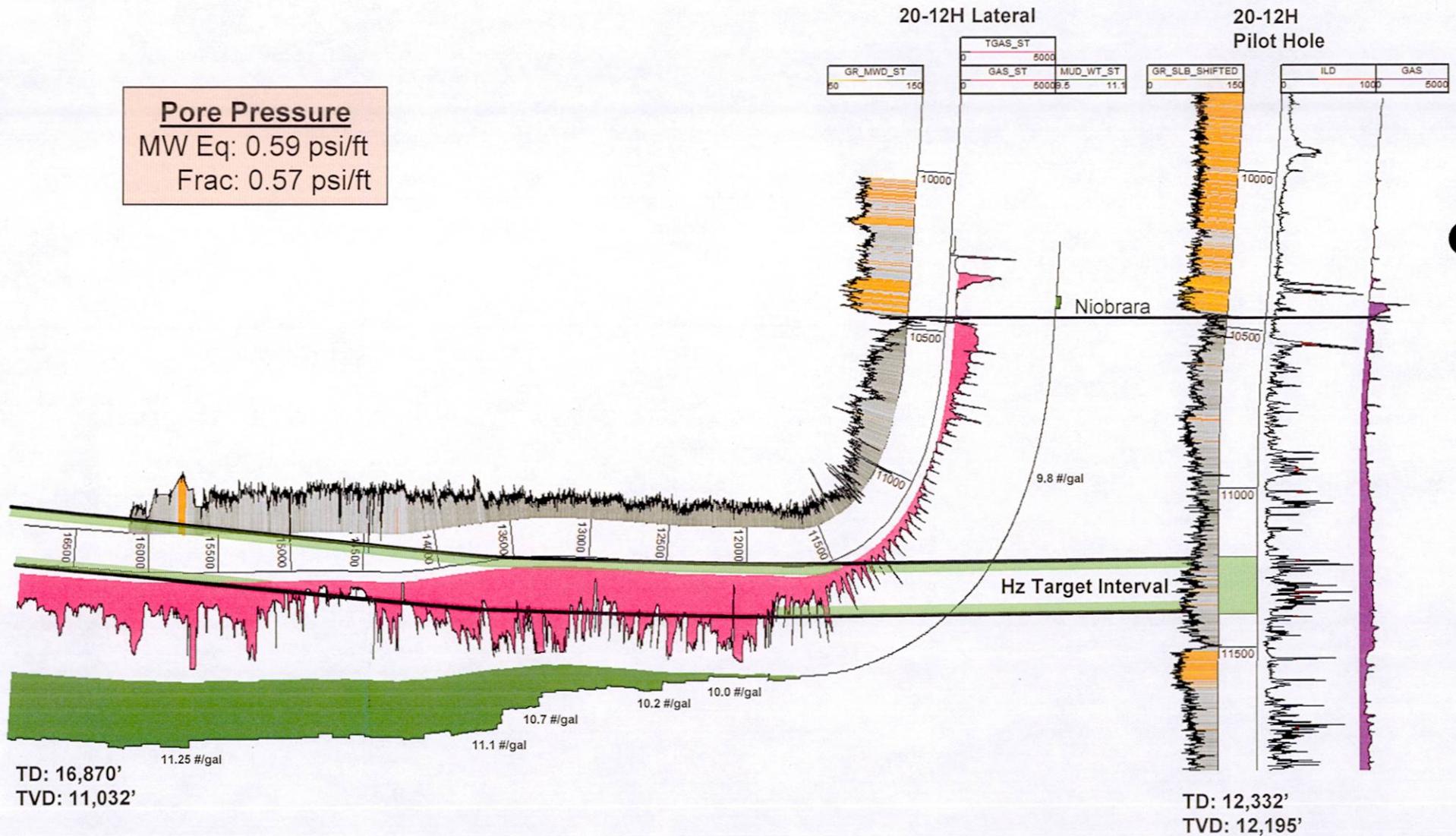
AXIA ENERGY  
BULLDOG 26-34H-894  
T8N R94W S26

