



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

RECEIVED
AUG - 7 2012
COGCC

IN THE MATTER OF THE APPLICATION OF)
VECTA OIL & GAS, LTD. FOR AN ORDER)
ESTABLISHING EXPLORATORY DRILLING)
AND SPACING UNITS AND FIELD RULES)
IN AND FOR THE GREENHORN)
FORMATION IN MORGAN AND WELD)
COUNTIES, COLORADO)

CAUSE NO. 539

DOCKET NO. 1208-SP-91

ORIGINAL

REQUEST FOR APPROVAL OF UNCONTESTED MATTER
PURSUANT TO C.R.S. § 34-60-108(7) AND RULE 511.

Vecta Oil & Gas, Ltd. (the "Applicant") has submitted a Verified Application for an order establishing fourteen approximately 640-acre exploratory drilling and spacing units for the drilling of wells in the Greenhorn Formation in fourteen different sections listed in the Verified Application. The Applicant also asks that the Commission establish field rules ordering that up to two horizontal wells may be drilled and produced within each proposed exploratory drilling and spacing unit.

1. The Commission has jurisdiction over this matter. The Applicant has standing to seek the relief sought as demonstrated in the Verified Application and the enclosed Sworn Testimony of Steve McPherson.

2. Upon information and belief, no protests have been filed opposing the Verified Application. Pursuant to C.R.S. § 34-60-108(7) and Rule 511, the Applicant requests approval of the Verified Application on the Commission's August 20, 2012 consent agenda.

3. Upon behalf of the Applicant, Linda Van der Veer of Bjork Lindley Little PC has filed affidavits and certificates of service describing the required mailing of the Verified Application, the required mailing of the Notice of Hearing and the publishing of the Notice of Hearing in the required newspapers.

4. Submitted with this Request for Approval is the sworn written testimony of Steve McPherson, Steven M. Goolsby and H. Richard Pate and other exhibits marked as follows:

<u>Exhibit</u>	<u>Description</u>
A	Map of Application Lands
B	List of Interested Persons (as amended as of July 16, 2012)
C	Sworn Written Testimony of Steve McPherson
D	Resume of Steve McPherson

Section 31: All
Section 32: All
Section 33: All

6. On August 7, 2012, Vecta, by its attorneys, filed with the Commission a written request to approve the Application based on the merits of the verified Application and the supporting exhibits. Sworn written testimony and exhibits were submitted in support of the Application.

7. Land testimony and exhibits submitted in support of the Application by Steve McPherson, Senior Landman for Vecta, showed Vecta has a mineral interest in the Application Lands, that it has the legal right to propose and drill wells on the Application Lands, and that best efforts and standard industry practices were used to identify and notice interested parties of the Application.

8. Geologic testimony and exhibits submitted in support of the Application by Steven M. Goolsby, Senior Geologist working for Vecta, showed the Greenhorn Formation has a very limited production history, requiring the creation of exploratory drilling and spacing units.

9. Engineering testimony and exhibits submitted in support of the Application by H. Richard Pate, Vice President of Engineering for Vecta, estimated the original oil in place ("OOIP") at 7.7 MMBO per 640-acres, by which, using present horizontal drilling and completion techniques, could reasonably result in recoverable reserves ("EUR") of 270 MBOE (250 MBO, 20 MMCF) from a 4200 to 4500 lateral wellbore in the Greenhorn Formation. The estimated recovery of 270 MBOE is 3.5% of the calculated OOIP per 640-acres. Testimony concluded the Applicant or other operator should have the option of designing its drilling program so as to most efficiently and effectively explore for, encounter and establish production from the Greenhorn Formation.

10. The above-referenced testimony and exhibits show that granting the Application will allow more efficient reservoir drainage, will prevent waste, will assure a greater ultimate recovery of hydrocarbons, and will not violate correlative rights.

11. Vecta agreed to be bound by oral order of the Commission.

12. Based on the facts stated in the verified Application, having received no protests, and based on the Hearing Officer review of the Application under Rule 511., the Commission should enter an order to establish fourteen approximate 640-acre exploratory drilling and spacing units for Sections 1, 2, 11, and 12, Township 6 North, Range 59 West, 6th P.M., Sections 4 through 7, Township 6 North, Range 58 West, 6th P.M., and Sections 28 through 33, Township 7 North, Range 58 West, 6th P.M., and approve up to two horizontal wells within each unit, for the production of oil, gas and associated hydrocarbons from the Greenhorn Formation.

