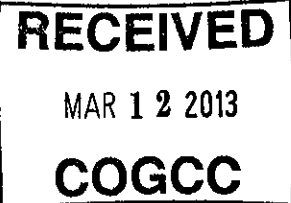




02417949

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



IN THE MATTER OF THE APPLICATION OF AXIA)
ENERGY, LLC FOR AN ORDER TO ESTABLISH)
AN APPROXIMATE 2613.44-ACRE UNIT IN)
SECTIONS 3, 4, 9 AND 10, TOWNSHIP 8 NORTH,)
RANGE 90 WEST, 6TH P.M., UNNAMED FIELD,)
MANCOS AND NIOBRARA FORMATIONS,)
MOFFAT COUNTY, COLORADO)

CAUSE NO. 540

DOCKET NO. 1303-SP-40

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 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. Jost

Gregory J. Nibert Jr.

Beatty & Wozniak, P.C.

Attorneys for Applicant

216 16th Street, Suite 1100

Denver, Colorado 80202

(303) 407-4499

Axia Energy, LLC

Cause No. 540
Docket No. 1303-SP-40

AXIA ENERGY, LLC
Tab McGinley – Land Testimony

Cause 540; Docket No. 1303-SP-40
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 2,613.44-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 90 West, 6th P.M.,
Section 3: Lots 2, 5-18; a/d/a SW $\frac{1}{4}$ NE $\frac{1}{4}$; a/d/a ALL
Section 4: Lots 5-20; a/d/a ALL
Section 9: Lots 1-16; a/d/a ALL
Section 10: Lots 1-15; a/d/a SE $\frac{1}{4}$ SE $\frac{1}{4}$; a/d/a ALL

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 47.50% fee mineral interests, 7.80% federal mineral interests, and 44.70% state mineral interests. The following parties own leasehold or unleased mineral interests in the Application Lands:

| INTEREST HOLDER | % WI |
|--------------------------------------|------------|
| AXIA ENERGY, LLC | 56.79500% |
| OXY USA INC. | 18.71748% |
| QUICKSILVER RESOURCES, INC. | 0.64857% |
| YATES PETROLEUM CORP | 1.28528% |
| MYCO INDUSTRIES, INC. | 0.64283% |
| ABO PETROLEUM CORPORATION | 0.64283% |
| U.S.A. C/O BUREAU OF LAND MANAGEMENT | 7.80159% |
| BILL M. WISDOM, <i>ET. AL.</i> | 13.46642% |
| TOTAL: | 100.00000% |

Exhibit L-2: Property Location Plat:

Attached as Exhibit L-2 is a Property Location Plat which sets forth the surface location for the Bulldog 10-24H-890 well. The Well has a surface location of 73' Feet From North Line and 2015' Feet From West Line in the NE1/4NW1/4 (Lot 2) of Section 15, Township 8 North, Range 90 West and a bottomhole location of 1980' Feet From West Line and 625' Feet From North Line in the NE1/4NW1/4 (Lot 6) of Section 3, Township 8 North, Range 90 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 2,613.44-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 is working on finalizing an agreement with all necessary filings with the surface owner being The State of Colorado, State Board of Land Commissioners, 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.

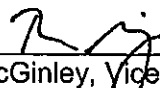
Approval of a drilling and spacing unit would allow for a less impactful surface development plan. Given common interest within the unit, tank batteries would be smaller by virtue of combining oil and water tanks. Multiple well pad development allows for fewer impactful rig moves as well as centralized 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

CITY AND COUNTY OF DENVER

)
) ss.
)

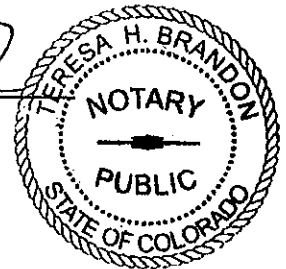
The foregoing instrument was subscribed and sworn to before me this 11th day of March, 2013, by Tab McGinley, as Vice President of Land for Axia Energy, LLC.

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

Phone (720) 371-6473

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

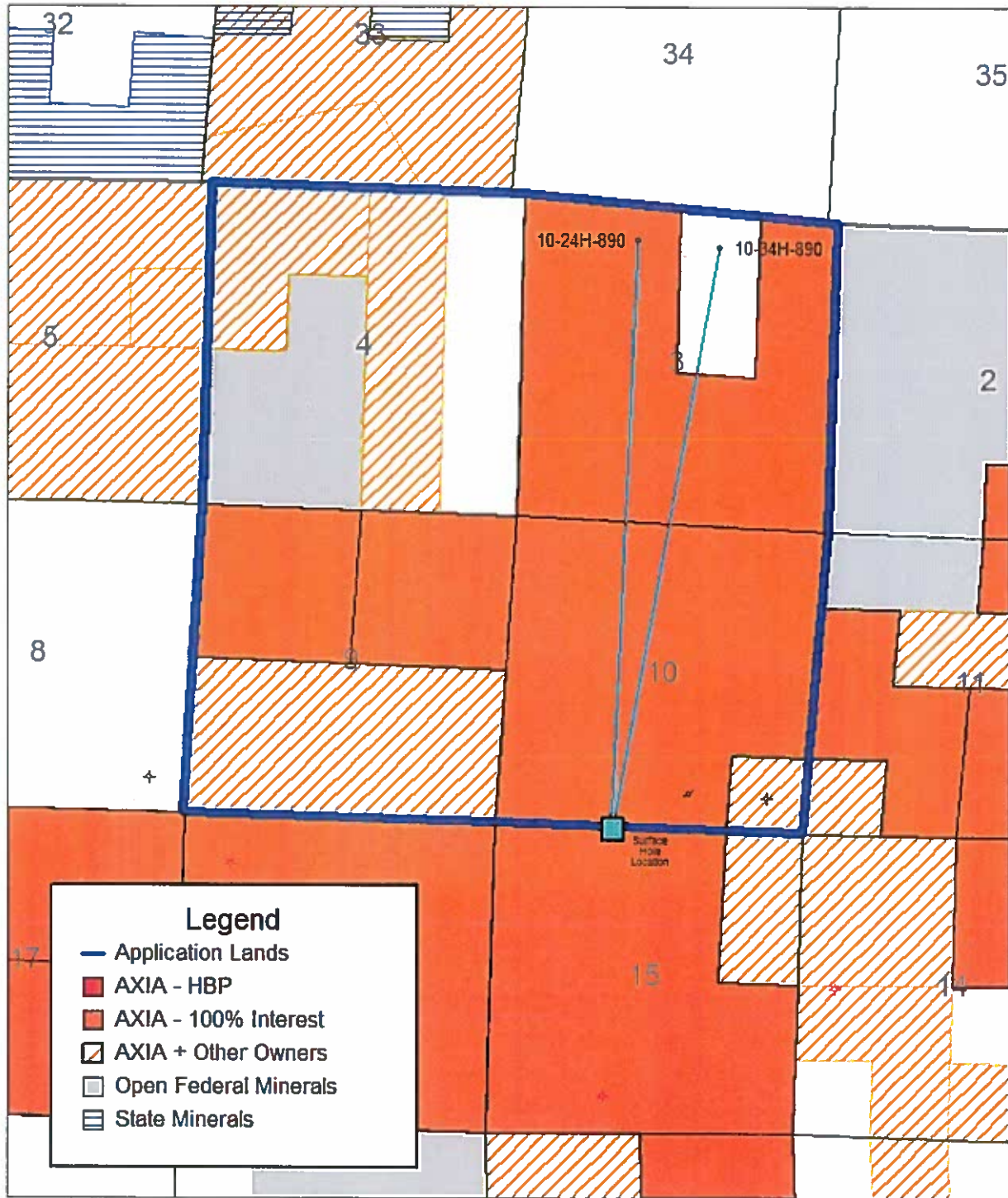
Professional Affiliations

- **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-40
Location Map; Mineral and Leasehold Ownership Map
Bulldog #10-24H-890
Sections 3, 4, 9 and 10, Township 8 North, Range 90 West
Moffat County, Colorado