**Pore Pressure**  
MW Eq: 0.62 psi/ft  
DFIT: 0.64 psi/ft



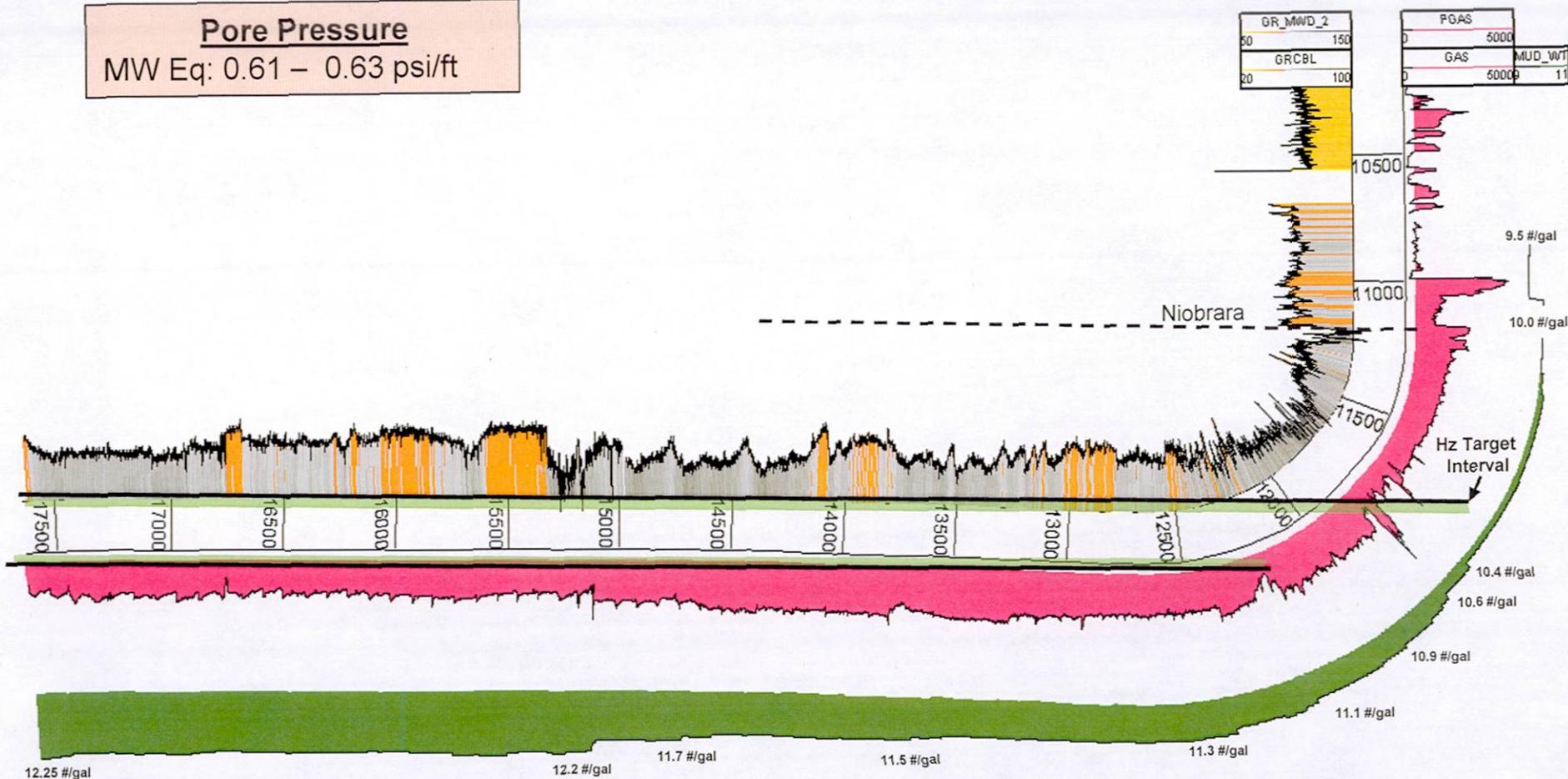
# Bulldog 20-12H – HZ Wellbore Overview

**Pore Pressure**  
 MW Eq: 0.59 psi/ft  
