

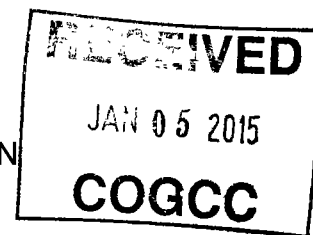


02185679

1-5-15

511 DOCUMENTS

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



IN THE MATTER OF THE APPLICATION OF)
EXTRACTION OIL & GAS, LLC FOR AN ORDER)
ESTABLISHING AN APPROXIMATE 1280-) Cause No. 535
ACRE DRILLING AND SPACING UNIT AND)
ESTABLISHING WELL LOCATION RULES) Docket No. 150100006
APPLICABLE TO THE DRILLING AND)
PRODUCING OF WELLS FROM THE CODELL)
FORMATION COVERING LANDS IN SECTIONS)
1 AND 12, TOWNSHIP 11 NORTH, RANGE 61)
WEST, 6TH P.M., WELD COUNTY,)
COLORADO.)

REQUEST FOR RECOMMENDATION OF
APPROVAL OF APPLICATION WITHOUT A HEARING

Extraction Oil & Gas, LLC ("Applicant" or "Extraction"), by its attorneys, Welborn Sullivan Meck & Tooley, P.C., hereby requests pursuant to Rule 511.a. of the Rules and Regulations of the Colorado Oil and Gas Conservation Commission ("Commission") for the Director to recommend approval of its November 17, 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 by the Application.

Applicant further requests that the Director take administrative notice of previous Order Nos. 535-542 and 535-546 and Rule 511 testimony submitted in support thereof as further grounds for approval of establishing well densities of four horizontal wells per 1280-acre spacing unit for the Codell Formation in the vicinity of the Application Lands.


To Applicant's information and belief, as of the date of this Request, no protests have been 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 5th day of January, 2015

Respectfully submitted,

By: _____


Stephen J. Sullivan
Joseph C. Pierzchala
Welborn Sullivan Meck & Tooley, P.C.
Attorneys for Applicant
1125 17th Street, Suite 2200
Denver, CO 80202
(303) 830-2500
ssullivan@wsmtlaw.com
jpierzchala@wsmtlaw.com

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

IN THE MATTER OF THE AMENDED)	
APPLICATION OF EXTRACTION OIL & GAS,)	
LLC FOR AN ORDER ESTABLISHING AN)	Cause No. 535
APPROXIMATE 1280-ACRE DRILLING AND)	
SPACING UNIT AND ESTABLISHING WELL)	Docket No. 150100006
LOCATION RULES APPLICABLE TO THE)	
DRILLING AND PRODUCING OF WELLS)	Type: SPACING
FROM THE CODELL FORMATION)	
COVERING LANDS IN SECTIONS 1 AND 12,)	
TOWNSHIP 11 NORTH, RANGE 61 WEST,)	
6TH P.M., WELD COUNTY, COLORADO.)	

SUMMARY OF RULE 511 WRITTEN TESTIMONY

Extraction Oil & Gas, LLC ("Applicant" or "Extraction"), by its attorneys, Welborn Sullivan Meck & Tooley, P.C., submits this written testimony and the accompanying Exhibits A, B and C to the Oil and Gas Conservation Commission of the State of Colorado ("Commission") in support of its Application for an order establishing an approximate 1280-acre drilling and spacing unit, and establishing well location rules applicable to the drilling of wells and producing of oil and gas from the Codell Formation covering the following lands in Weld County, Colorado ("Application Lands"):

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

Based upon work supervised by Ms. Allyson Vistica, Applicant listed in Exhibit A to the Application in this matter the names and addresses of the interested parties and each of those parties was notified as indicated in the Certificate of Mailing filed in this matter. Ms. Allyson Vistica prepared the written land testimony, Exhibit A hereto. Mr. Matt Volkmar prepared the written geologic testimony, Exhibit B hereto. Mr. John Tonello prepared the written engineering testimony, Exhibit C hereto. Copies of the affiants' respective resumes are included with their testimony.

Attached to Exhibit A is a map depicting the Application Lands and showing Applicant's leasehold interest therein.

Attached to Exhibit B are geologic testimony exhibits that include: a Structure Contour Map constructed on top of the Codell Formation which shows regional dip for the Codell Formation underlying the Application Lands ranges from 20-50 feet per square mile to the west northwest; an isopach of the Codell Formation in the vicinity of the lands included in this application; a Correlation Cross-Section and Codell Logs that show a profile comparison between logs of vertical wells through the Codell

Formation across the Application Lands; and a type log which indicates the Codell Formation is overlain by the Ft. Hays Limestone and underlain by the Carlile Shale making the Codell Formation a reservoir that could be developed more efficiently using horizontal drilling techniques.

Attached to Exhibit C are engineering exhibits which set forth the engineering characteristics of the Codell reservoir intended to be drilled and produced by Applicant. Based on reservoir characteristics from certain 1280-acre drilling and spacing units that are producing from the Codell Formation, the estimated drilling and completion economics for the Applicant's proposed spacing unit and well density would produce favorable economics for the proposed operations.

Based upon this geologic and engineering information, Applicant believes that the proposed 1280-acre drilling and spacing unit will result in economic wells with a favorable return on investment that will allow for efficient drainage and recovery of hydrocarbons from the Codell Formation without causing waste or injuring correlative rights.

Dated: January 5, 2015

Respectfully submitted,

EXTRACTION OIL & GAS, LLC

By: 

Stephen J. Sullivan

Joseph C. Pierzchala

Welborn Sullivan Meck & Tooley, P.C.

Attorneys for Applicant

1125 17th Street, Suite 2200

Denver, CO 80202

(303) 830-2500

ssullivan@wsmtlaw.com

jpierzchala@wsmtlaw.com

<p>Exhibit A</p> <p>Extraction Oil & Gas, LLC</p> <p>Allyson Vistica</p>	<p>Docket No. 150100006</p> <p>Land Testimony – Rule 511</p> <p>Weld County, Colorado</p>
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Spacing Application

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

(Codell Formation)

In support of the Request for Director Approval of the Verified Application of Extraction Oil & Gas, LLC (“Extraction”) in Docket No. 150100006, and pursuant to Rule 511 b, Allyson Vistica, Land Manager of Extraction deposes and states as follows:

I am employed as Land Manager for Extraction. I have over seven years of experience of land work and as a Landman. I have been employed with Extraction since November 2013, working directly with properties that are the subject of the hearing. I have previously testified as an expert land witness before the Hearing Officers of the COGCC.