ORDER

NOW, THEREFORE IT IS ORDERED, that fourteen approximate 640-acre exploratory drilling and spacing units for the below-described lands, are hereby established, and up to two horizontal wells within each unit, are hereby approved, for the production of oil, gas and associated hydrocarbons from the Greenhorn Formation, with the treated interval of the permitted wellbore to be no closer than 600 feet from the unit boundaries and no closer than 1,200 feet from the treated interval of any other wellbore located in the unit, without exception being granted by the Director:

Township 6 North, Range 59 West, 6th P.M., Morgan County

Section 1: All
Section 2: All
Section 11: All
Section 12: All

Township 6 North, Range 58 West, 6th P.M., Morgan County

Section 4: All
Section 5: All
Section 6: All

<u>Exhibit</u>	<u>Description</u>
E	Resume of Steven M. Goolsby, Ph.D.
F	Sworn Written Testimony of Steven M. Goolsby, Ph.D.
G	Example of Type Log
H	U.S.G.S. Topographic Map with Stratigraphic Cross Section
I	Stratigraphic Cross Section
J	Structure Map
K	Isopach Map
L	Sworn Written Testimony of H. Richard Pate
M	Resume of H. Richard Pate
N	Greenhorn Formation – Reservoir Data and Volumetrics
O	Map of Greenhorn Tests in the Lance Creek Area
P	Core Data Report
Q	Jackpot Field Summary Report

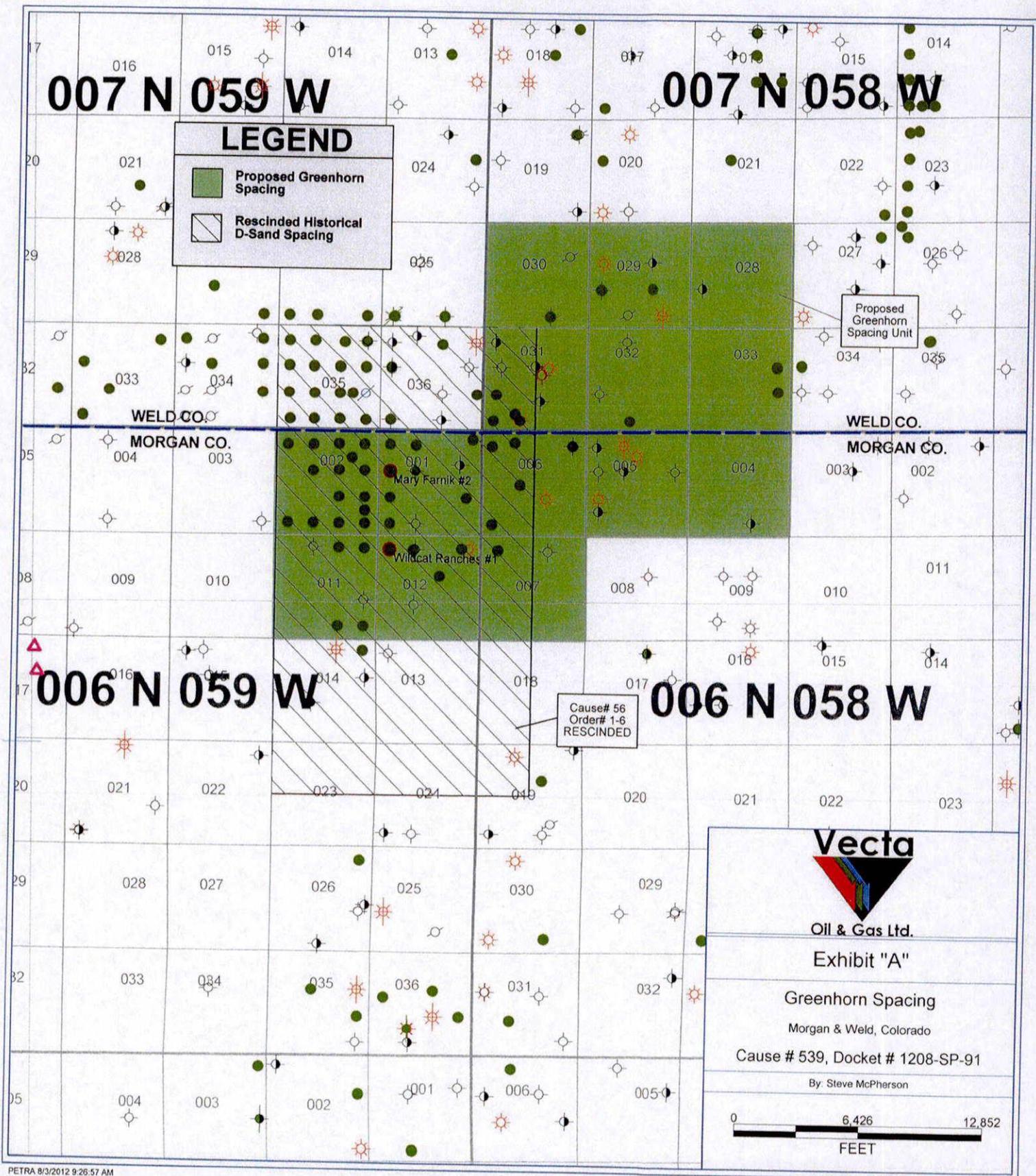
This testimony and these exhibits support issuance of an order establishing the requested exploratory drilling units and field rules.