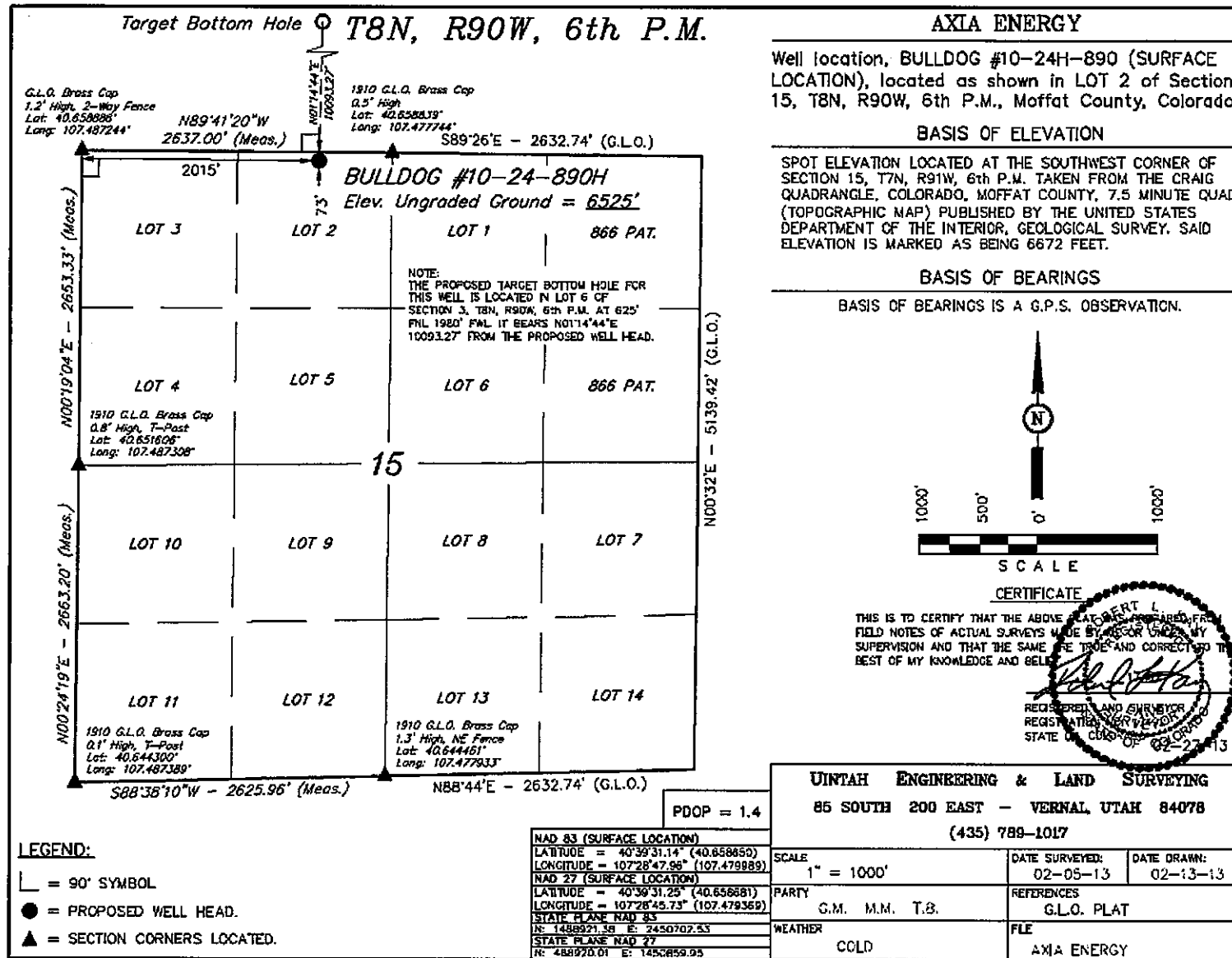


Exhibit L-2: Cause 540, Docket No. 1303-SP-40
 Property Location Plat: Surface Location
 Bulldog #10-24H-890
 Sections 3, 4, 9 and 10, Township 8 North, Range 90 West
 Moffat County, Colorado

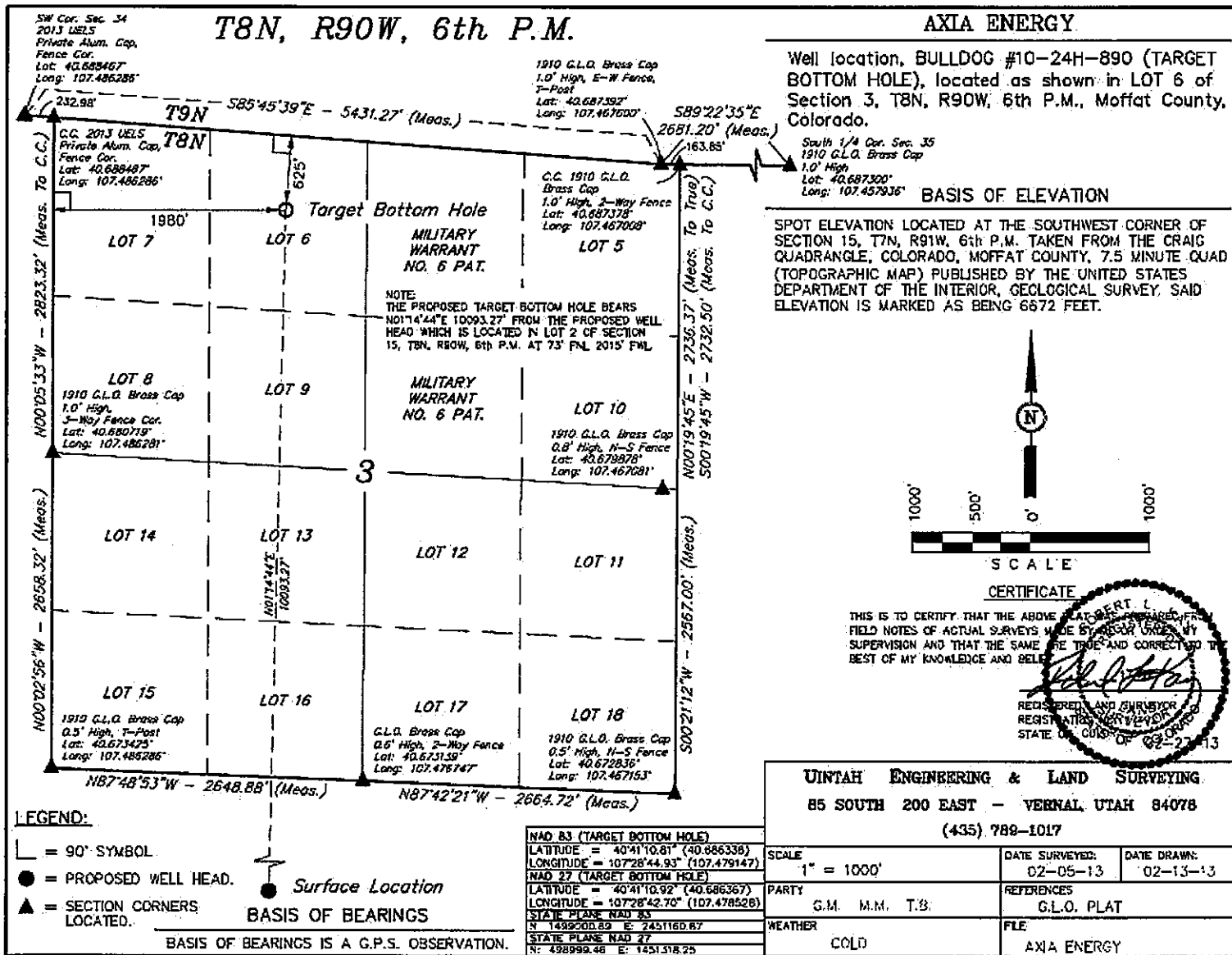


Exhibit L-3: Cause 540, Docket No. 1303-SP-40
Surface Ownership Map

Bulldog #10-24H-890

Bulldog #10-24H-890
Sections 3, 4, 9 and 10, Township 8 North, Range 90 West
Moffat County, Colorado

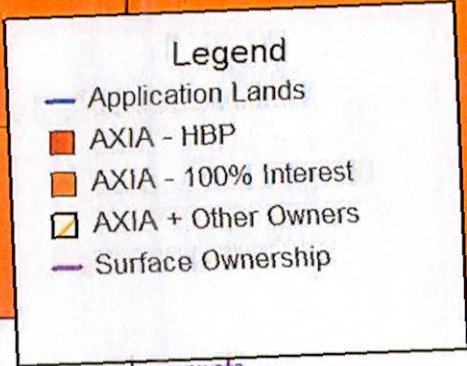
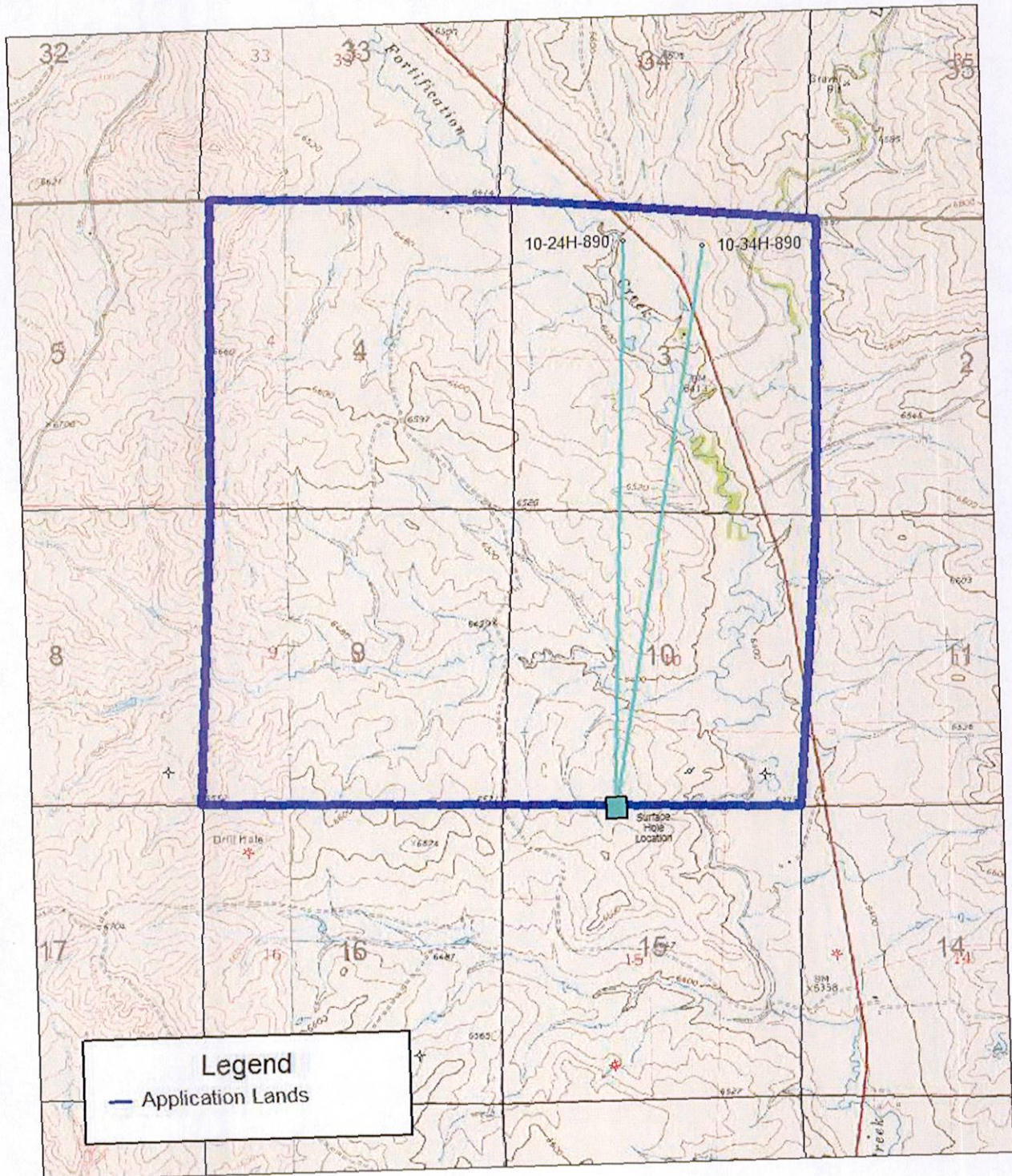