In support of our Application, I have prepared one (1) exhibit, which is a plat of the lands that are the subject of this Application. Exhibit L-1 is attached to my sworn testimony and forms the basis for Extraction’s Application to obtain an order to (1) establish one 1280-acre drilling and spacing unit and (2) establish well location rules in the Codell Formation in the following lands located in Weld County, Colorado (the “Application Lands”):

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

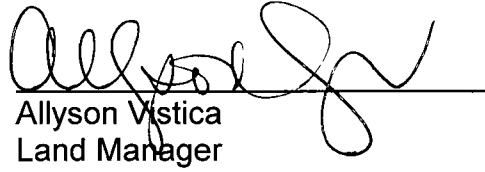
Section 12: All

Extraction owns a leasehold interest in the Application Lands as depicted on the attached exhibit. Extraction believes that the rules in the proposed drilling and spacing unit will allow development of the Codell Formation to occur, will not promote waste, will not violate correlative rights and will assure the greatest ultimate recovery of oil, gas and associated hydrocarbon substances from the reservoir.

Based upon our examination of relevant records, and under my direction and control, all of the unleased mineral interest owners and mineral lessees within the Application Lands, listed on Exhibit A to the Application, have received proper notice of this Application. As of the date of my testimony, we have not received notice of a protest regarding the subject Application.

To the best of my knowledge and behalf, all of the matters set forth herein, my testimony and in the exhibits are true, correct and accurate.

Dated this 5th day of January, 2015



Allyson Vistica
Land Manager

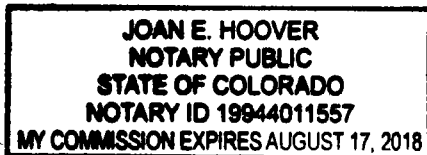
VERIFICATION

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

The foregoing instrument was subscribed and sworn to before me on this 5th day of January, 2015, by Allyson Vistica, Land Manager, for Extraction Oil & Gas, LLC.

Witness my hand and official seal.

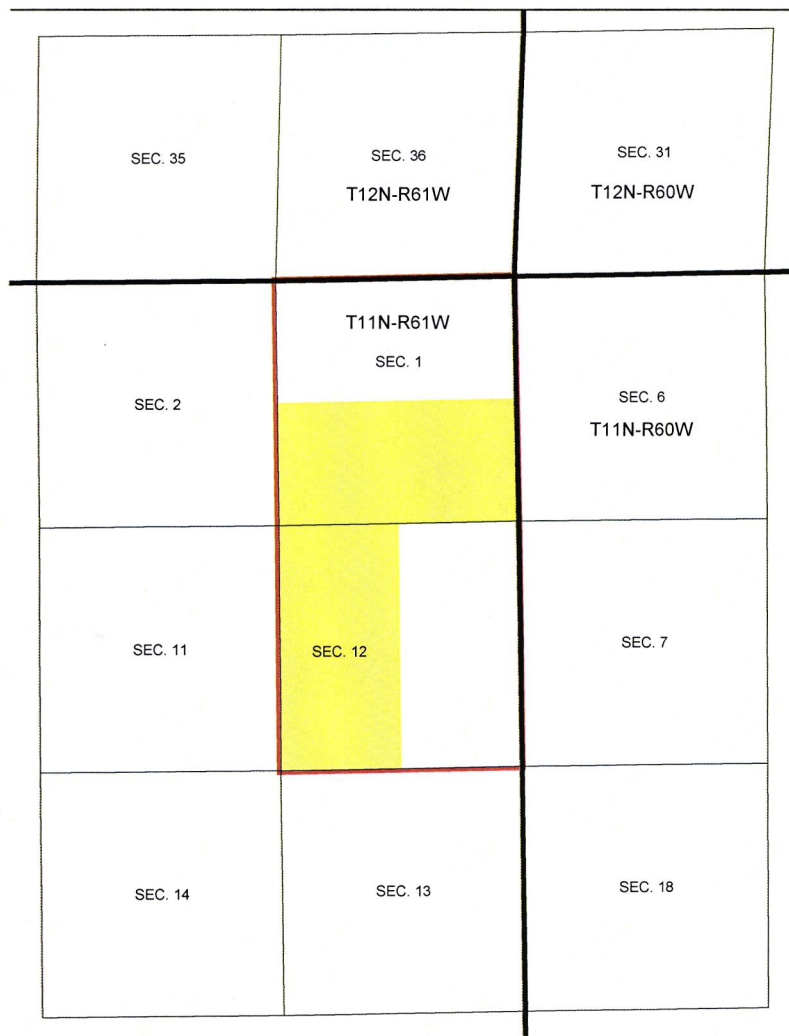
My commission expires: 8/17/2019



Jan E. Jorda
Notary Public

SPACING UNIT

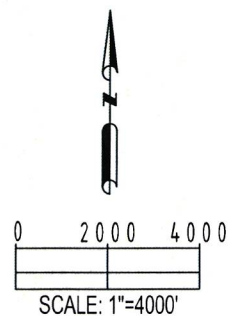
SECTION 1 & 12, TOWNSHIP 11 NORTH, RANGE 61 WEST, 6TH P.M.