WHEREFORE, for the foregoing reasons, the Applicant requests the Verified Application be recommended for approval and be placed on the Commission's consent agenda for the August 20, 2012 hearing.

Respectfully submitted on August 7, 2012.

BJORK LINDLEY LITTLE PC

By: 
 David R. Little #13340
 Bjork Lindley Little PC
 1600 Stout Street, Suite 1400
 Denver, CO 80202
 Telephone: 303-892-1400
 Facsimile: 303-892-1401
dlittle@bjorklindley.com



007 N 059 W

007 N 058 W

LEGEND

- Proposed Greenhorn Spacing
- Rescinded Historical D-Sand Spacing

Proposed Greenhorn Spacing Unit

Cause# 56
Order# 1-6
RESCINDED



Oil & Gas Ltd.

Exhibit "A"

Greenhorn Spacing

Morgan & Weld, Colorado

Cause # 539, Docket # 1208-SP-91

By: Steve McPherson



Blumberg No. 5208

EXHIBIT
A

Exhibit B

Updated List of Persons Entitled to Receive
Notice of Application
(as of July 16, 2012)

Applicant

Vecta Oil & Gas Ltd
575 Union Boulevard, Suite 208
Lakewood, CO 80228

Applicant's Attorney

David R. Little
Bjork Lindley Little PC
1600 Stout Street, Suite 1400
Denver, CO 80202

Governments

David Bauer
County Engineer
Weld County
1111 H Street
Greeley, CO 80632

Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216

John Crosthwait
Morgan County Planning Zoning/Morgan
County LGD
231 Ensign Street
Fort Morgan CO 80701

Colorado Department of Public Health and
Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Interested Other Persons

2001 Properties, LLC
22199 Highway 39
Weldona, CO 80653

Alvard, Shirley
211 Balsam Log Lane Village
Fort Morgan, CO 80701

123 East Kiowa, Inc.
c/o Jerry K. Jones
P.O. Box 1385
Ft. Morgan, CO 80701

A.M. Culver Company
P.O. Box 81045
San Diego, CA 92138



Baker, Sally June
1540 Billings, Space D-42
Aurora, CO 80011

Black River Royalties, LLC
Attn: Gary Jerman
621 17th Street Suite 945
Denver, CO 802932

Bohrer, Stephen D.
214 Shadow Wood Dr.
Alamosa, CO 81101

Bonnie J. & Glenn Johnson
1202 W. 5th St.
North Platte, NE 69101

Brown, Lurline Smith
14040 Far Hills Ln.
Dallas, TX 75240

Cammon, Terry J.
10455 W. 73rd Place
Arvada, CO 80005

Campbell, Mary Joe
14040 Far Hills Ln.
Dallas, TX 75240

Camuth, Burna Dean
14040 Far Hills Ln.
Dallas, TX 75240

Chalk, Virginia Ann
60280 WCR 78
New Raymer, CO 80742

Chelette, Caroline
14040 Far Hills Ln.
Dallas, TX 75240

Chelette, Judy
14040 Far Hills Ln.
Dallas, TX 75240

Cotton, Jess H. & Margaret G.
4420 East 7th Street
Cheyenne, WY 82001

Curtis Drew
898 Pearl St., #2
Denver, CO 80203

Danis, John B.
220 Avenue
Redondo, CA 90277

Doheny / McCoy, Kathleen Clark
136 El Camino Dr.
Beverly Hills, CA 90212

Doheny Jr., Patrick Anson
P.O. El Camino, #401
Beverly Hills, CA 90212

Doheny Jr., Timothy Michael
P.O. Box 5275
Beverly Hills, CA 90210

Doheny -Patrick A. Doheny Living Trust
136 El Camino Dr., #401
Beverly Hills, CA 90210