Exhibit L-4: Cause 540, Docket No. 1303-SP-40
Topographic Map
Bulldog #10-24H-890
Sections 3, 4, 9 and 10, Township 8 North, Range 90 West
Moffat County, Colorado



**Exhibit A:
Interested Parties**

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

YATES PETROLEUM CORPORATION
105 S. 4TH STREET
ARTESIA, NM 88210

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

ABO PETROLEUM CORPORATION
105 S. 4TH STREET
ARTESIA, NM 88210

QUICKSILVER RESOURCES, INC.
801 CHERRY STREET, STE. 3700
FORT WORTH, TEXAS 76102

MYCO INDUSTRIES, INC.
423 WEST MAIN STREET
ARTESIA, NM 88210

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

BARBARA J. GORAL & DONNA R. MAHONEY
P.O. BOX 30
VICTOR, MT 59875-0030

U.S.A. C/O BUREAU OF LAND MANAGEMENT
2850 YOUNGFIELD STREET,
LAKEWOOD, CO 80215

ROBIN HERRING
848 E. 11TH
CRAIG, CO 81625

BILL M. & MARYLOU WISDOM
43637 N HWY 13
CRAIG, CO, 81625

KRISTIN L. PRESCOTT
17512 83RD PLACE NE, APT. C204,
KENMORE, WA 98028-1891

LEONA DANNER (DEC) C/O THOMAS
DANNER
8 RODMAN LANE
PLYMOUTH, MA 02360

GAIL LYNN REUST & DIANE SUE BUTLER
1701 NEW HAVEN DR.
GLEN ALLEN, VA 23059

ISABELLE FEATHERS C/O DIANA HUNT
300 TUDOR CT.
SANTA ROSA, CA 95401

EVELYN RICE C/O SALLEY A. GRIFFIN PR
830 FRANK ROAD
BELGRADE, MT 59714

GEORGE G. MERCHANT
PO BOX 2613
EVERGREEN CO 80437

OIL AND GAS TRUST UNDER A.M. CULVER
TRUST DATED 11/18/1970
PO BOX 81045
SAN DIEGO, CA 92138

CAROLYN L. OWER
26223 COUNTY ROAD M
CORTEZ, CO 81321

EXCO, INC.
PO BOX 6046
DENVER, CO 80206

BRYCE MILLER
2629 MCGREGOR BLVD
FERNANDINA BEACH, FL 32034

GEORGE HARPER
PO BOX 1738
CARBONDALE, CO 81623

CYNTHIA L. GASKILL
PO BOX 13726
LEXINGTON, KY 40583

CAROL DEAN MURPHY
PO BOX 97
FRASER, CO 80442

SALLY MILLER SAKALA
6723 E. HEATHER DRIVE
MESA, AZ 85215

JARRETT F. COOK, AS TRUSTEE OF THE
JARRETT F. COOK LIVING TRUST, DATED
4/7/2005
4055 COUNTY ROAD 501
BAYFIELD, CO 81122

FRANK MILLER JR.
3935 DOUGLAS MOUNTAIN DRIVE
GOLDEN, CO 80403

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

LINDA M. MILLER
6723 E. HEATHER DRIVE
MESA, AZ 85215

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

TRENT A. MILLER
3935 DOUGLAS MOUNTAIN DRIVE
GOLDEN, CO 80403

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

ROSALYN CULVER TRUST DATED 9/10/2009
PO BOX 81045
SAN DIEGO, CA 92138

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

AXIA ENERGY, LLC

Brian Berwick – Geology Testimony

Cause 540; Docket No. 1303-SP-40

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 25th and 26th 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 2613.44 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 3, 4, 9 and 10 of Township 8 North, Range 90 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 2.5 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 3700'. 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. The surface and bottom-hole locations of the Bulldog 10-24H 890 and Bulldog 10-34H-890 are also shown. 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

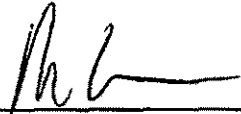
the Mancos formation. Due to its fine grained nature, the reservoir permeability of Niobrara formation is very low - typically in the microdarcy range.

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

CITY AND COUNTY OF DENVER

)
) ss.
)

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

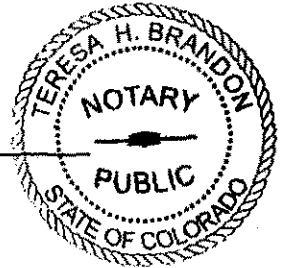
Witness my hand and official seal.

[SEAL]

My commission expires: 8/7/16



Notary Public



Brian R. Berwick

7634 Bison Court
Littleton, Colorado 80125
303.204.2356
bercycle@gmail.com

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

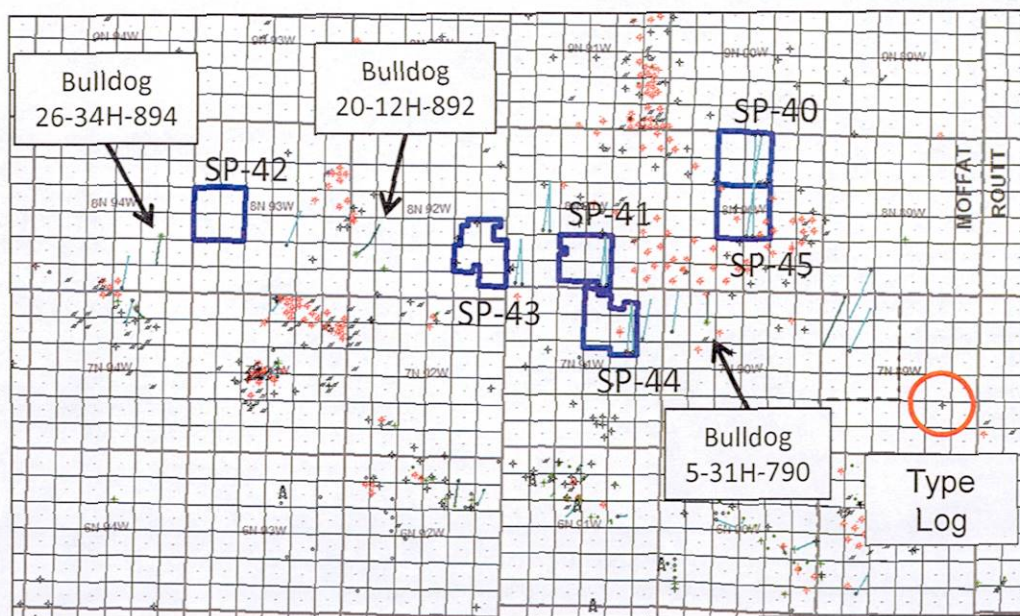
Berwick, B.R. and M. L. Hendricks, 2011, Depositional lithofacies of the Upper Devonian Three Forks Formation and the Grassy Butte member of the Lower Bakken Shale, Chapter 7, Rocky Mountain Association of Geologist, Bakken - Three Forks Petroleum Systems in the Williston Basin. (*Released Sept. 2011*)

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 40

Type Log Mancos and Niobrara



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

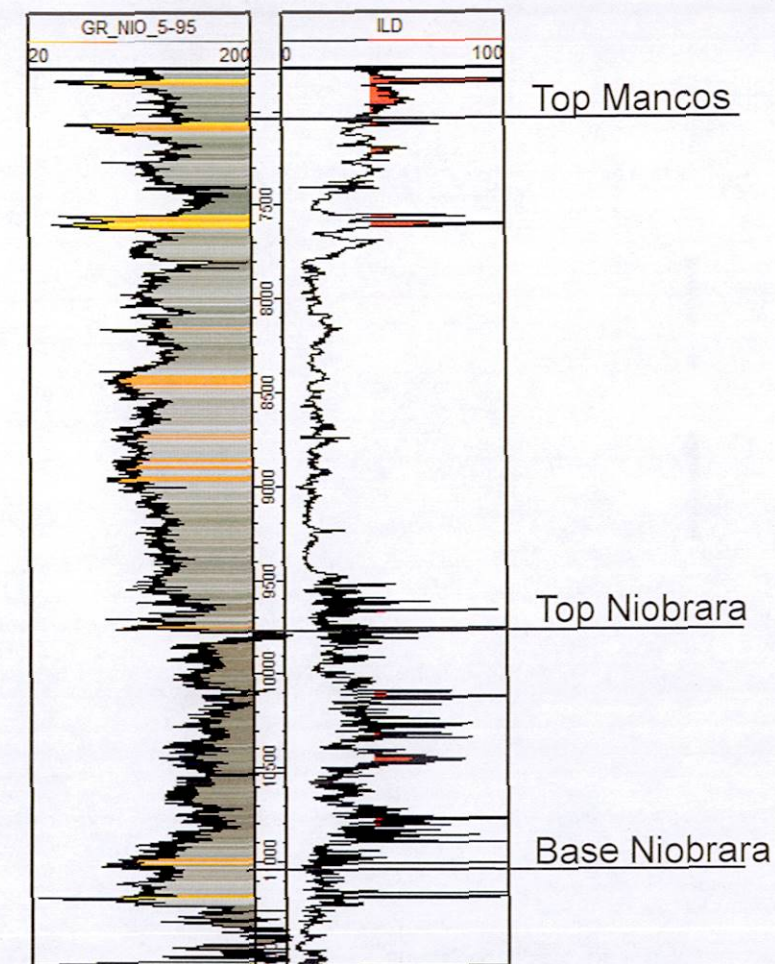
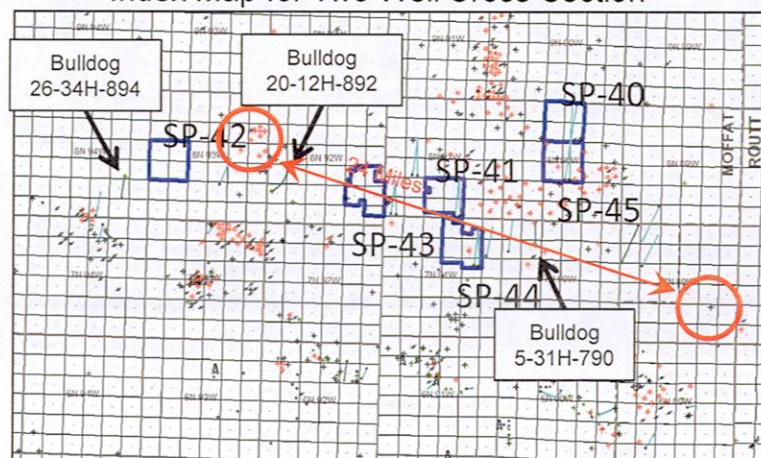