 Frac: 0.57 psi/ft



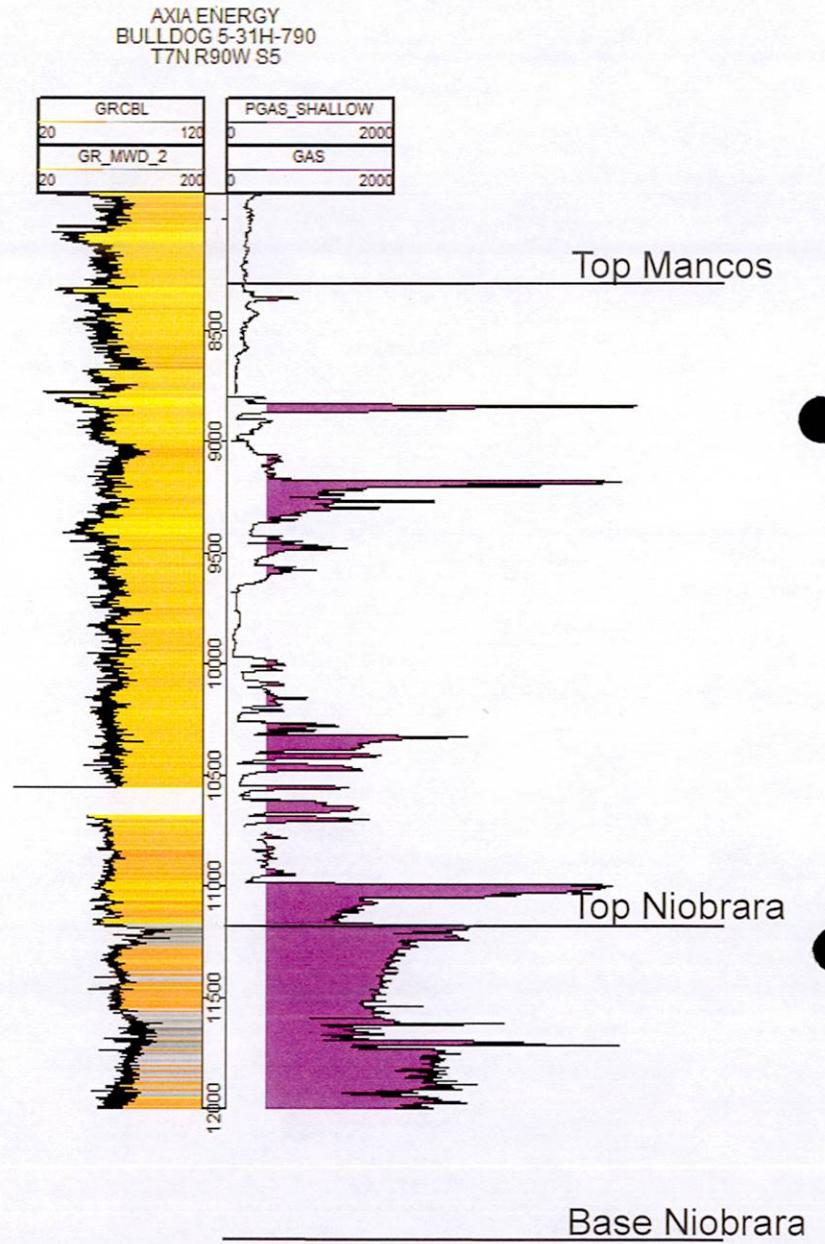
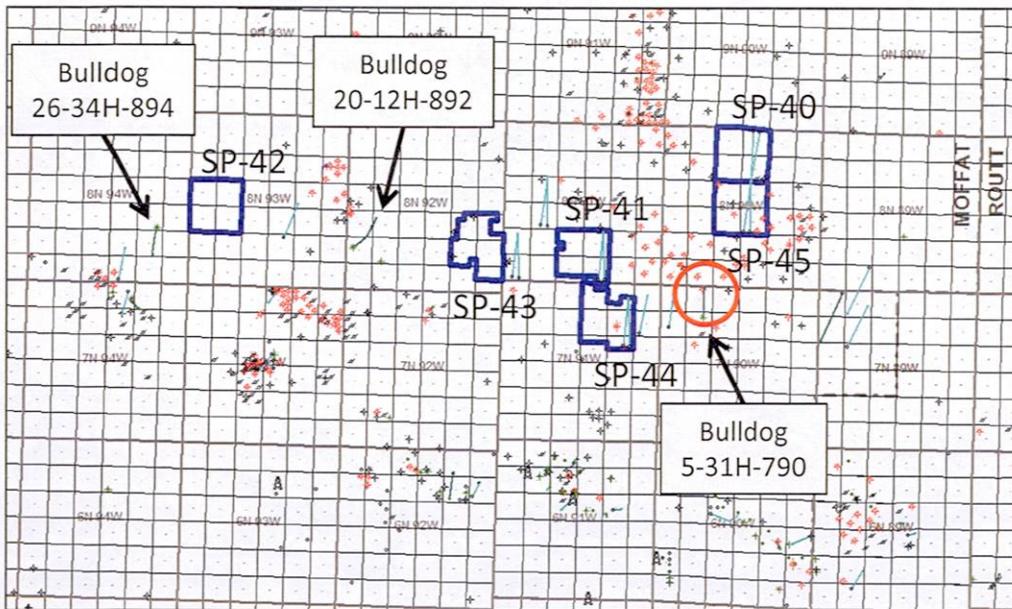
# Bulldog 5-31H – HZ Wellbore Overview