Doheny, Dennis Martin
P.O. Box 5275
Beverly Hills, CA 90210

Doheny, Drucilla Anne
P.O. Box 5275
Beverly Hills, CA 90210

Edward C. Robison
401 S. Ridgeview Dr.
Warrensburg MO 64093

Ehrlich, Judith E.
22924 Highway 39
Weldona, CO 80653

Fleming, Carolyn A.
152 Sirona Way
Spring Branch, TX 78070

Frasco, Jeanette
1125 Huckleberry Lane
Eaton, CO 80615

Memory Gae Lamfers
c/o Wesley Wollenweber
8321 N. Hillcrest Way
Parker, CO 80132

Grimes, Patricia L.
400 E. 1st St. Unit 7
Corvallis, MT 59828

Haffke Jr., E. William - Dolores D. Haffke
Trust
2319 Ardleigh Drive
Cleveland, OH 44106

Haffke, Dolores D. - Dolores D. Haffke
Trust
929 Lake Street
Fort Morgan, CO 80701

Haffke, George R. - Dolores D. Haffke
Trust
517 Colfax Street
Fort Morgan, CO 80701

Halligan, Frank
HC 69, BOX 630
Midland, SD 57552

Hartwell Corp. '83
5941 S. Middlefield Rd., Suite 103
Denver, CO 80123

Hines, Josephine L.
1800 Stark Lane
Paradise, CA 95969

Johnson, Polly
1210 South Drive Circle, Unit D
Delray, FL 33443

Camille Chappell Kalkavan
136 El Camino Dr 401
Beverly Hills, CA 90210

Judith C. Robison
1501 Inverness Dr. Unit 130
Lawrence, KS 66047

Julia M. & Dennis W. Dudley
31942 Liberty Ave.
Parkersburg, IA 50665

Kern County Land Company
c/o The Corporation Trust Co. Corporation
Trust Ctr.
1209 Orange Street
Wilmington, DE 19801

Anadarko Petroleum
Granite Tower
1099 18th Street
Denver, CO 80202

King, Mattie E.
650 Las Colinas Dr.
Wimberley, TX 78676

Kitt, Dale & Ora
c/o Theron O. Morrow
P.O. Box 784
Goldendale, WA 98620

Kitt, Estate of William M.
c/o Theron O. Morrow
P.O. Box 784
Goldendale, WA 98620

Kitt, John
P.O. Box 279
Charlie Lake, British Columbia V0C1H0

Knoll, Ellis L. & Patricia A.
63246 Contry Road 78
New Raymer, CO 80742

Kraber, Kathryn dec'd
Unknown address

Lacy, Sandra K.
14040 Far Hills Ln.
Dallas, TX 75240

Lamborn II, Ronald Kent
13400 E. Harry
Wichita, KS 67230

Lamborn, Allen H.
25507 Weld Co. Rd 53
Kersey, CO 80644

Lamborn, Meredith A.
Via Della Concordia 81
06124, Perugia, Italy

Lamborn, Michael Rollan
628 E. 14th Street
Casper, WY 82601

Lamborn, R. Jon
6006 W. Indianola
Phoenix, AZ 85033

Marathon Oil Company
5555 San Felipe Rd
Houston TX, 77056

McCloud, Joan
230 Dahlia
Ft. Morgan, CO 80701

McManus, Charles V.
14040 Far Hills Ln.
Dallas, TX 75240

McNeil, Emazonia
Unknown address

Michael, Georgia
5020 Santiago Way
Colorado Springs, CO 80917

BP America
501 Westlake Park Blvd
Houston, TX 77079

Miller, Glenn A.
9896 Keenan Street
Highlands Ranch, CO 80130

Mitchelle, Quentin
Unknown address

Moore, Richard L.
642 Holley Street
Shelley ID 83274

Morrow, Devere G.
c/o Theron O. Morrow
P.O. Box 784
Goldendale, WA 98620

Newby, Susan
1704 N. Hunter Dr.
Olathe, KS 66061

Nielsen, Carol Lynne, Richmond, Deborah
D.
Velasques, Robert C.
1017 Cooper Ave.
Glenwood Springs, CO 81601