Exhibit G-2
Cause 540
Docket No. 1303 SP 40

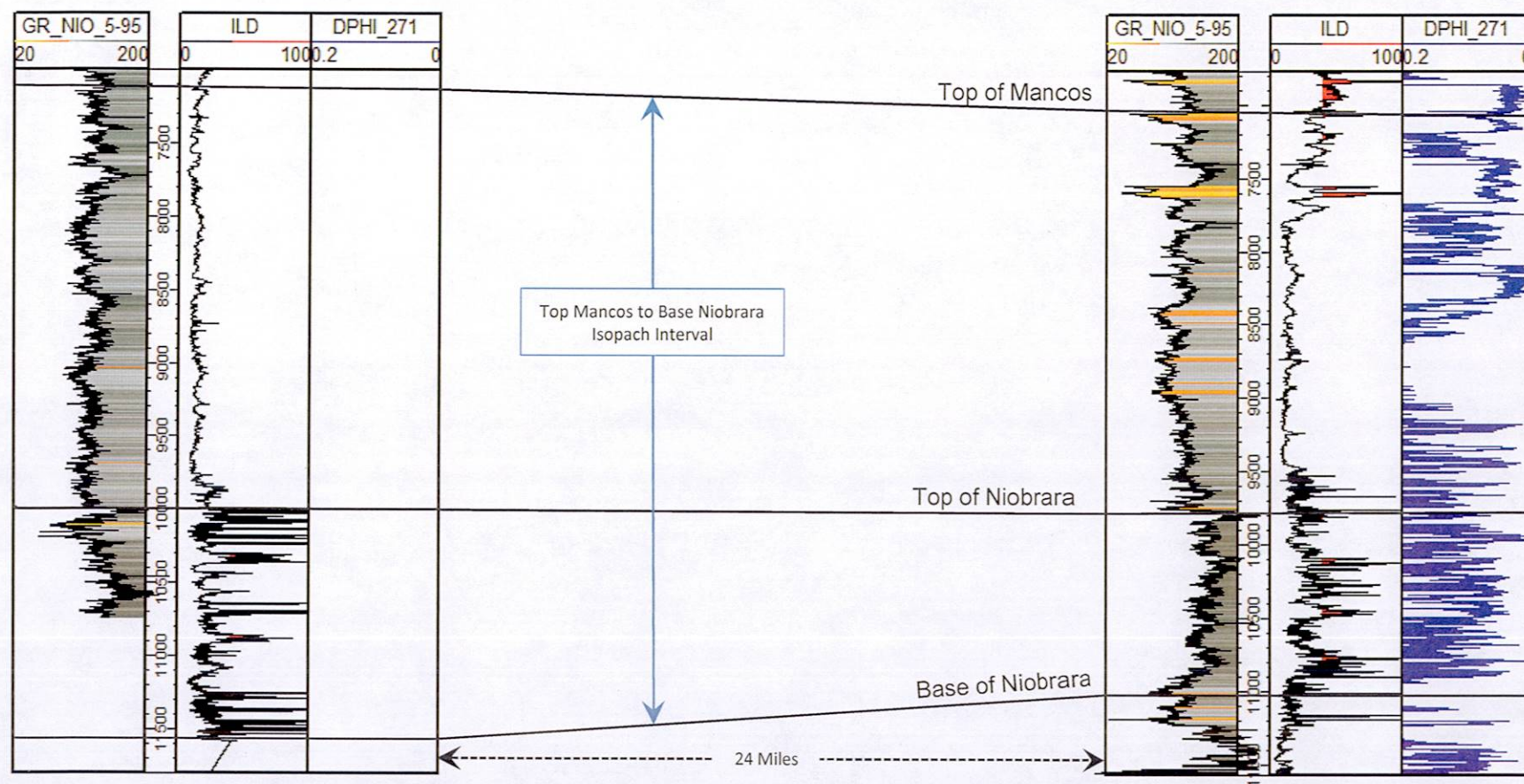
HUMBLE OIL & REFG CO
LAY CREEK 1
T8N R93W S13
3/22/1969
05081060510000

Index Map for Two Well Cross Section



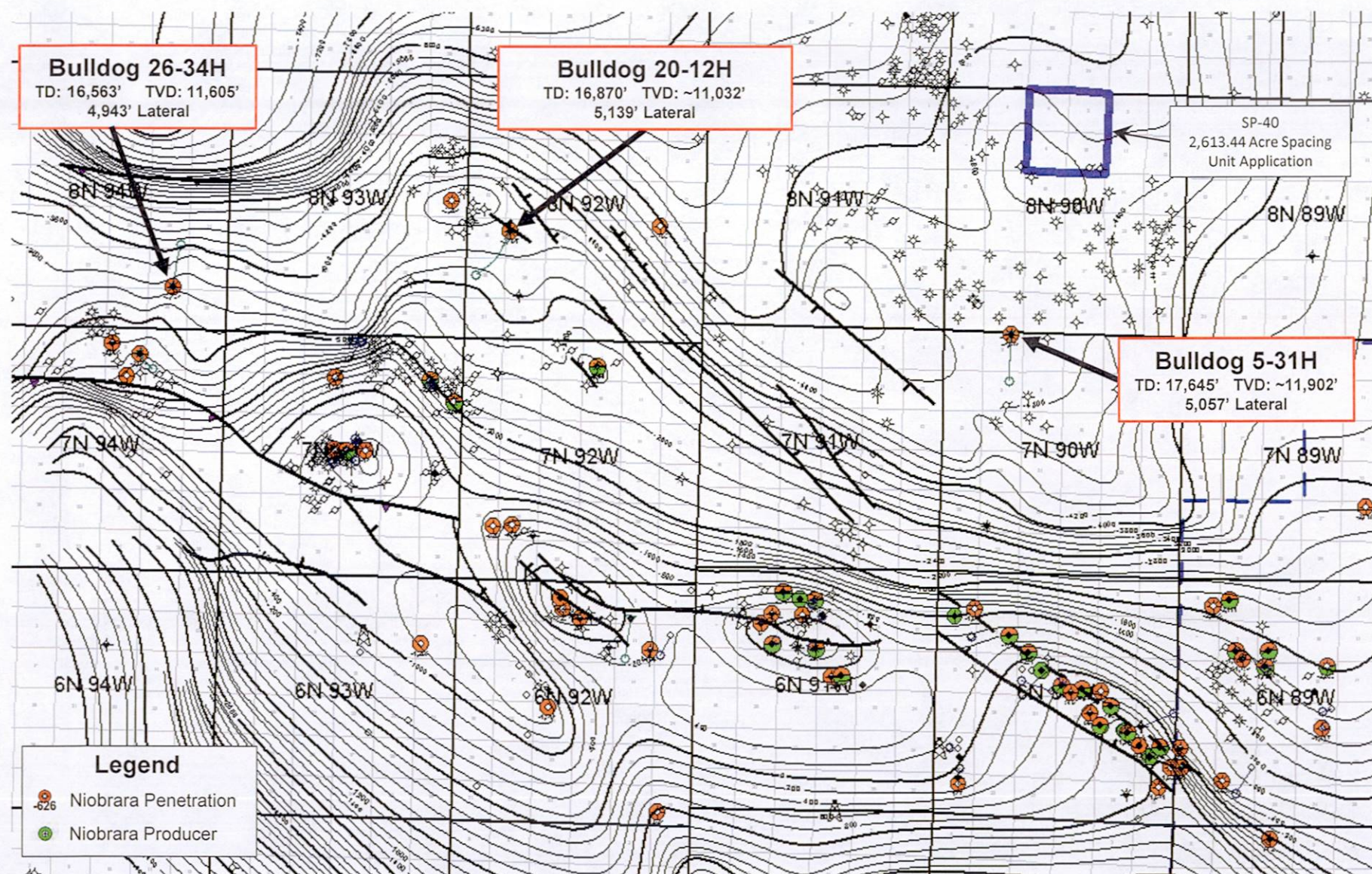
Northwest – Southeast
Correlation Cross-Section
Showing
Mancos and Niobrara Thickness
and Porosity