**Pore Pressure**  
 MW Eq: 0.61 – 0.63 psi/ft

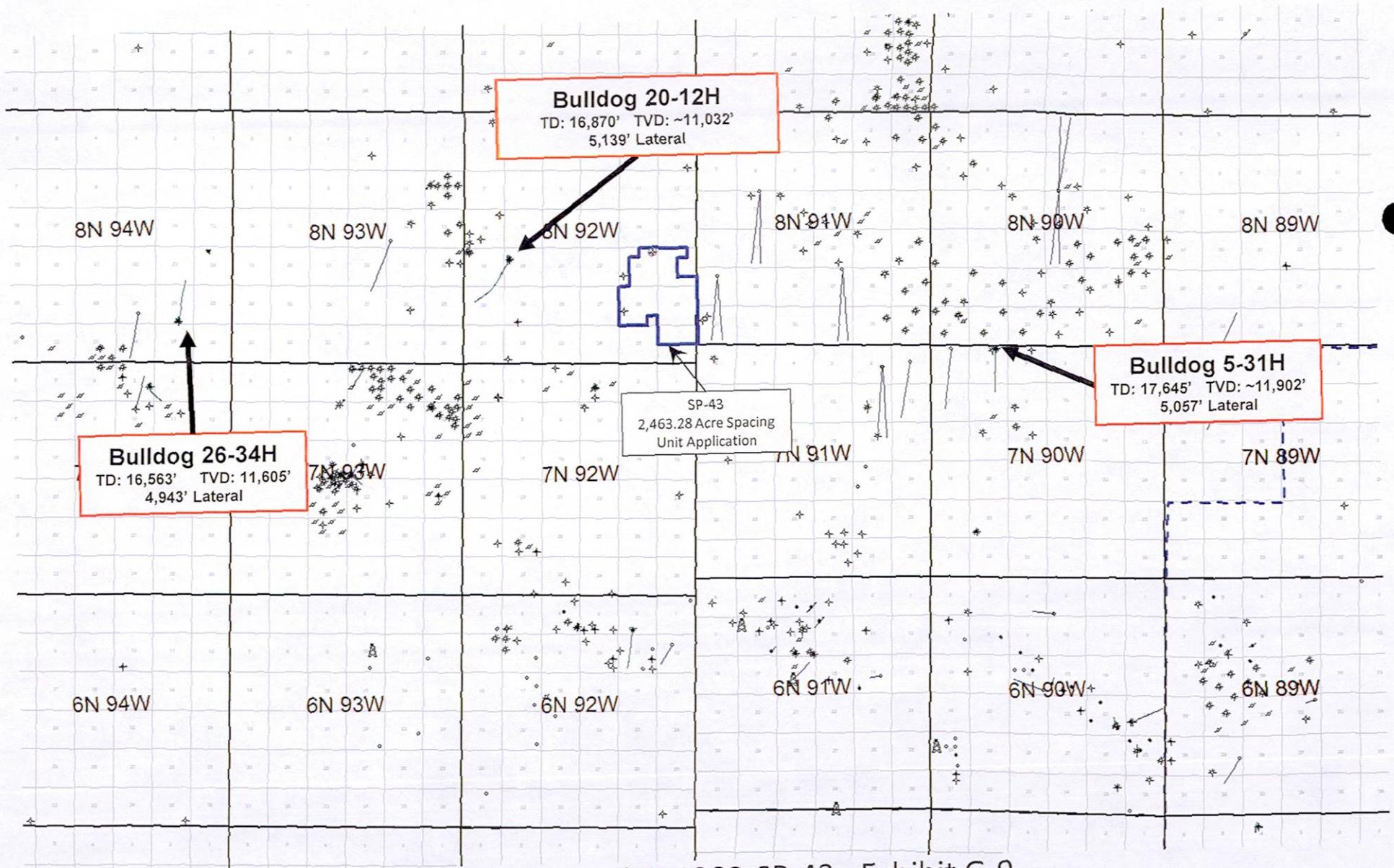


TD: 17,645'  
 TVD: 11,902'

# Gas Shows Bulldog 5-31H



# Offset Well Locations



## **AXIA ENERGY, LLC**

### **Taryn Frenzel - Engineering Testimony**

**Moffat County, Colorado  
Cause No. 540, Docket No. 1303-SP-43  
Mancos/Niobrara Formation**

My name is Taryn Frenzel. I am currently employed as a Senior Completions Engineer for the Sand Wash Team of Axia Energy, LLC ("Axia"). I have over 12 years of experience as a Completions Engineer. I have been and am presently responsible for and have knowledge of the reservoir characteristics of the Mancos and Niobrara formations underlying the Application Lands, as defined in Tab McGinley's Land Testimony submitted herewith. A copy of my curriculum vitae is attached hereto.