Nollet, Clarence John
61957 WCR 76
New Raymer, CO 80742

Paynter, Richard B.
800 Pearl Street, Apt. 404
Denver, CO 80203

Paynter, Stanley B.
503 Custer Street
Brush, CO 80723

Peg & Bill Paynter Living Trust
117 Main Ave.
Akron, CO 80720

Perry, Joel I.
550 Custer Avenue
Akron, CO 80720

Petersen, Sally H.
2205 Mountain Lane
Greeley, CO 80634

Prowett, Marie
1121 West 3rd
North Platte, NE 69101

Quentin Oil Associates
1099 18th St., Ste. 2600
Denver CO 80202

Polly Rae Jesse
c/o Wesley Wollenweber
8321 N. Hillcrest Way
Parker, CO 80134

Rigsby Peyton, Mary Belle dec'd
Unknown address

Rigsby, Nelson Corinne dec'd
Unknown address

Rigsby, Russell John, dec'd
Unknown address

Rigsby, Ruth Jeanette Amborgh, dec'd
Unknown address

Rita L. & Gene A. Kleve
59076 U.S. Hwy 6
Holyoke, CO 80734

RJM Land Company, LLC.
13217 County Road 15
Sterling, CO 80751

Russell R. Robison
11822 N. 30th Pl.
Phoenix, AZ 85028

Schulte, William A.
130 S. Wolcott St.
Casper WY 82601

Scriven, Loomis A. & Bertha E.
9428 S. DeWolf Ave.
Selma, CA 93662

Street-Estate of Mary H. Street
Executrix Augusta McCrummen
713 East Prospect Street
Fort Collins, CO 80525

The George A. Doll Trust
c/o KeyBank Nat'l Assn, Successor Co-
Trustee
101 South Main St., 2nd Floor
Elkhart, IN 46516

Thompson, Kathleen Thompson
Woodward, Merrill H.
17437 Hwy 34
Fort Morgan, CO 80701

Wellman, Louise M.
1226 Maple Lake,
Rural Route 1, Box 249
Mentor, MN 56736

White River Royalties, LLC
4194 S. Valentia Street
Denver, CO 80237

Marilyn Wollenweber --Clark Wollenweber
c/o Wesley Wollenweber
8321 N. Hillcrest Way
Parker, CO 80134

Schmeeckle, Sadie
1616 S. Euclid, Space #8
Anaheim, CA 92802

Scriven, Leland A.
1004 E. Tularosa Ave.
Orange, CA 92666

Spann, Dellia
c/o Theron O. Morrow
P.O. Box 784
Goldendale, WA 98620

Sunset Ranch Company
4700 W. 60th Ave #4
Arvada, CO 80004

The Max Fisher Trust, Max D. Fisher
Mary C. Fisher
591SW 50th Ave.
Saint Johns , KS 67576

Trust Fund for the Boy Scouts of America
10455 W. 6th Ave. Ste 100
Denver, CO 80215

Whitcomb, Florence G.
19 Hitching Post Lane
Bell Canyon, CA 91307

Wirth, August Eugene
90 S. Inverness Dr.
Nampa, ID 83651

Wollenweber, Wesley
8321 N. Hillcrest Way
Parker, CO 80134

Woodward Jr., Russell E.
c/o Bertha Woodward
1752 N Denver Ave.
Loveland, CO 80538

Woodward, Eldon E.
25005 Co. Rd. #27
Snyder, CO 80750

Woodward, John E.
25251 Road Y
Snyder, CO 80750

Young, Hazel
4724 Alamo, Route 1
Clarkston, MI 48348

Barbara Ann Whitmore
4295 E. Mexico Ave., #410
Denver, CO 80222

Woodward, Barton E.
25005 Co. Rd. #27
Snyder, CO 80750

Woodward, Eugene James
8061 E. Briarwood Blvd.
Englewood, CO 80110

Woodward, Lowell E.
27443 Co. Rd. #4
Snyder, CO 80750

Albert C. Lusby
2322 Bristol St.
Superior, CO 80027

Brian Fitzgerald
Executor of Patti Jean Fitzgerald Estate
1526 Fairfax Ct.
Castle Rock, CO 80104