SPACING UNIT AREA = 1264.46 ACRES

LEGEND

- = SPACING UNIT
- = EXTRACTION LEASE



PREPARED BY: PFS Petroleum Field Services, LLC 7535 Hilltop Circle Denver, CO 80221	DRAWING DATE: 11-12-14 BY: MDCA	CHECKED: WDW SPACING UNIT: SEC. 1 & 12 T11N, R61W, 6TH P.M. WELD COUNTY, COLORADO
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ALLYSON GRAYCE VISTIC

3422 UTICA STREET
DENVER, CO 80212

(214) 676-9425
avistica@gmail.com

EDUCATION

Oklahoma City University School of Law
Juris Doctor, May 2007

Oklahoma City, OK

- **Oklahoma Bar Number: 22756**
- **Texas Bar Number: 240566656**
- Turner Inn of Court Oklahoma City– Member
- 1L/2L/3L Class Vice President
- Oklahoma Bar Association Law Student Division – Executive Committee

Southern Methodist University
Bachelor of Arts, Public Policy, May 2004

Dallas, TX

PROFESSIONAL EXPERIENCE

Extraction Oil and Gas, LLC

Denver, CO

Senior Landman, November 2013 – Present

- Negotiated Farmout Agreements and Amendments thereto
- Handled several divestitures and potential acquisitions including Data Room prep
- Drilled horizontal gas wells – including broker management and title issues

Forest Oil Corporation

Denver, CO

Eastern Business Unit Landman and Team Leader, December 2011 – November 2013

- Negotiated Farmout Agreements and Amendments thereto
- Handled several divestitures and potential acquisitions including Data Room prep
- Drilled horizontal gas wells in East Texas – including broker management and title issues
- Asset Team Leader of multi-functional team for East Texas East Asset

Chesapeake Energy Corporation

Oklahoma City, OK

Landman, January 2010 – December 2011

- Drilled 40 horizontal natural gas wells, holding approximately 4,000 acres
- Appointed land head for all Rule 37 cases before the Texas Railroad Commission
- Negotiated and drafted JOA's with several independent operators
- Successfully negotiated lease terms with numerous hold out groups
- Coordinated with other operators to drill production sharing unit horizontal wells
- Secured and negotiated terms of vital padsites to Chesapeake operations
- Spearheaded task force for Barnett Land Department Force Majeure filings

Buckley, White, Castenada and Howell

Houston, TX

Title Attorney, March 2009 – January 2010

- Draft Original Title Opinions for Barnett Shale, and South Texas

Crew Land Research

Fort Worth, TX

Of Counsel/Landman, August 2007 – March 2009

- Researched mineral title in the Barnett Shale Play

Interstate Oil and Gas Compact Commission

Oklahoma City, OK

Paid Intern, August 2006 – May 2007

- Performed legal research on regulations, and litigation affecting the oil and gas industry
- Prepared memoranda on EPA Regulatory Agenda

<p>Exhibit B</p> <p>Extraction Oil & Gas, LLC</p> <p>Matt Volkmar</p>	<p>Docket No. 150100006</p> <p>Geology Testimony – Rule 511</p> <p>Weld County, Colorado</p>
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SPACING APPLICATION

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

(Codell Formation)

My name is Matt Volkmar, and I am currently employed as a Petroleum Engineer at Extraction Oil & Gas, LLC. I am a licensed Professional Engineer in the State of Colorado (PE.0047232). I received a Bachelor of Science Degree in Petroleum Engineering with minors in Geology and Economics from the Colorado School of Mines in 2005. I have over 9 years of experience in the oil and gas industry. I am familiar with the lands described, and the matters set forth in the Verified Application (“Application”).

In support of the Application in the above referenced docket, I am submitting the following four exhibits. These exhibits are attached to my sworn testimony and form the basis for the Application for an order establishing one 1280-acre spacing unit for the drilling of up to four horizontal wells for production of oil, gas and associated hydrocarbons from the Codell Formation in the following lands located in Weld County, Colorado, (“Application Lands”):

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

1. Exhibit G-1 – Structure Contour Map

Exhibit G-1 is a subsea structure map constructed on the top of the Codell Formation. The regional dip for the Codell Formation underlying the Application Lands ranges from 20-50 feet per square mile to the west northwest.

2. Exhibit G-2 – Isopach Map of Codell

Exhibit G-2 is an isopach map of the total thickness of the Codell Formation. Total thickness of the Codell Formation underlying the Application Lands ranges from 18 to 24 feet.

3. Exhibit G-4 – Correlation Cross-Section and Codell Logs

Exhibit G-4 shows a profile comparison between logs of vertical wells through the Codell Formation across the Application Lands. The Codell Sandstone is present in all wells and should be encountered underlying the Application Lands. The logs show that the Codell Formation underlying the Application Lands will likely consist of a Fine-Very Fine silty-sandstone.

4. Exhibit G-3 – Type Log

Exhibit G-2 is a representative type log of the Codell formation and surrounding formations in the Application Lands. The Codell is overlain by the Ft. Hays Limestone and underlain by the Carlile Shale.


Conclusion

The Codell Formation was deposited in the Western Interior Seaway during Cretaceous time. This seaway was vast in extent and covered much of present day North America from the Gulf of Mexico north to the Arctic. These rocks were deposited as shallow water sediments and underlie most of the DJ Basin in parts of northeastern Colorado. The Codell Formation exists under the entirety of the Application Lands and is a common source of hydrocarbon production.

The Codell Formation is a sandstone reservoir. Permeability of the reservoir is characterized by published data ranges between 0.05-0.005 md and this is offered as characterization for the Codell reservoir under the Application Lands.

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 the exhibits are true, correct and accurate.

Dated this 5th day of January, 2015



Matt Volkmar
Petroleum Engineer
Extraction Oil & Gas, LLC

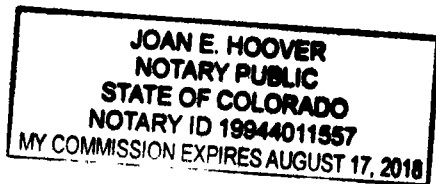
VERIFICATION

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

The foregoing instrument was subscribed and sworn to before me on this 5th day of January, 2015, by Matt Volkmar, Petroleum Engineer, for Extraction Oil & Gas, LLC.

Witness my hand and official seal.

My commission expires: 8/17/2018.