In support of Axia's application in the above-referenced docket, I am submitting four (4) exhibits. The exhibits are attached to my sworn testimony and form the basis for Axia's application to gain approval to establish the unit set forth in the aforementioned Docket No. and well location rules for the drilling and producing of wells from the Mancos and Niobrara Formations covering the Application Lands.

#### **Exhibits E-1 through E-4**

Exhibit E-1 shows the average gross thickness of the Mancos and Niobrara formation across Axia Energy's acreage position. The average net pay was calculated from open hole logs from wells that were drilled prior to Axia Energy as well as using 3 wells that were drilled and completed by Axia Energy during 2012. The location of the three (3) wells that were drilled by Axia Energy can be seen on Exhibit E-2. Exhibit E-2 also illustrates the resource play aspect of the Niobrara and Mancos. Axia Energy's wells were placed across the acreage position and were not drilled on structure thereby proving the resource play potential across the entire acreage position.

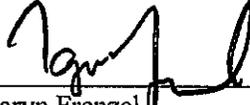
Due to the fact that the Niobrara and Mancos covers a large gross interval as shown in Exhibit E-1, stacked laterals will become a necessity to develop the resource. Exhibit E-3 shows a stacked lateral development. Multiple stacked lateral wells need to be drilled and stimulated in order to effectively drain the Mancos and Niobrara. Based upon frac simulator work conducted by Axia on the three (3) wells drilled in 2012, our estimated effective frac height is estimated to be 300'. The average reservoir pressure is .62 psi/ft based upon drilling and completion results and the total system porosity is 6.5% as shown in Exhibit E-4. The ability to drill 9,000' laterals allow for the more efficient development of the Mancos and Niobrara by eliminating unnecessary surface locations. By approving these spacing and pooling units, Axia Energy will be able to save over 40 acres of surface development per unit. By utilizing reservoir pressure, porosity, 9,000' laterals, Axia's estimated frac geometry and a recovery factor of 20%, Axia may realize 10 Bcfe of potential. Axia Energy's current well results support this type of potential for a 9,000' lateral when based on the current 5,000' configuration. These results more than exceed Axia Energy's economic hurdles.

#### **Summary and Benefits**

Approval of Axia's application for pooling and spacing will allow for the ability to optimally configure well locations and in turn maximize ultimate recovery of gas-in-place. Allowing for 9,000 foot laterals will greatly reduce surface pads needed to develop the spacing unit. In addition, pooling the interests in this resource play will allow for combined surface facilities thereby reducing the size and visual impacts of the locations required. Reducing the number of surface locations also results in having less completion pits, truck traffic and drilling rig moves. Self-skidding rigs would be able to develop spacing units much more efficiently by having less impactful rig mobilizations. It is my opinion that to maximize the ultimate recovery of gas in place in the Mancos and Niobrara Formation underlying the Application Lands, this spacing unit should be permitted and that by granting the Application in the above-referenced docket the waste of leaving recoverable Mancos and Niobrara gas in place will be

avoided and that correlative rights will be protected and the gas will be recovered more economically, efficiently and allow for as few of pads as possible.

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, my testimony and in the exhibits are true, correct and accurate.



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Taryn Frenzel  
Senior Completions Engineer, Axia Energy LLC.

**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.

  
\_\_\_\_\_  
Taryn Frenzel, Senior Completions Engineer  
Axia Energy, LLC

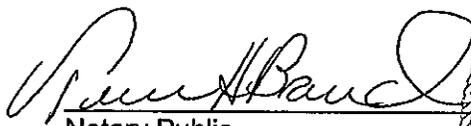
STATE OF COLORADO                    )  
  ) ss.  
CITY AND COUNTY OF DENVER        )

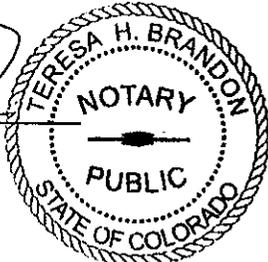
The foregoing instrument was subscribed and sworn to before me this 11<sup>th</sup> day of March, 2013, by Taryn Frenzel, as Senior Completions Engineer, for Axia Energy, LLC.

Witness my hand and official seal.

[SEAL]

My commission expires: 8/7/16

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



# Taryn Frenzel

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## Experience

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**Axia Energy** December 2009 – Present

*Sr. Completions Engineer*

- Project evaluation including economic analysis, reserves, completions and production specializing in the Piceance Basin

**Orion Energy Partners**

March 2008 – October 2009

*Sr. Completions Engineer*

- Completions and production engineering. Provided Engineering support on reserves, and project evaluation.