BEFORE THE COLORADO OIL & GAS
CONSERVATION COMMISSION

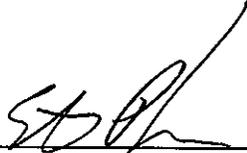
Application of Vecta Oil and Gas, Ltd.
No. 1208-SP-91

SWORN WRITTEN TESTIMONY OF STEVE MCPHERSON

1. I work as a Senior Landman for Vecta Oil & Gas, LTD ("Vecta"). I have been actively and continuously engaged in the practice of Landman work for over eight years throughout the Rocky Mountains, Montana and North Dakota regions. I am currently in the final stages of earning a Bachelors of Finance from Regis University. This testimony is based on my personal knowledge and is true, correct and accurate.
2. Vecta is a lessee of mineral interests underlying the Application Lands identified in the Verified Application filed in this matter on June 20, 2012. Vecta has the legal right to propose and drill wells on the Application Lands. The map marked as Exhibit A attached to the Verified Application accurately depicts the Application Lands. I supervised its preparation.
3. Vecta is a registered operator in good standing with the Colorado Oil & Gas Conservation Commission (COGCC) and elsewhere and has the resources to propose, drill and operate wells on the Application Lands. Vecta intends to comply with all state and local rules and regulations applicable to the proposed well including, but not limited to, those rules and regulations intended to protect public health, safety and welfare, the environment and wildlife resources.
4. Exhibit B was filed with the Verified Application and represents an accurate and complete list of all interested persons as defined in COGCC rules for the Application Lands. Standard industry practices were used in good faith to conduct land work necessary to identify the interested persons listed on the Exhibit B of the Verified Application. I was unable to locate a total of 7 of the 107 interested persons. These people were either deceased or current contact information for them or their heirs was not available in the appropriate county public records or on reasonable available online resources.
5. I am also supervising efforts to offer leases, provide well information, update addresses and enter into other agreements with all known interested parties in the Application Lands. Vecta has not received any notice of an objection or protest to this Application.

I hereby declare under penalty of perjury that the foregoing statements, and the exhibits referenced therein, are true and correct to the best of my knowledge and belief, and that this statement was prepared under my supervision.

Dated this 2nd day of August, 2012.



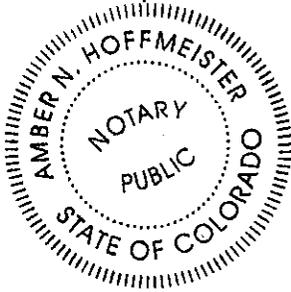
Steve McPherson



State of Colorado)
) ss.
County of Jefferson)

This foregoing instrument was acknowledged before me this 2nd day of August, 2012, by Steve McPherson.

Witness my hand and official seal.



Amber N Hoffmeister
Notary Public
My commission expires: February 24, 2013

Steve McPherson

EXPERIENCE

Vecta Oil & Gas, Ltd. 2011-Current

Sr. Landman

- Oversee land acquisition, pre and post drilling operations in the Rocky Mountain, North Dakota and Montana Regions.

Noble Energy, Inc.

2006-2011

Landman

- Lead person for all subsequent operations in the Wattenberg area as related to recompletes, refracs, trifracs, cleanouts, commingles, casing repairs, and plug and abandonment operations.
- Major responsibilities include review of working interests, title, leases, prepare joint operating agreements, farmouts, assignments and all other documents related to well operation.
- Other responsibilities include calculation of APO/BPO interests, ordering title updates and opinions, AFE package creation, completion of participation memo, write-ups, and coordination with field landman concerning surface issues.
- Involved in working approximately 500 wells and 19 rigs per year, totaling over \$60 million in operations.

Transcontinent Oil Company – Broker

2004-2006

Noble Energy Productions, Inc. – Land Coordinator

- Assist landman with all land functions within the Wattenberg and Mid-Continent areas.
- Responsibilities include due diligence, lease negotiation, review of title opinion, review and prepare agreements, prepare lease record packages for transmittal, and work with field landman on surface issues.

Antero Resources – Field Landman

- Conduct leasehold checks, plat leases and wells, title search, lease negotiations, title curative, lease analysis, interpret unit and joint operating agreements, and determine working interests.