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

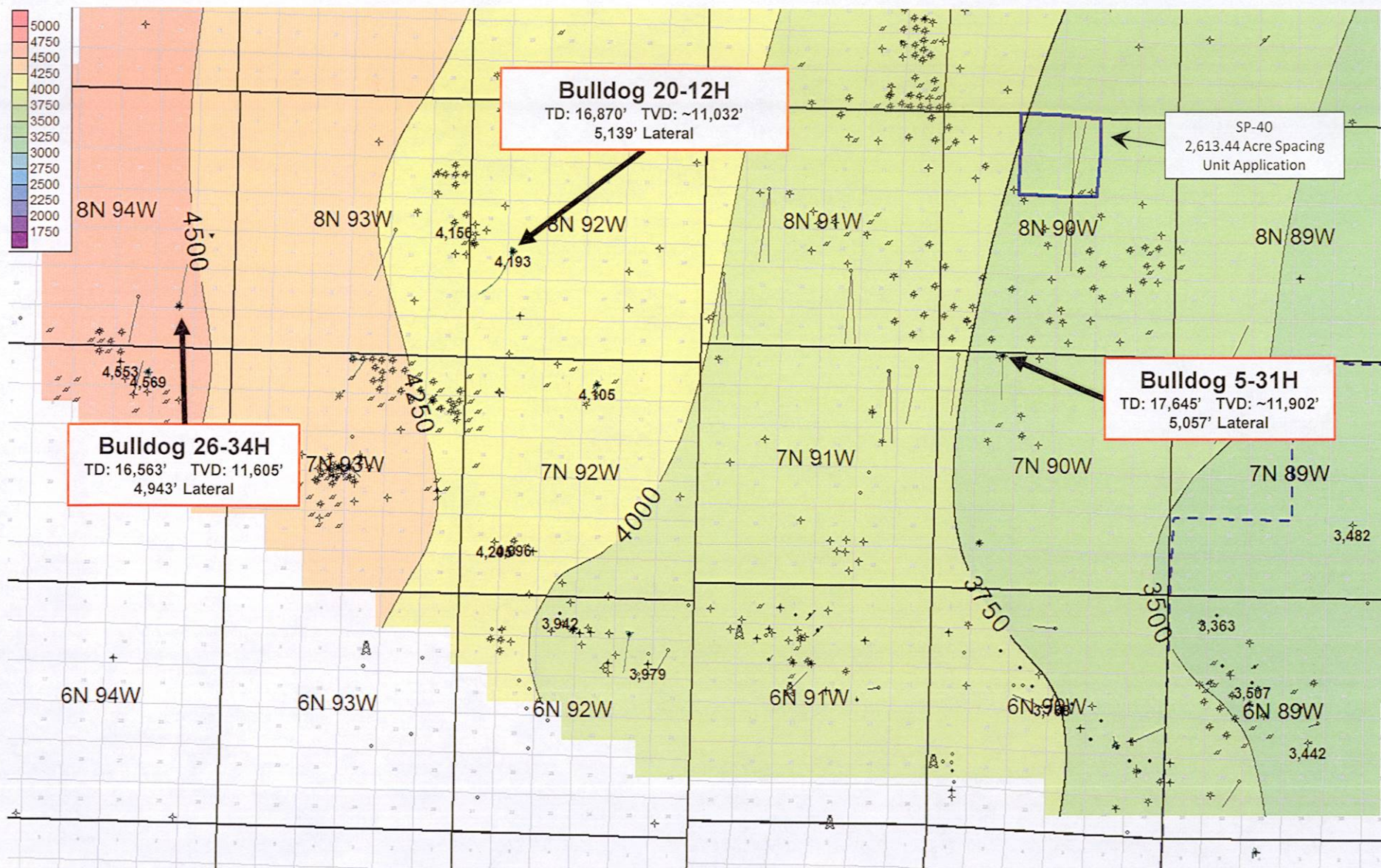


Structure Top Niobrara

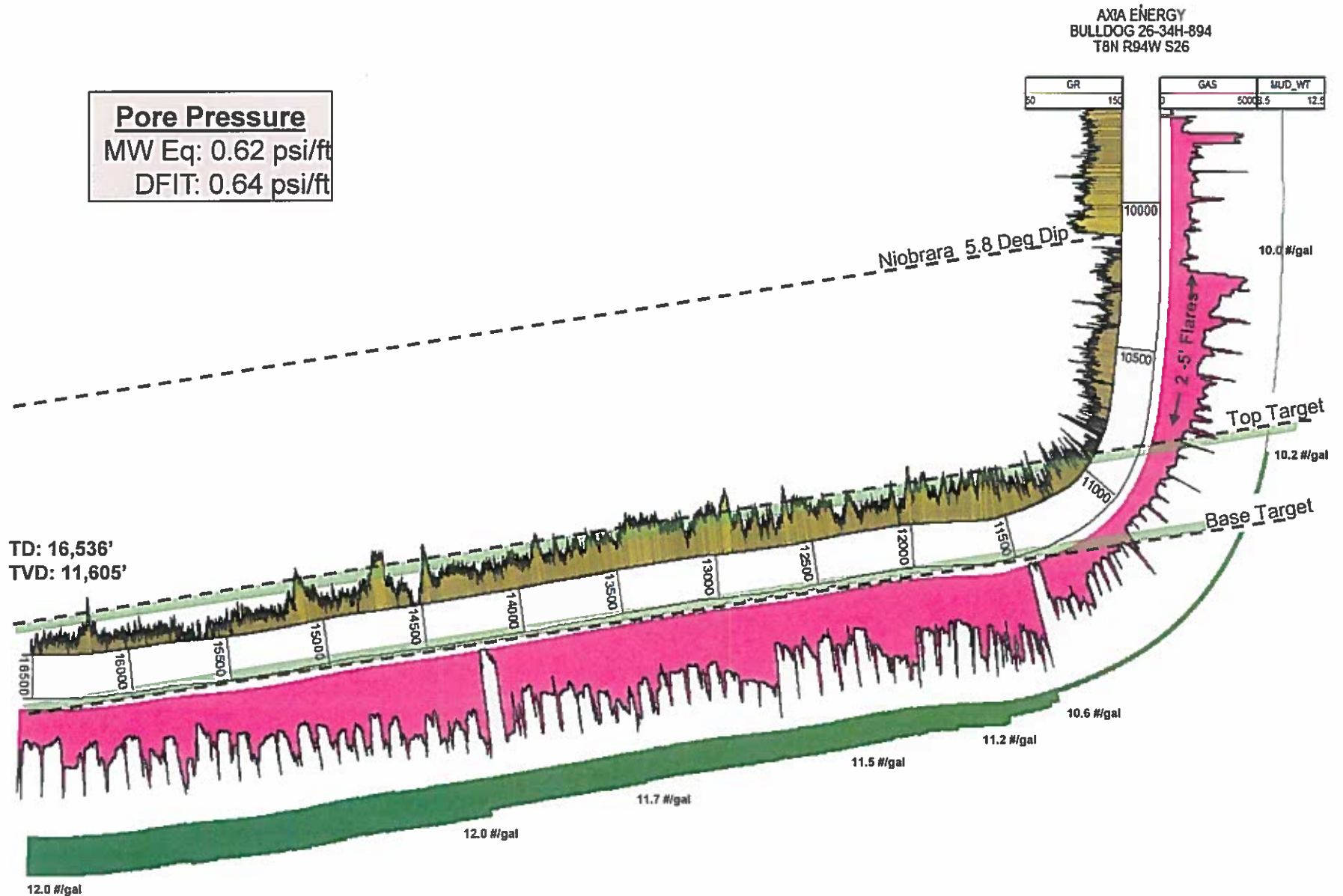
CI = 200'



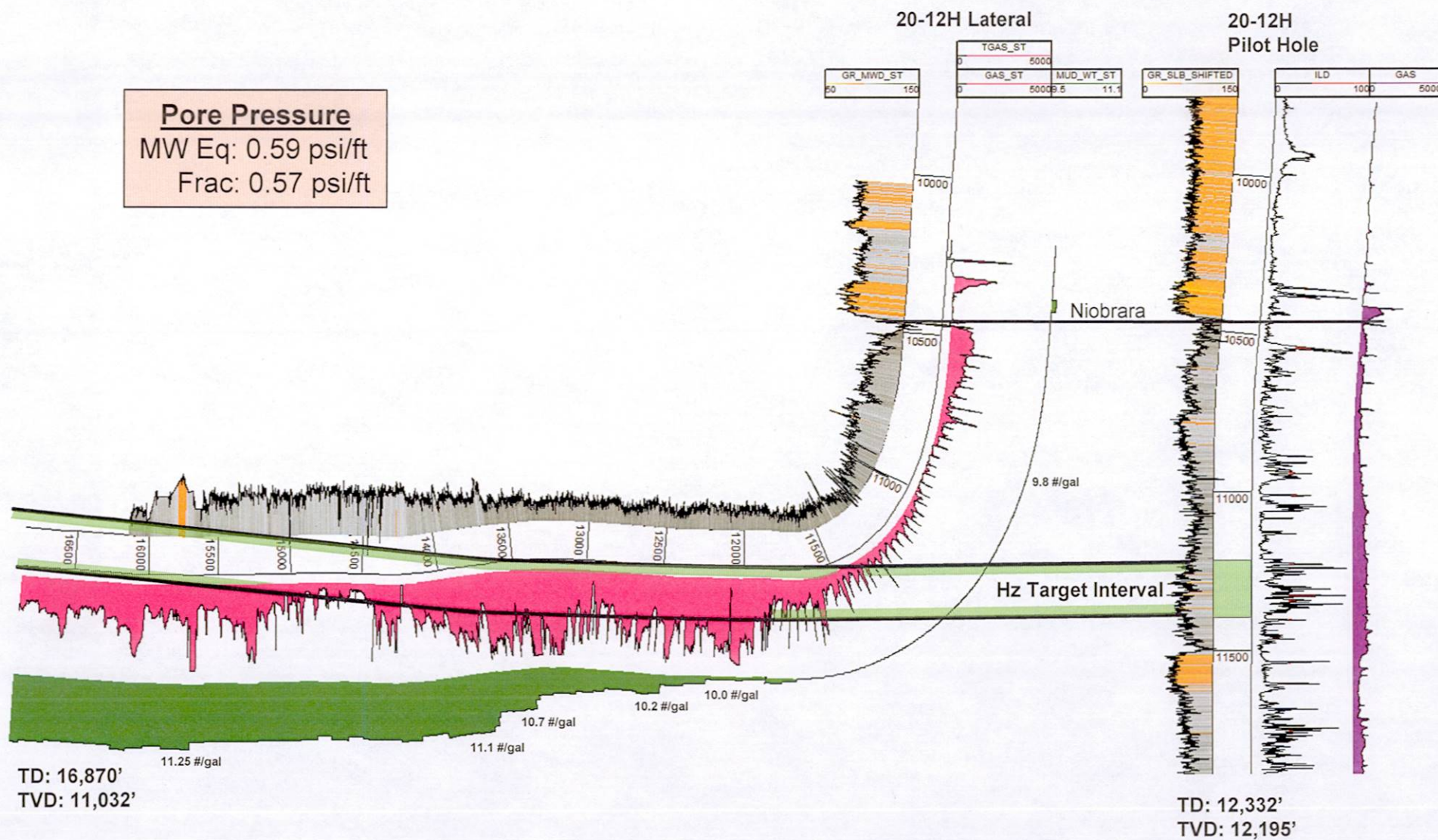
Top Mancos to Base Niobrara Isopach Map CI = 250'