Notary Public

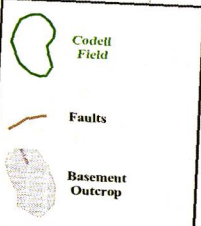
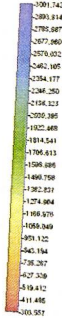
Hartville Uplift

Chadron Arch

Front Range

Apishapa Uplift

Las Animas Arch



EXTRACTION
Oil & Gas

DJ Basin

Top Codell SS
 Structure Map
 C.I. = 250 Ft
 October 10, 2014

DONOHU Oil & Gas
 Consultants, LLC

P.O. Box 2284
 Georgetown, CO 80531-2284
 Phone/Fax: (303) 679-4444

Exhibit G-2: Codell Isopach

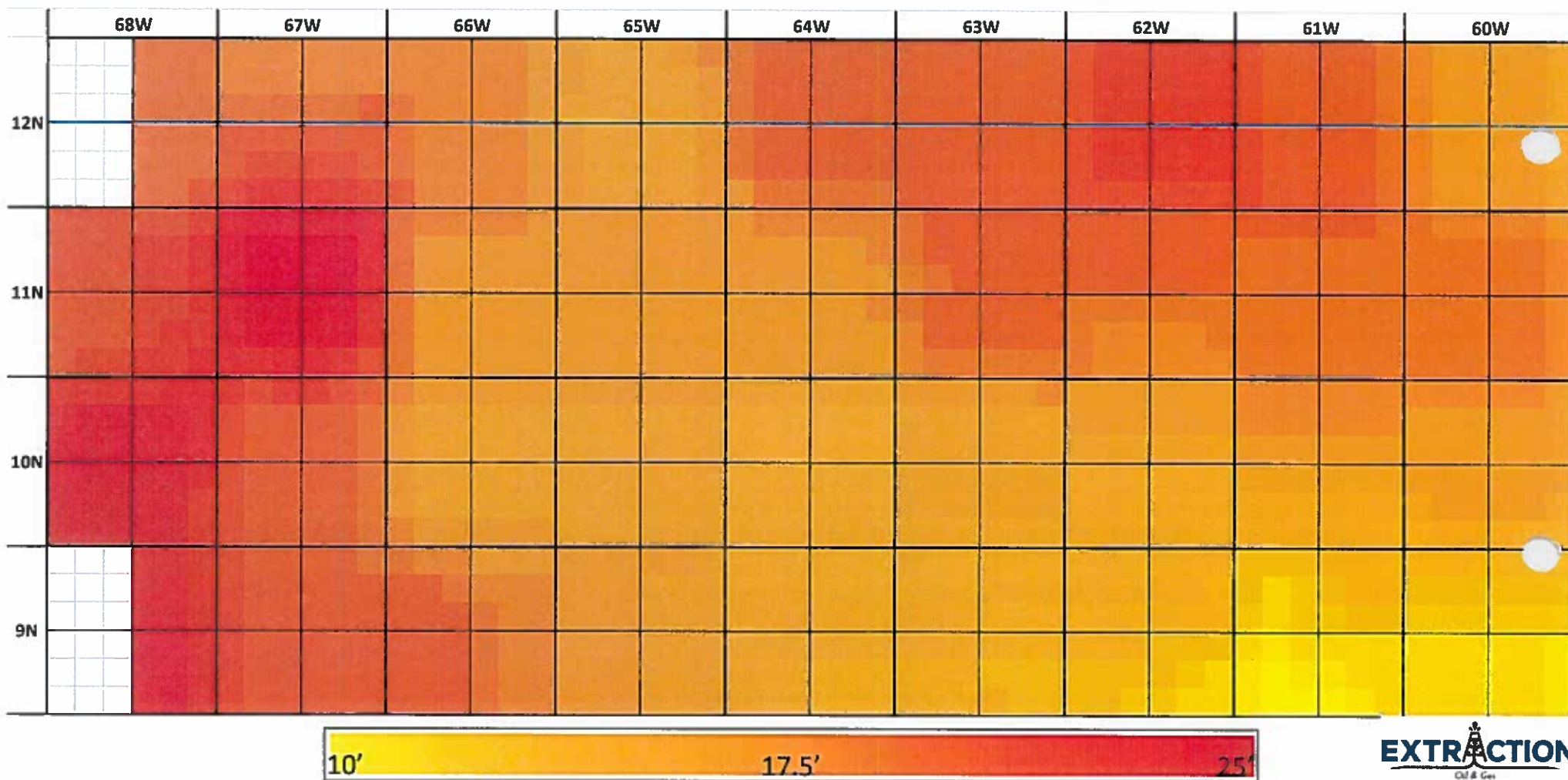


Exhibit G-3: Codell Cross-Section

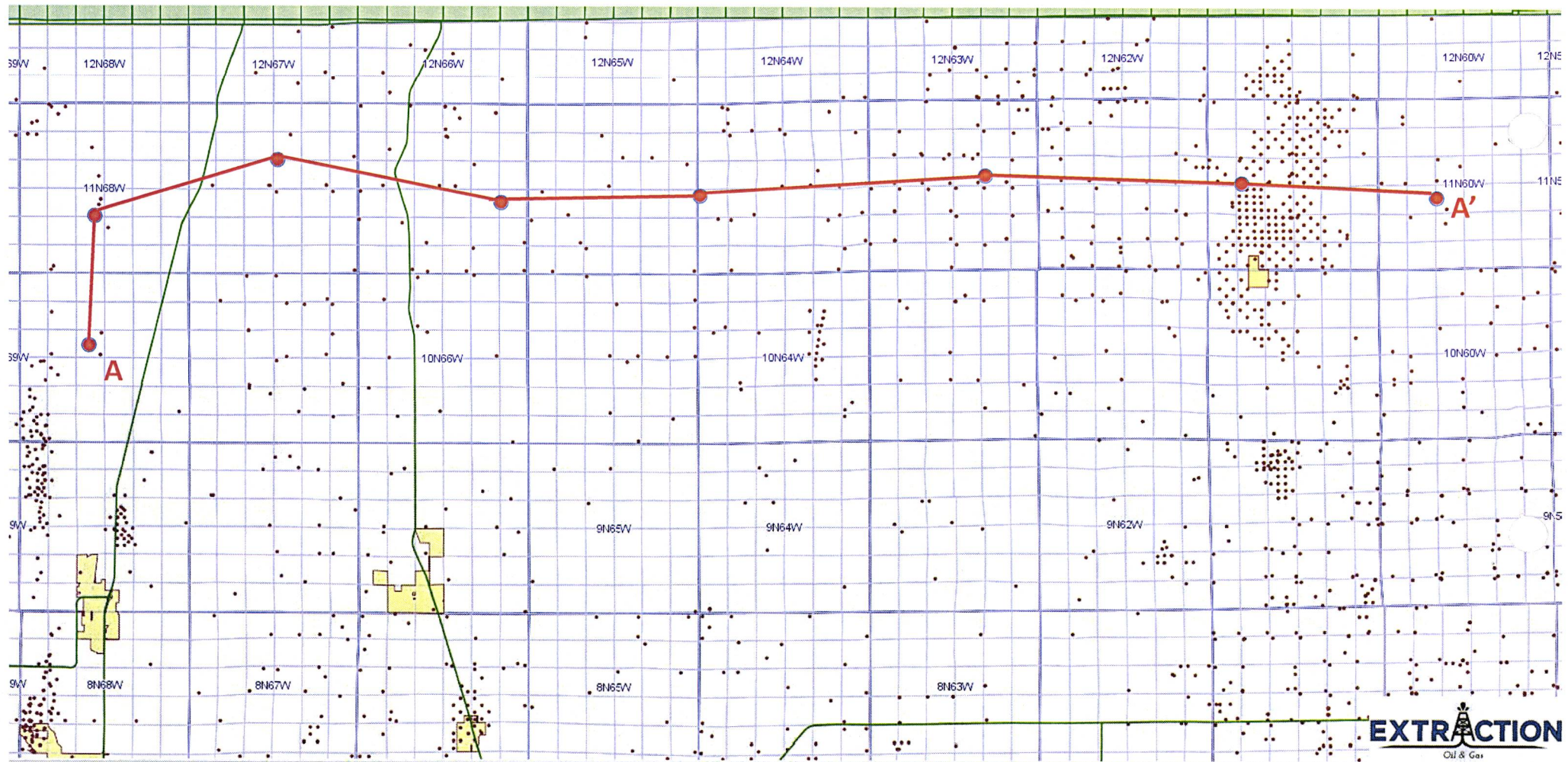


Exhibit G-3: Codell Cross-Section

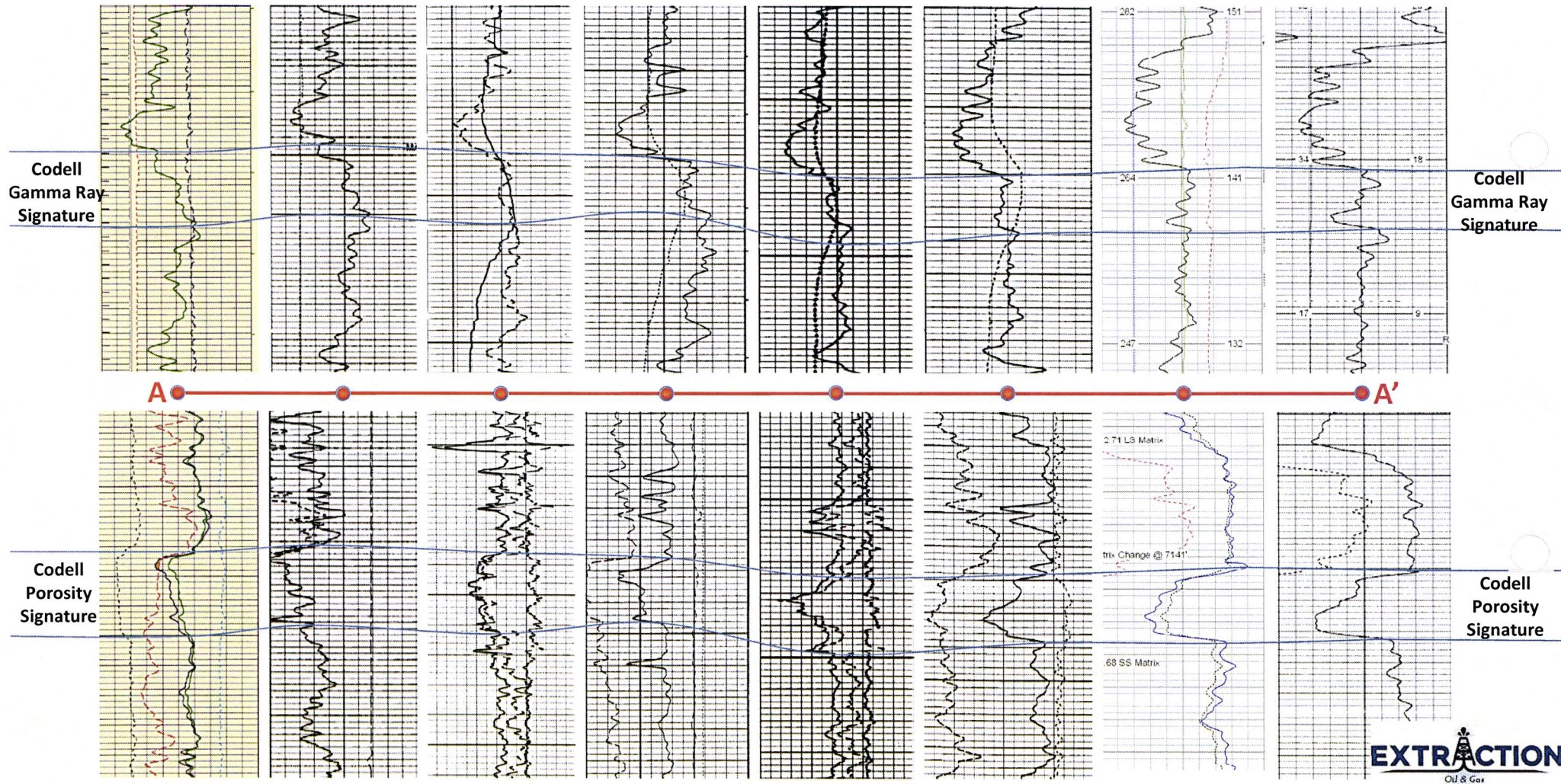
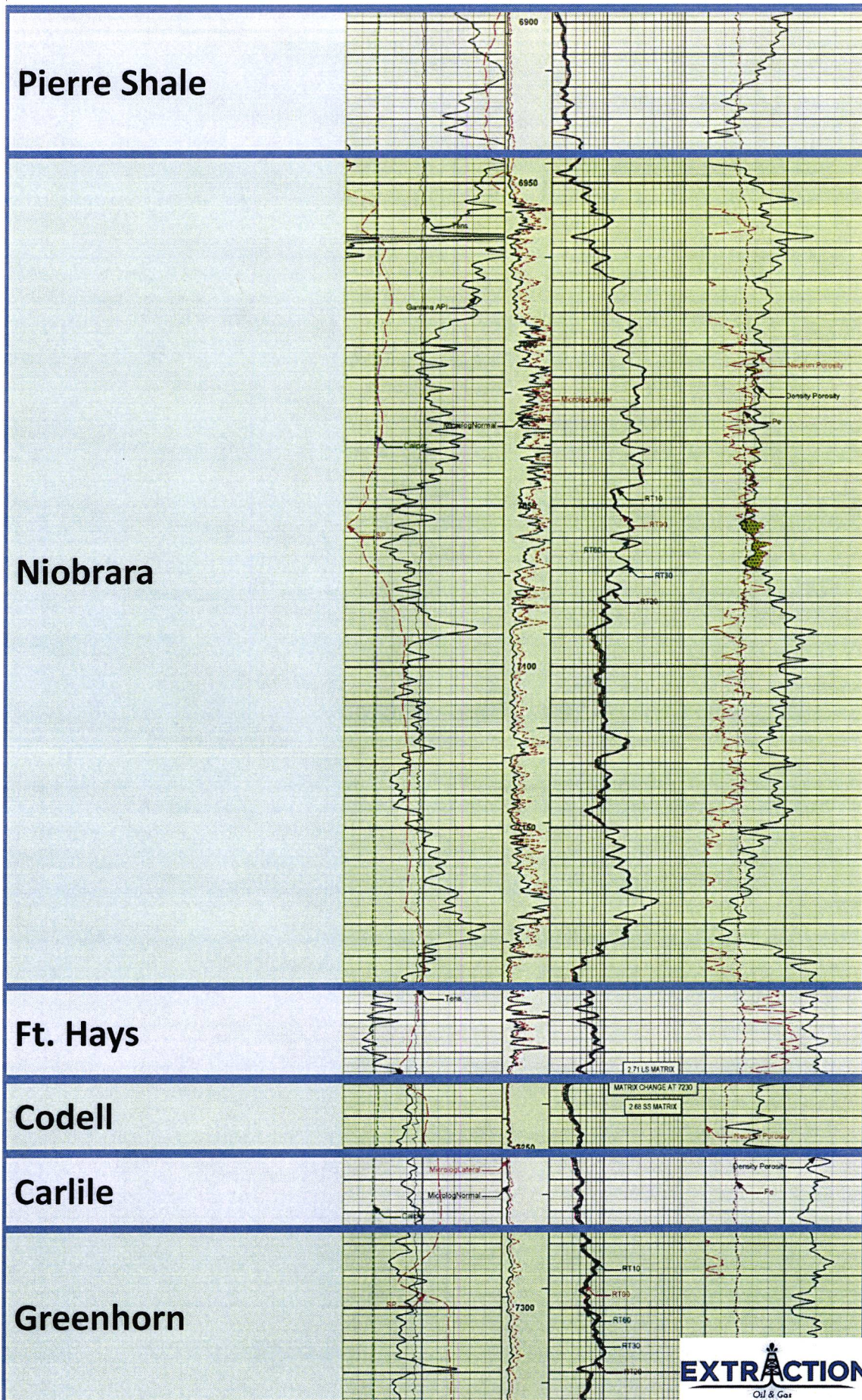