McPherson Merchandising

1995-2004

Owner/Operator

- Design, produce and market screen printed products.
- Responsibilities include training and management of employees, maintain financial records, supervise production operations, purchasing, sales and marketing.

RELEVANT EXPERIENCE

Lease Purchasing	Locate and negotiate with mineral owners in the Piceance Basin.
Mineral Ownership	Research county records for fee simple as well as BLM for federal lands.
Title Curative	Cured title for mineral owners in Duchesne County, Utah.
Hunt 4 Energy, Inc.	Contract lease analysis work.

EDUCATION / CERTIFICATION

Regis University – 2011	Bachelors of Science in Finance
Art Institute of Colorado- 1994	Associates of Applied Science in Advertising
Red Rocks Community College	General business courses
Notary Public	Registered with the State of Colorado
AAPL & DAPL	Registered landman

SKILLS

Management	Managed printing business, employees, and operations for over 7 years
Computer	Excellent PC operation, Quorum, Exclibur, Bolo, Land Pro, Dwight's, Word, Excel and Access
Wattenberg Field	Eight years of increased responsibility in the challenging aspect of title and mineral ownership in the difficult Wattenberg field



Dr. Steven M. Goolsby

*Registered Professional Geologist
Certified Petroleum Geologist*

stevegoolsby@vecta-denver.com
<http://www.goolsbybrothers.com>

Qualifications

More than 35 years of experience as a professional oil and gas, coal, and minerals exploration and exploitation Geologist. Duties have included, but are not limited to:

- Prospect generation and sales
- Reservoir studies (primary, secondary recovery, unitization)
- Expert testimony (trial, depositions, oil and gas hearings)
- Digital geophysical log analysis (shaly sandstone, multi-mineral complex lithology)
- Rock to log petrophysical integration (core analysis, visual rock parameters)
- Neural network geophysical log curve and resistivity inversion modeling
- Development and instruction of industry courses and core workshops
- Project management and supervision
- Prospect and play evaluation
- Property evaluation and appraisal
- Formation damage evaluation and remedial recommendations
- Petrographic studies (SEM, EDX, thin section, x-ray diffraction, cuttings)
- Basin stratigraphic and sedimentological studies and mapping
- Hydrodynamic and reservoir compartmentalization subsurface pressure studies
- Reservoir simulation studies (Black Oil)
- Digital log database verification and quality control
- Pervasive gas pressure cell mapping and appraisal
- Coalbed methane property evaluation and appraisal
- Coal property mine site evaluation and appraisal
- Geological wellsite supervision (horizontal, vertical, coal, coalbed methane)
- Core description and rock cuttings studies
- Geological surface field work and mapping
- Image log analysis

Certified Petroleum Geologist #4053, DPA/AAPG
Registered Professional Geologist, Wyoming

Education

PhD in Geology, Colorado School of Mines, 2008.
BSc Geology, Stephen F. Austin State University, Texas, in 1975.
Graduated with honors.
Numerous industry short courses.



Work History

Vecta Oil and Gas, LLC., Denver, Colorado - (Geologist and Petrophysicist): 2009 to present.

Prospect generation the Rocky Mountain Region and Texas.

Covote Oil and Gas, LLC., Denver, Colorado - (Partner, Geologist, and Petrophysicist): 2005 to present.

Prospect generation and sales in the Denver, Williston, Big Horn, and Powder River basins.

Goolsby Brothers and Associates, Inc., Denver, Colorado - (Cofounder and President): 1981 to present.

A Colorado corporation that furnishes a diverse array of geological consulting services to the oil and gas, coal, mineral, and environmental industries. These services include basin stratigraphic and sedimentologic studies, generation and appraisal of exploration and development potential, and detailed property evaluations. Expert testimony is often furnished on the projects. Currently not actively consulting due prospect generation work, but still own a major interest in the company.

American Hunter Exploration, Inc., Denver, Colorado - (Exploration Geologist): 1981 to 1988.

Exploration geologist seeking hydrocarbon opportunities larger than 50 million barrels of oil or 100 billion cubic feet of gas in size. Major projects were initiated in the western United States, Canada, and in all major basins in the Rocky Mountain region. The position required the supervision and integration of all phases of exploration work, including those involving petrographic studies, geophysical log analysis, subsurface fluid appraisals, geophysical evaluations, stratigraphic analysis, and determination of depositional environments. Studies often focused on by-passed production potential in damaged reservoirs, particularly in basin-centered tight gas sandstone reservoirs. Coal-bed methane appraisals of the eastern U.S. and Rocky Mountain basins were also conducted.