Bulldog 26-34H – HZ Wellbore Overview



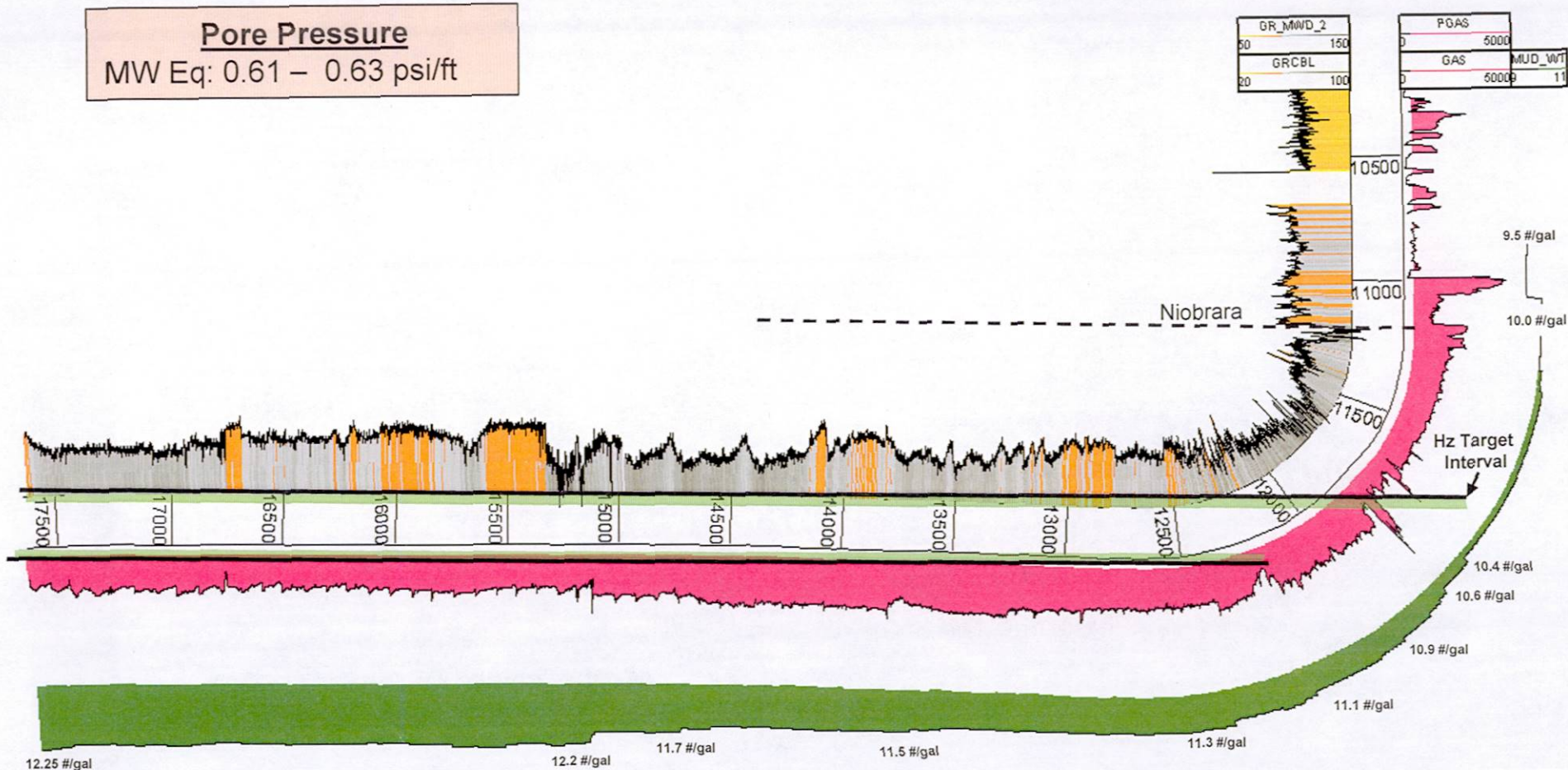
Bulldog 20-12H – HZ Wellbore Overview



Bulldog 5-31H – HZ Wellbore Overview

Pore Pressure

MW Eq: 0.61 – 0.63 psi/ft



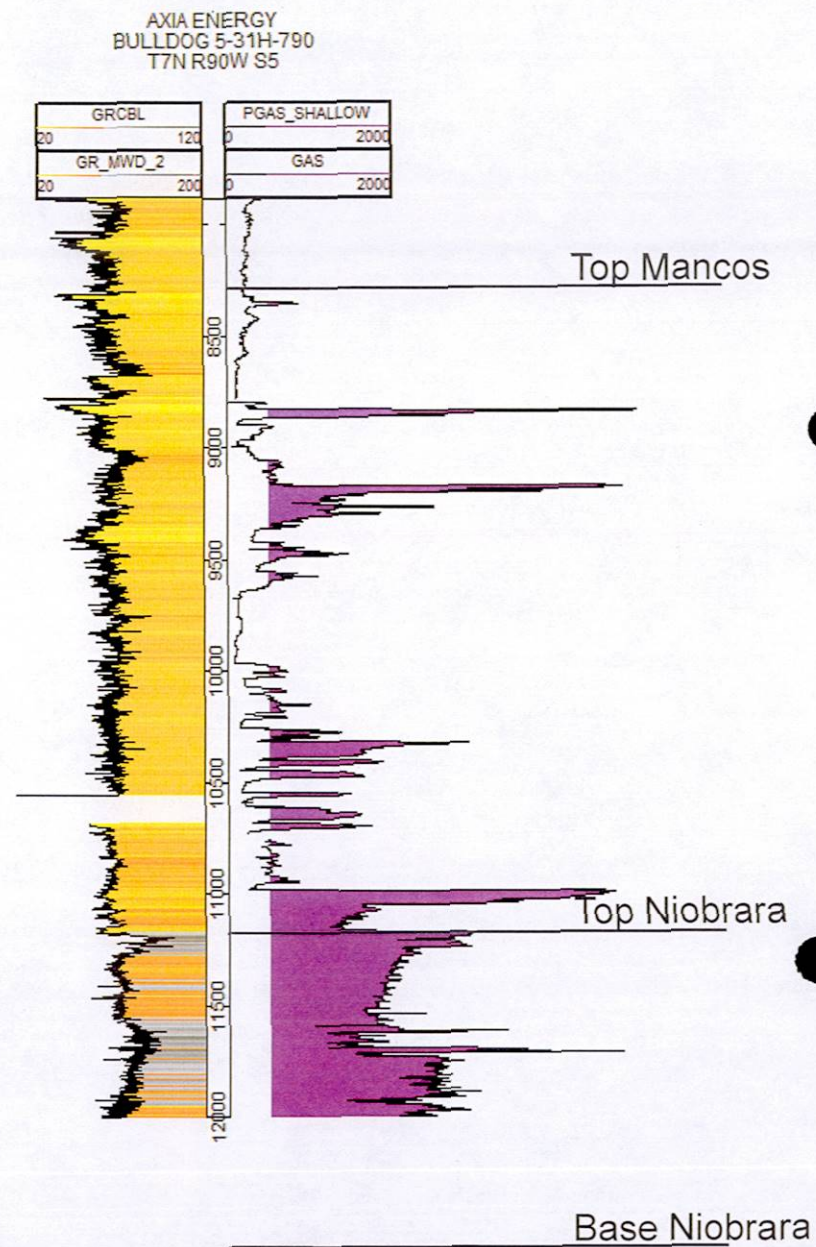
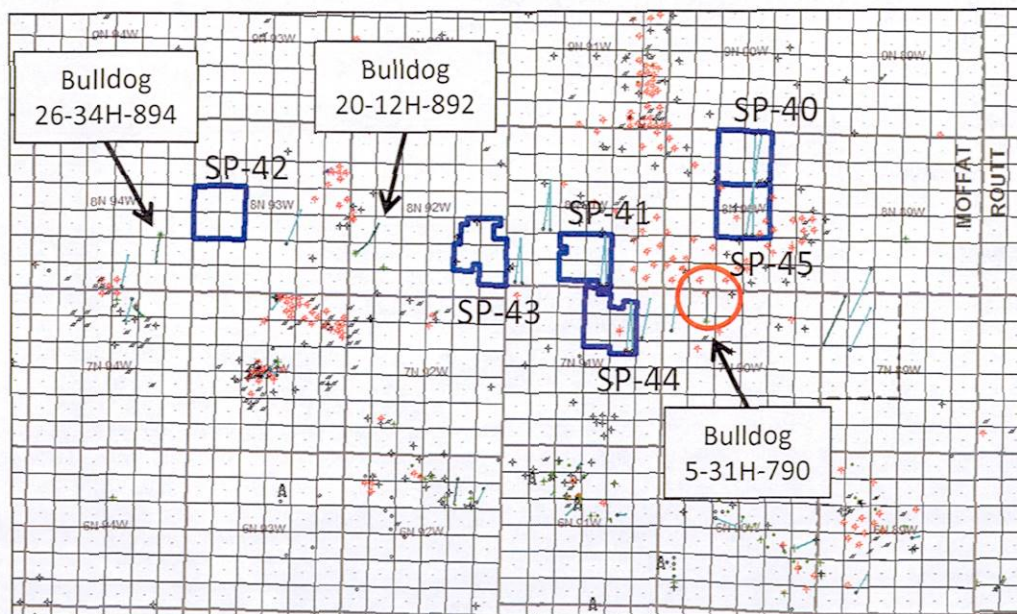
TD: 17,645'
TVD: 11,902'