Exhibit G-4: Type Log



MATT VOLKMAR, P.E.

♦ Denver, CO ♦ T: 303-475-7166 ♦ mattyvolks@gmail.com ♦

PETROLEUM ENGINEER

Career Summary:

I have 9 years of unconventional resource development and exploration experience primarily in the DJ & Greater Green River Basins of Colorado & Wyoming. Most recently I have been working horizontal well development in the Wattenberg Field for Codell & Niobrara reservoirs. My experience is leveraged from several years of field based operations experience and fully rounded out through reservoir and asset management.

Job Skills:

- DJ Basin horizontal well development & project management
- Reservoir engineering
 - Unconventional resources & EOR reserves forecasting & management
 - Acquisition / divestiture evaluations
 - EOR surveillance and optimization
- Exploration & new ventures
 - Fully integrated engineering & risk evaluation for new prospects & resource plays
- Completions engineering
 - Hydraulic fracturing design, implementation and well site supervision
 - Experience with a variety of completion fluids and rock types
- Production Engineering
 - Daily wellbore operations and artificial lift optimization
 - Workover design, supervision and economic evaluation
 - Gas production and EOR facilities and infrastructure

PROFESSIONAL EXPERIENCE

EXTRACTION OIL & GAS - MAY 14' - PRESENT

DJ Basin Petroleum Engineer

- Planning & execution of horizontal development program
- New ventures and exploration lead
- Geophysical data acquisition & coordination lead

ANADARKO PETROLEUM CORPORATION - FEB 06' - SEPT 13'

Wattenberg Horizontal Development Reservoir Engineer (October 11' – September 13')

- Planning & execution of Codell & Niobrara horizontal for a 10+ rig program across Wattenberg Field
 - Value optimization via well spacing, lateral length, completion design & flowback / production strategy
- Full reservoir comprehension through reservoir modeling, fluid analysis & geologic integration
- New venture, prospect & resource play evaluation

Monell Reservoir Engineer (October 09' – October 11')

- Directly managed Anadarko's Monell Field – miscible CO₂ (EOR) injection
 - Ramped production from 3,000 to 6,000 BOPD through new phase start-up
 - Prepared annual budget models for CapEx, OpEx, production, etc.
 - Performed field surveillance to optimize CO₂ efficiency

Wattenberg Reservoir Engineer (October 07' – October 09')