**Bill Barrett Corp.**

July 2005 – March 2008

*Sr. Completions Engineer*

- Implemented new completion technique that improved production by over 4x taking the project from uneconomic levels to highly economic providing a 10 year project.
- Coordinated all operations for completions with over 100 wells per year
- Took production from 12 MMscf/day to over 100 MMscf/day
- Implemented and ran water pipeline infrastructure to compliment the new completion style which considerably reduced truck traffic, and saved over \$10,000,000 per year.
- Provided Engineering support to all completion engineers and responsible for all Exploratory completion projects

**Schlumberger**

June 1997-July 2005

- Ran Field Operations in cementing and stimulation services
- Supervisor for field operations, provided technical support to field ops teams
- Wrote software to assist in accurately calculating cementing volumes to ultimately improve QC
- Ran the Lab for All services
- In House Engineer for Tom Brown Inc. responsible for all aspects of the account. Improved market share from 50% to almost 90% in 3 years time.

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## Education

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**Montana Tech of the University of Montana**

1994 – 1997

*Butte, MT*

- B.S., Engineering Science
- GPA: 3.79

**Dawson County College**

Fall 1992 – 1994

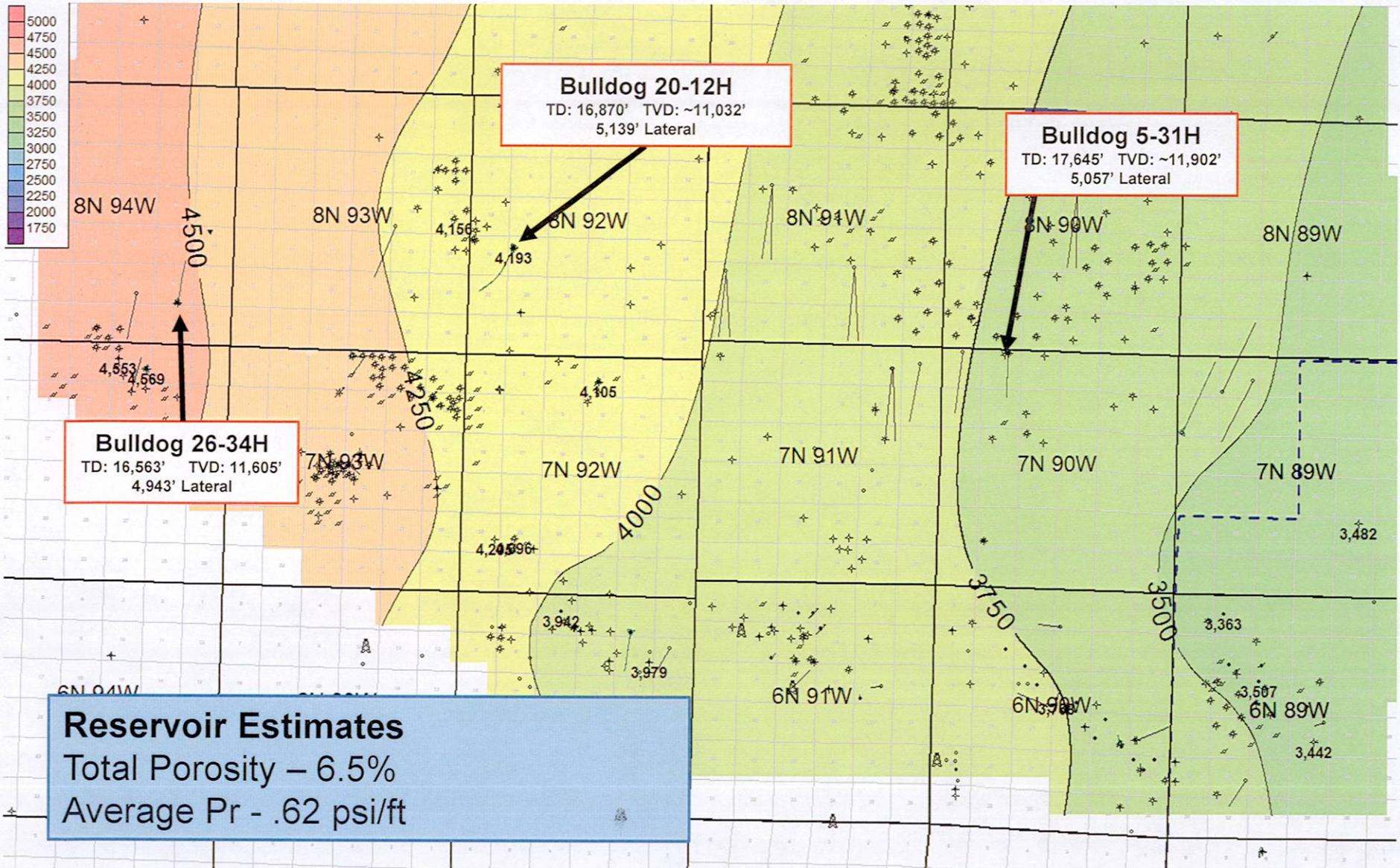
*Glendive, MT*

- Associates of Applied Science