Exhibit G-8

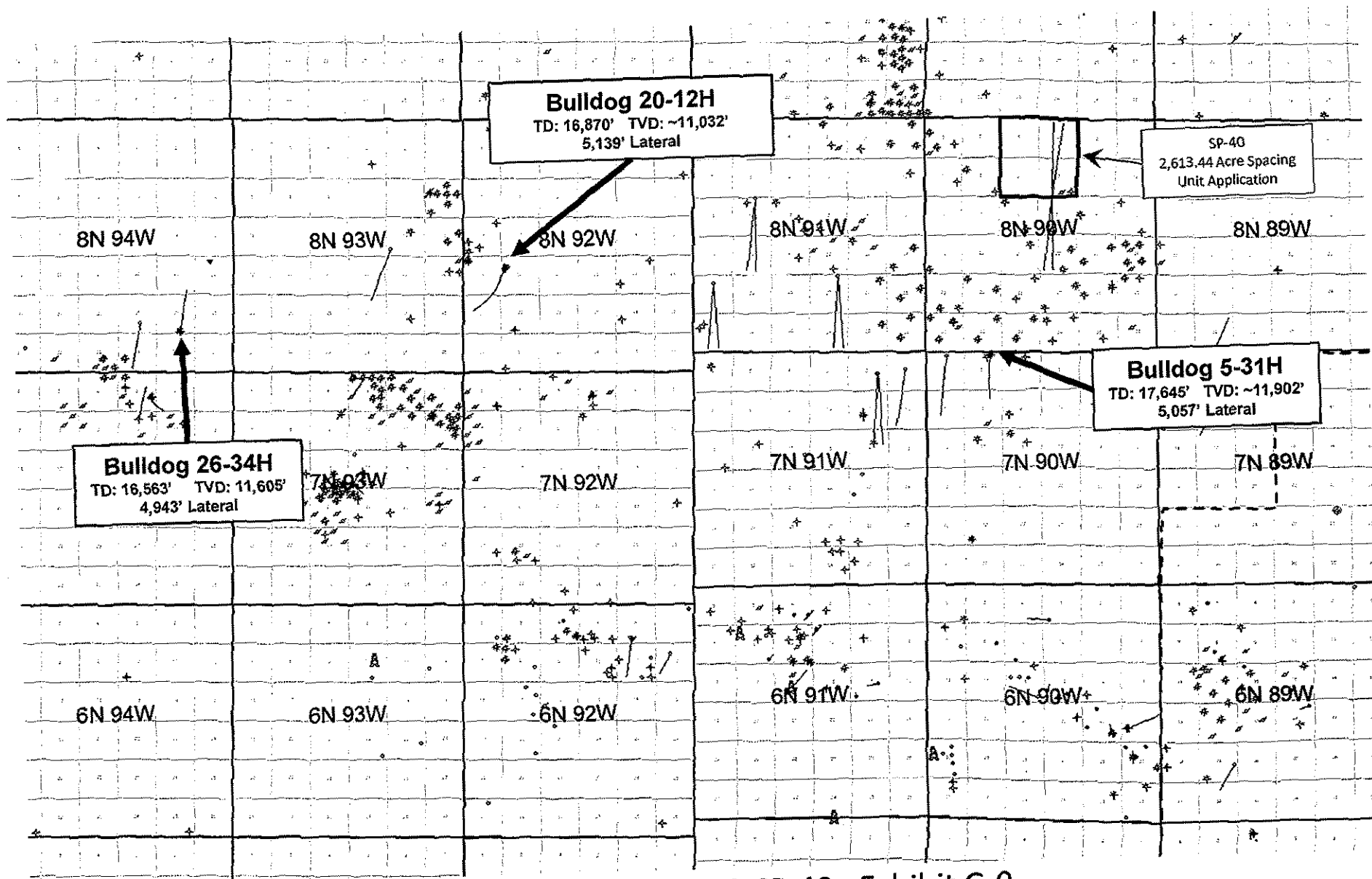
Cause 540

Docket No. 1303 SP-40

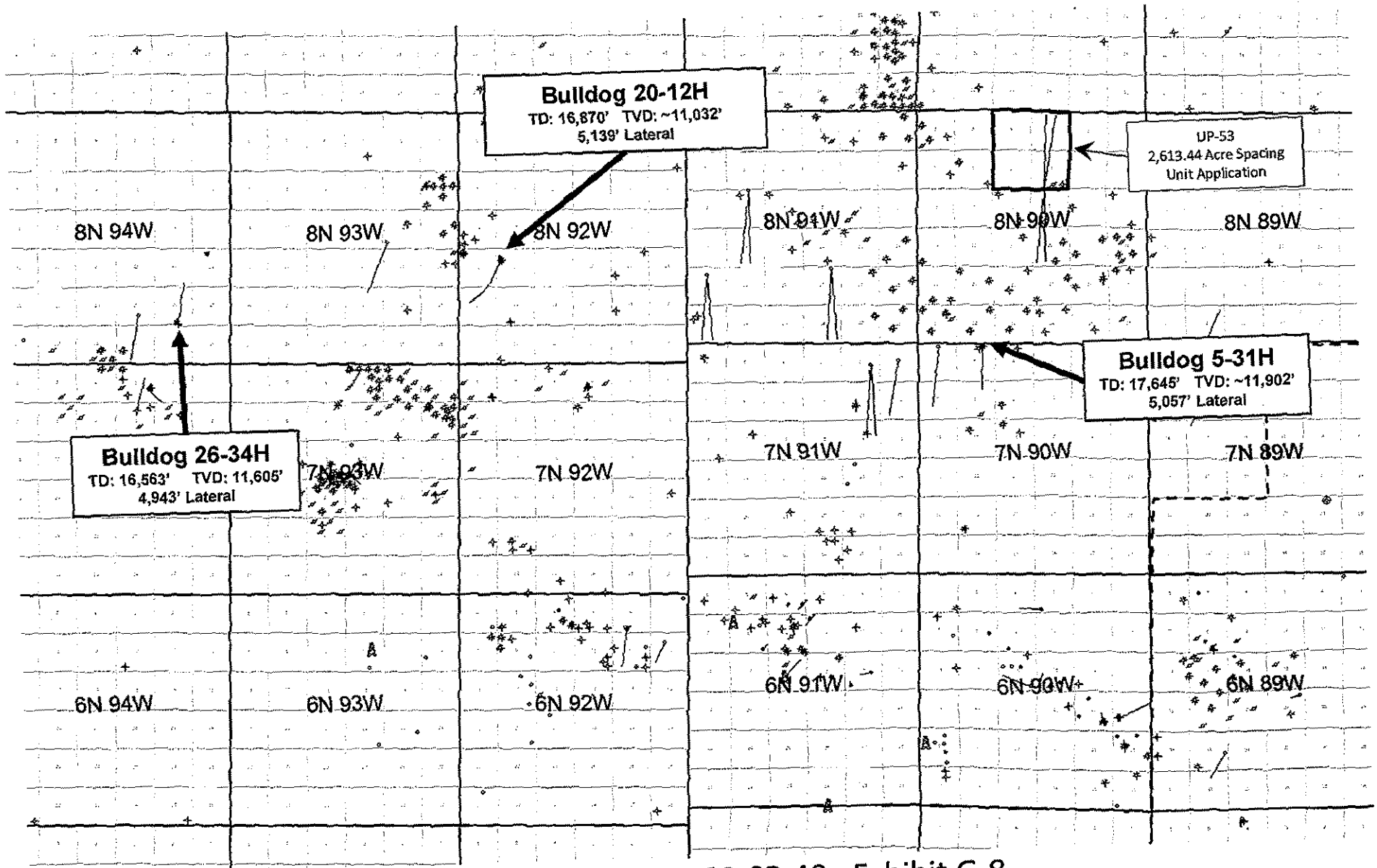
Gas Shows Bulldog 5-31H



Offset Well Locations



Offset Well Locations



AXIA ENERGY, LLC

Taryn Frenzel - Engineering Testimony

**Moffat County, Colorado
Cause No. 540, Docket No. 1303-SP-40
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.

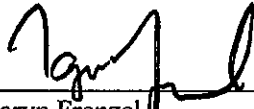
Due to the fact that the Niobrara and Mancos covers a large gross interval as shown in Exhibit E-1, stacked laterals will become a necessity to develop the resource. Exhibit E-3 shows a stacked lateral development. Multiple stacked lateral wells need to be drilled and stimulated in order to effectively 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

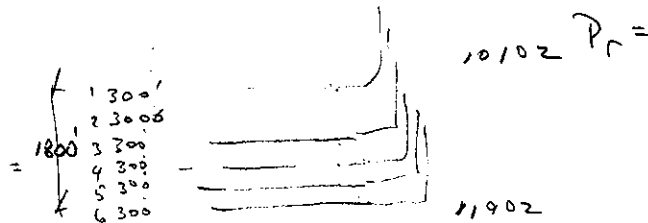
avoided and that correlative rights will be protected and the gas will be recovered more economically, efficiently and allow for as few of pads as possible.

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.


 Taryn Frenzel
 Senior Completions Engineer, Axia Energy LLC.

| <u>well</u> | <u>Height</u> | <u>ϕ Porosity</u> |
|-----------------|---------------|---------------------------------------|
| Bulldog 26-34 H | 4570 | 6.5% |
| Bulldog 20-12 H | 4150 | " |
| Bulldog 5-31 H | 3700 | " |

five well pad.



$$\textcircled{a} \text{GOR} = 20,000$$

$$\frac{8,400,000,000}{420,000 \times 2} = 20,000$$

question:

Sw
Bo, Bg

Where does the RF = 20% come from?
 i.e. 20% for gas drive which is high.

Where does the GOR come from?