- Vertical Wattenberg field development
 - Reserves forecasting on 2,000+ new well, recompletion & refract inventory
 - Acquisition & divestiture analysis

- Exploration & risk analysis on new ventures

Wattenberg Completions/Production Engineer (February 06' – October 07')

- Completion design and execution of vertical multi-stage shale & tight gas wells
 - Slickwater, gelled fluid and energized nitrogen completion design and implementation
- Production & workover optimization of 1,500+ wells
 - Plunger optimization / artificial lift, workover design / supervision & direction drilling planning / design

EDUCATION / CERTIFICATIONS / MEMBERSHIPS

- **B.S. in Petroleum Engineering – Colorado School of Mines 2005**
- **Professional Engineer – State of Colorado 2012**

Exhibit C	Docket No. 150100006
Extraction Oil & Gas, LLC	Engineering Testimony – Rule 511
John Tonello	Weld County, Colorado

SPACING APPLICATION

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

(Codell Formation)

My name is John Tonello, and I am currently employed as the Engineering Manager for Extraction Oil & Gas, LLC. I received a Bachelor of Science Degree in Petroleum Engineering from the Colorado School of Mines in 2008. I have over 6 years of experience in the oil and gas industry. I am familiar with the lands described and the matters set forth in the Verified Application (“Application”).

In support of the Application in the above referenced docket, I am submitting the following two exhibits. These exhibits are attached to my sworn testimony and form the basis for the Application for an order establishing a 1280-acre spacing unit for the drilling of four horizontal wells for production of oil, gas and associated hydrocarbons from the Codell Formation in the following lands located in Weld County, Colorado, (“Application Lands”):

Township 11 North, Range 61 West, 6th P.M.

Section 1: All

Section 12: All

1. Exhibit E-1 – Analog Well Evaluation

Exhibit E-1 reflects an evaluation of analog horizontal Codell well results, OOIP and recovery factors from available public data. The analog wells were identically spaced as proposed within the Application Lands at four horizontal wells in a 1280 acre spacing unit. OOIP was estimated between 2,360,205 – 3,574,886 Bbl. Recovery factors range from 4.5% – 14.6%, which is within a reasonable expected range for an unconventional tight oil development. Exhibit E-1 also presents calculated drainage areas for the analog horizontal Codell wells, with an average drainage for these wells of 319 acres.

2. Exhibit E-2 – OOIP Calculations

Exhibit E-2 shows OOIP calculations and a range of possible well metrics for the Application Lands. Calculations show that the OOIP is estimated between 1,063,954 – 3,989,829 Bbl while estimated ultimate recoveries range from

150,000 – 500,000 Bbl per horizontal well. This results in recovery factors ranging from 12.5%-14.1%, which are within a reasonable expected range for an unconventional tight oil development.

Applicant's economic analysis for a typical well, using drilling and completion costs similar to those encountered in the area of the Application Lands and current pricing of oil and gas, indicates that wells drilled on well densities of four horizontal wells per 1280-acre spacing unit and producing from the Codell formation would be commercial, yielding greater than a 10% rate of return and a positive net present value when discounted at 10%.

Testimony for other COGCC administrative hearings in this portion of the DJ Basin has shown that additional reserves will likely be recovered when well densities of four horizontal wells per 1280-acre spacing unit are used. See Order Nos. 535-542 and 535-546 and the Rule 511 Testimony submitted in support thereof in Docket Nos. 1409-SP-2125 and 1409-SP-2129, respectively. From a reservoir engineering standpoint, testimony given in connection with these other applications is applicable to the Application Lands.

Previous testimony to the Commission in Docket Nos. 1409-SP-2125 and 1409-SP-2129 concerning the Codell Formation has supported establishing well densities of four horizontal wells per 1280-acre spacing unit. See Order Nos. 535-542 and 535-546. From a reservoir engineering standpoint, there is nothing that differentiates the Application Lands from lands where such four-well density orders have been entered.

Conclusion

Extraction Oil & Gas believes that drilling and completing horizontal wells in the Codell Formation underlying the Application Lands is the most efficient and economic method to develop the resource potential of these formations. Based on publicly available production data from other operators, I believe that the placement of four horizontal wells under the Application Lands is a proven way to efficiently maximize reservoir drainage and thereby prevent waste, protect correlative rights, and can be done in an efficient and economic matter.

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

Dated this 5th day of January, 2015



John Tonello
Engineering Manager
Extraction Oil & Gas, LLC

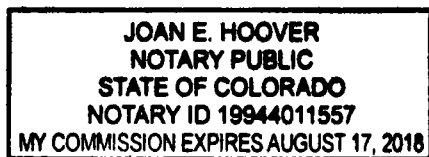
VERIFICATION

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

The foregoing instrument was subscribed and sworn to before me on this 5th day of January, 2015, by John Tonello, Engineering Manager, for Extraction Oil & Gas, LLC.

Witness my hand and official seal.

My commission expires: 8/7/2018



Tom O'Sullivan
Notary Public

Exhibit E-1: Analog Codell Horizontal Wells

Operator Name	Prod Zone Name	Lease Name	Well Number	Location	EUR Oil (MBO)	Well Spacing (Acres)	Codell Thickness (ft)	Porosity (%)	PhiH	Sw (%)	OOIP Per 320 Acres (BBL)	Drainage Acreage (Acres)
EOG RESOURCES INCORPORATED	CODELL	REDSTONE	2-1-1CH	13N 65W 2 SW	161	320	24	14.0%	3.36	40%	3574886	146
KAISER-FRANCIS OIL COMPANY	CODELL	STINGRAY	1-11-12H	15N 63W 7 NW	215	320	35	10.0%	3.5	55%	2792880	249
KAISER-FRANCIS OIL COMPANY	CODELL	CHALLENGER	1-35-36H	16N 65W 35 SW SW	200	320	30	10.0%	3	50%	2659886	243
KAISER-FRANCIS OIL COMPANY	CODELL	NOVA	1-33-34H	16N 65W 35 SW SW	300	320	30	10.0%	3	50%	2659886	365
EOG RESOURCES INCORPORATED	CODELL	WINDY	504-1806H	13N 64W 18 NW	345	320	24	10.1%	2.42	45%	2360205	472
EOG RESOURCES INCORPORATED	CODELL	JUBILEE	584-1705H	13N 65W 17 NE	350	320	24	14.0%	3.36	40%	3574886	316
EOG RESOURCES INCORPORATED	CODELL	JUBILEE	586-1705H	13N 65W 17 NE	365	320	24	14.0%	3.36	40%	3574886	330
EOG RESOURCES INCORPORATED	CODELL	JUBILEE	103-0433H	13N 65W 4 SW	481	320	24	14.0%	3.36	40%	3574886	435
Average Results					302	320	27	12.0%	3.17	45%	3096550	319