# Exhibits E-1 Gross Niobrara/Mancos Thickness

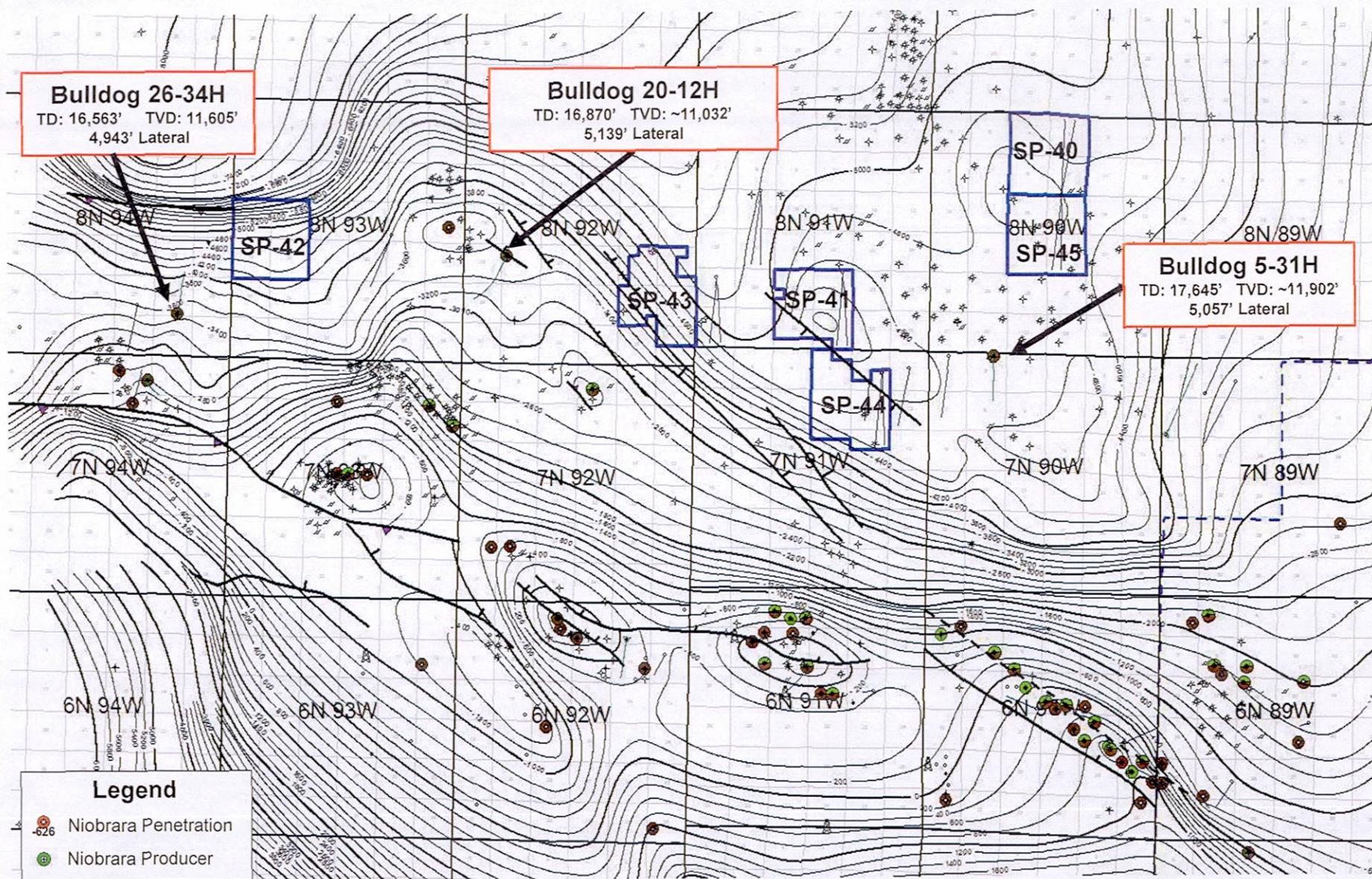
Cause No. 540  
Docket No. 1303-SP-43





# Exhibits E-2 Structure Top Niobrara (CI = 200')

Cause No. 540  
Docket No. 1303-SP-43

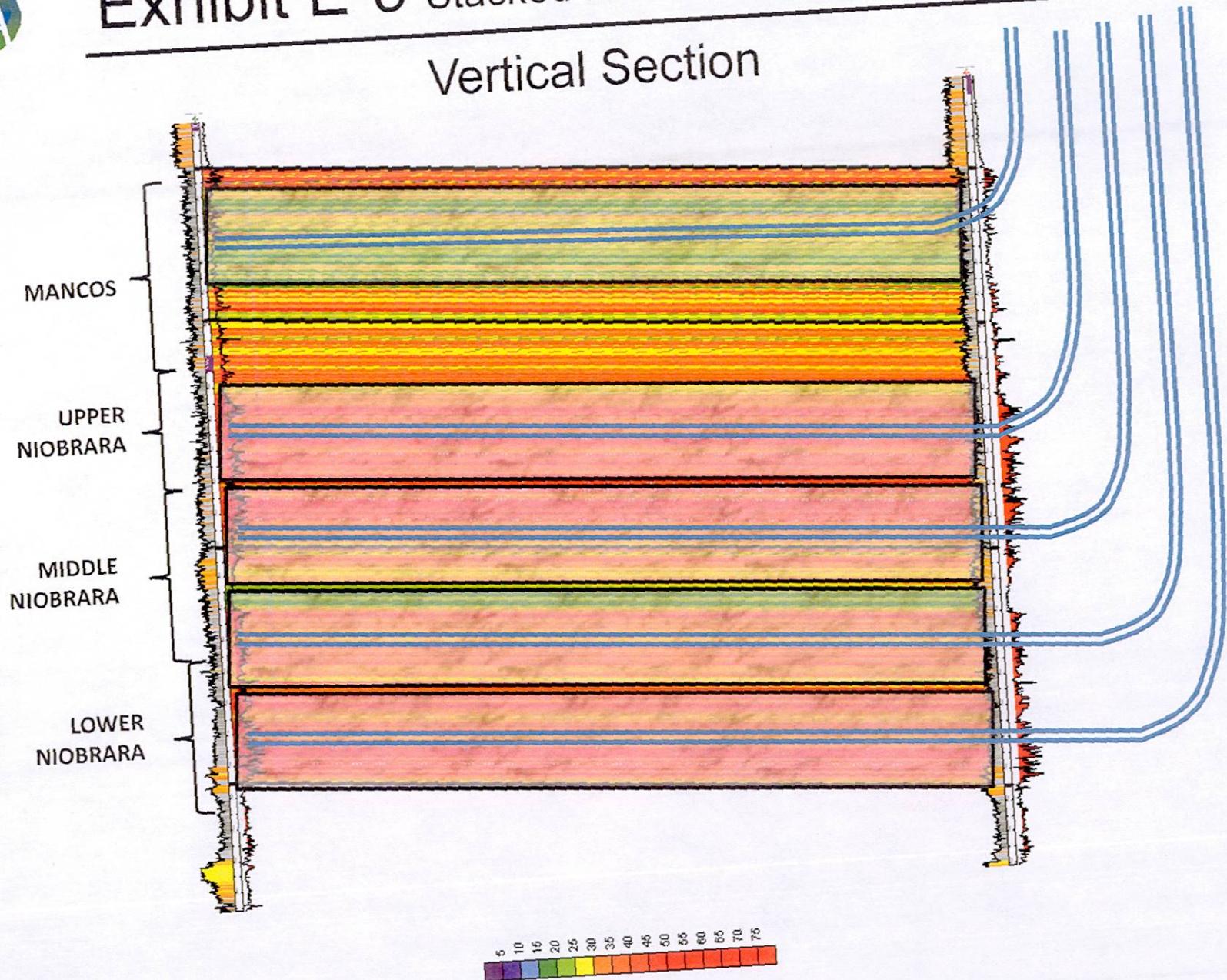




# Exhibit E-3 Stacked Lateral Potential

Cause No. 540  
Docket No. 1303-SP-43

## Vertical Section





# Exhibit E-4 OGIP

Cause No. 540  
Docket No. 1303-SP-43

## Reserve Inputs

Average Total Porosity – 6.5%

Average Pr - .62

Lateral length – 9,000 foot

## OGIP and Recovery for a Horizontal Well Analysis 9,000 foot lateral

Niobrara Horizontal					
	Gross	Net	Net to Gross %	Avg Por	PhiH
Middle Niobrara	300	300	100.0%	6.5%	19.5

20% Recover per 9,000 foot latteral		
Gas (Bcf)	Oil (MMBO)	BCFE
8.4	0.420	10.9