Drainage Area:

Method 1:

$$A = \frac{L^2 b + \pi b^2}{43,650} = \frac{(9000)^2 (2(150') + \pi(150')^2)}{43650} = 163.6 \text{ ac.}$$

Method 2:

$$A = \frac{\pi ab}{43,560} = \pi \frac{(4650)(150')}{43560} = 50.3 \text{ ac}$$

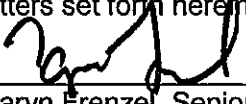
$$A_{eq} = \frac{163.6 + 50.3}{2} = 156.9$$

$$a = \frac{L}{2} + b = \frac{9000}{2} + 150 = 4650$$

$$r_{sk} = \left(\frac{43560 A}{\pi} \right)^{1/2} = \left[\frac{43560 (156.9)}{\pi} \right]^{1/2} = 888.7'$$

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.
)

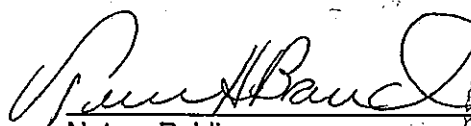
CITY AND COUNTY OF DENVER

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

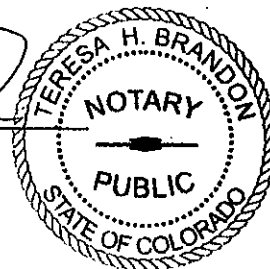
Witness my hand and official seal.

[SEAL]

My commission expires: 8/7/16



Notary Public



Taryn Frenzel

Experience

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.

Education

Montana Tech of the University of Montana *Butte, MT*

1994 – 1997

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

Dawson County College *Glendive, MT*

Fall 1992 – 1994

- Associates of Applied Science



Exhibit E-3 Stacked Lateral Potential

Cause No. 540
Docket No. 1303-SP-40

Vertical Section

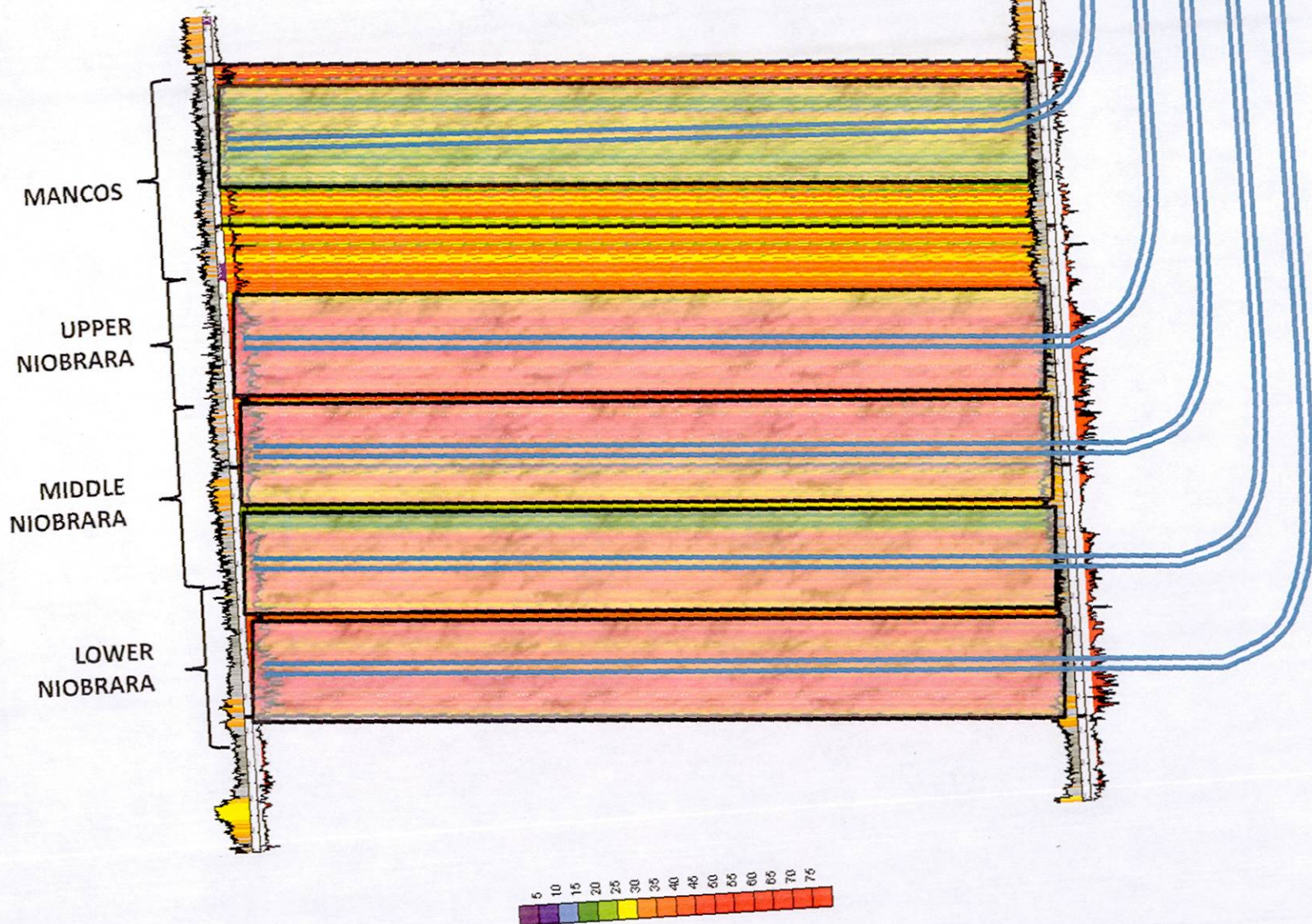




Exhibit E-4 OGIP

Cause No. 540
Docket No. 1303-SP-40

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

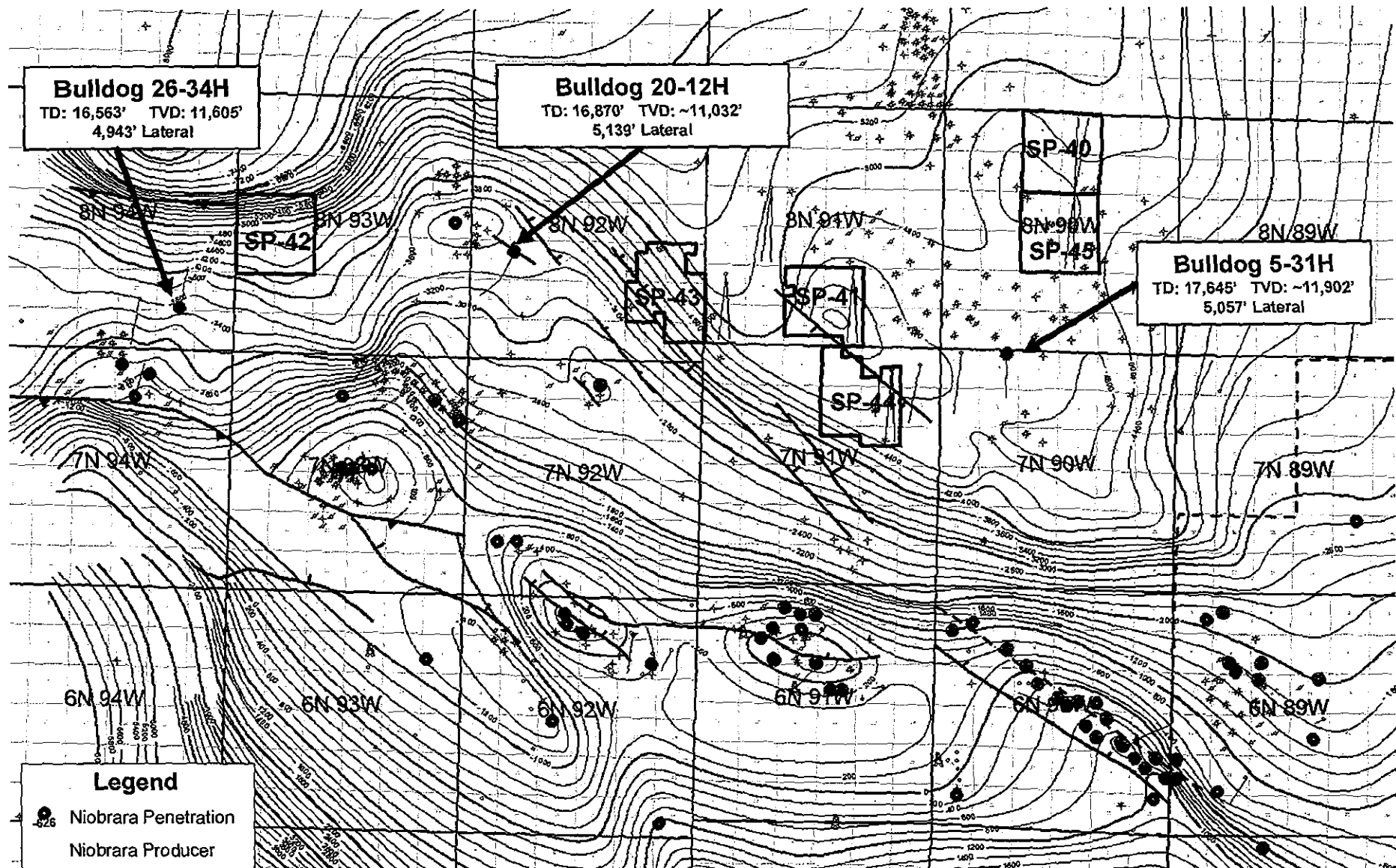
| Niobrara Horizontal | | | | | |
|---------------------|-------|-----|----------------|---------|------|
| | Gross | Net | Net to Gross % | Avg Por | PhiH |
| Middle Niobrara | 300 | 300 | 100.0% | 6.5% | 19.5 |

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



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

Cause No. 540
Docket No. 1303-SP-40





Exhibits E-1 Gross Niobrara/Mancos Thickness

Cause No. 540
Docket No. 1303-SP-40