$$OOIP = \frac{7758Ah\phi(1 - Sw)}{Bo}$$

A = area in acres

h = reservoir thickness in feet

ϕ = porosity

Sw = water saturation

Bo = formation volume factor = 1.4 from PVT data analysis

$$Drainage\ Acreage = A = \frac{EUR * Bo}{7758h\phi(1 - Sw)RF}$$

RF = recovery factor = 9.9% from analog well analysis

Exhibit E-2: Extraction Horizontal Well Projections										
Operator Name	Prod Zone Name	Extraction Expected Well Results	EUR Oil (MBO)	Well Spacing (Acres)	Codell Thickness (ft)	Porosity (%)	PhiH	Sw (%)	OOIP Per 320 Acres (BBL)	Estimated Recovery Factor (%)
Extraction	Codell	Low Case Horizontal Well Metrics	150	320	15	10.0%	1.5	60%	1063954	14.1%
Extraction	Codell	Mid Case Horizontal Well Metrics	300	320	20	12.5%	2.5	50%	2216571	13.5%
Extraction	Codell	High Case Horizontal Well Metrics	500	320	25	15.0%	3.75	40%	3989829	12.5%

$$OOIP = \frac{7758Ah\phi(1 - Sw)}{Bo}$$

A = area in acres

h = reservoir thickness in feet

ϕ = porosity

Sw = water saturation

Bo = formation volume factor = 1.4 from PVT data analysis

$$RF = \text{Recovery Factor} = \frac{EUR}{OOIP}$$

*Low Case = Poorest reservoir quality & lowest OOIP

*Mid Case = Average reservoir quality & OOIP (expected case)

*High Case = Best reservoir quality & highest OOIP

JOHN VINCENT TONELLO

5795 Poppy Way
Golden, CO 80403

jtonello5@gmail.com
(970) 778-0448

EDUCATION:

- Colorado School of Mines, Golden, CO
- Bachelor of Science in Petroleum Engineering (2008)
- Minor – Business & Economics (2008)
- G.P.A. – 3.75

HONORS:

- Dean's List
- Honor Roll
- Magna Cum Laude Honor
- Personal Development Award, Shell Oil Company
- Kissinger Petroleum Engineering Scholarship
- Society of Petroleum Engineers

SKILLS/KNOWLEDGE:

- ARIES / PHDWin
- Oil Field Manager
- Prosper (IPM)
- Rodstar / S-Rod
- Spotfire
- All MS Office programs
- Visual Basic Programming

EMPLOYMENT HISTORY:

Engineering Manager, Extraction Oil and Gas, Wattenberg Denver, CO

May 2013 to Present

- Responsible for managing key aspects of Extraction's Wattenberg horizontal program. Responsibilities include reserve determination, acquisition evaluation, development planning, production/facility engineering, regulatory compliance, and personnel hiring.

Production / Facilities Engineer, Anadarko Petroleum Corporation, Wattenberg Evans, CO

May 2011 to Present

- Responsible for the startup of Anadarko's artificial lift and facility design strategy for a 150 horizontal well per year development program in the Niobrara and Codell formations in Wattenberg.
- Responsible for determining/designing/installing/optimizing the most economic artificial lift option on new horizontal wells and, if necessary, altering the design over time.
- Successfully designed and installed Anadarko's first Wattenberg hydraulic rod pump on a horizontal well.
- Project lead on Anadarko's first intermittent gas lift installation in Wattenberg on a 13 well pad. Responsible for downhole designs/rig workover procedures as well as facility design and engineering. Project was successfully commissioned Aug 2012.
- Aided in the implementation of a successful paraffin inhibition chemical program, and helped develop a "heat retention strategy" to combat paraffin deposition in production surface facilities.
- Worked to determine the most effective production separators and vapor recovery system in multi-horizontal well batteries.
- Mentor for summer engineering intern.

Operations Engineer, ConocoPhillips Alaska Anchorage/North Slope, Alaska

September 2009 to May 2011

- Working a two-week-on, two-week-off schedule as an onsite Production Engineer at the Kuparuk/Alpine Oilfields on the north slope of Alaska.
- Responsible for creating and submitting new drill AFEs to management as well as due diligence on all AFEs pertaining to my work area.
- Perform daily well surveillance, production assurance, and production optimization.
- Create well work procedures and oversee well operations necessary for well troubleshooting and production assurance.
- Responsible for artificial lift (gas lift) design for new drills, and updating/optimization gas lift designs in mature wells. Oversee the EOR miscible gas injection strategy (MWAG) and a tracer sampling program.
- Work directly with Operations to troubleshoot well-related issues and coordinate work efforts.

Petroleum Engineer, ConocoPhillips Alaska Anchorage, AK 99501

July 2008 to August 2009

- Engineering Development Program (three month rotations in each of ConocoPhillips' upstream engineering groups):
 - (1) Drillsite Development / Production Engineer, Kuparuk Field, North Slope
 - Accurately screened producer patterns for under-performance.
 - Quantified reserve targets and made economic justifications for coil tubing sidetracks to recover them.
 - (2) Reservoir Engineer, Alpine Satellite Fields, North Slope
 - Conducted reservoir simulation to weigh the idea of altering gas management practices in Alpine and its satellite oil fields. The resulting recommendations were implemented in the field shortly thereafter.
 - Focused primarily on recovery impacts.
 - (3) Drilling Engineer, Alpine Field, North Slope- Compared advantages/disadvantages of transitioning to rotary steerable technology versus a conventional motor assembly for Alpine drilling applications. Economically justified using rotary steerable technology.