Aquarian Consultants, Ltd., Denver, Colorado - (Wellsite Supervision): 1980 to 1981.

Wellsite geological supervision in the western United States. Duties included petrographic examination, mud gas appraisal, drillstem test supervision, geophysical log evaluation, and recommendations on well completions.

Colorado Geological Survey, Denver, Colorado - (Coal Geologist): 1978 to 1980.

Coal geologist in charge of two projects to evaluate the coal deposits in the state of Colorado. An appraisal of the coking coal deposits in the state was performed in one project. The second project was a coalbed methane evaluation of the Colorado portion of the San Juan Basin.

Geexplorer Associates, Inc., Denver, Colorado - (Uranium Exploration Geologist): 1977 to 1978.

Uranium exploration geologist pursuing minable deposits in the Powder River Basin of Wyoming and in eastern North Dakota.

U.S. Geological Survey, Denver, Colorado - (Coal Geologist, Field Assistant): 1976 to 1977.

Coal geologist performing field mapping of deposits in central Utah and field supervision of coal coring operations in the Powder River Basin.

Professional Organizations

American Association of Petroleum Geologists

- Division of Professional Affairs Certified Petroleum Geologist
- 2004 Secretary/Editor – House of Delegates

Rocky Mountain Association Geologists

- President, 2008
- First Vice President, 1988

- Rocky Mountain Association Geologists (cont.)
- Continuing Education Chairman 1987 to 1993
 - 1988 Guidebook Editor (Evaluation of Carbonate Reservoirs)
- Wyoming State Certified Professional Geologist
Sigma Gamma Epsilon - Honorary Geological Scholastic Society
Alpha Chi - National Honorary Scholastic Society
Society of Professional Well Log Analysts
Society of Petroleum Engineers; American Institute of Mining Engineers

Publications

- Goolsby, S.M., and M. W. Longman, eds., 1988, Occurrence and petrophysical properties of carbonate reservoirs in the Rocky Mountain Region: Rocky Mountain Association of Geologists 1988 Guidebook, 474 p.
- Goolsby, S. M., L. Druyff, and M. S. Fryt, 1988, Trapping mechanisms and petrophysical properties of the Permian Kaibab Formation, south-central Utah, in Goolsby, S.M., and M. W. Longman, eds., 1988, Occurrence and petrophysical properties of carbonate reservoirs in the Rocky Mountain Region: Rocky Mountain Association of Geologists 1988 Guidebook, p 192-210.
- Goolsby, S. M., E. B. Coalson, and M. H. Franklin, 1994, Subtle seals and fluid-flow barriers in carbonate rocks: Rocky Mountain Association of Geologists 1994 Guidebook, p.45-58.
- Goolsby, S. M., E. B. Coalson, and M. H. Franklin, 1994, Petrophysical constraints in the evaluation of hydrodynamic and capillary pore-throat traps (abs.): AAPG 1994 Annual Convention.
- Goolsby, S. M. and M. D. Goolsby, 1994, Using brining cycles as a guide to hydrocarbon exploration in the Wolfcampian Council Grove and Admire groups (Permian), Alliance Basin, Nebraska (abs.): AAPG 1994 Annual Convention.
- Goolsby, S. M., E. B. Coalson, and D. J. Hartmann, 1996, An overview of anomalous resistivities in pay zones, in E. D. Dolly and J. C. Mullarkey, Hydrocarbon production from low contrast, low resistivity reservoirs Rocky Mountain and Mid-continent regions: RMAG guidebook, p. 5-10.
- Montgomery, S. L., S. M. Goolsby, and D. Pierini, 1998, Permian (Wolfcampian) Admire "C": new exploratory potential in the northern Denver Basin: AAPG Bulletin, v. 82, p. 2173-2191.
- Goolsby, S. M., and M. H. Franklin, 2003, The modernization of old log suites (abs.): AAPG 1994 Annual Convention.
- Goolsby, S. M., M. H. Franklin, M. L. Hendricks, and E. B. Coalson, 2003, Contrasting Hydrodynamic and Capillary Pore-Throat Trapping Mechanisms to Explain the Weyburn Field Accumulation in Saskatchewan, Canada (abs.): AAPG 1994 Annual Convention.
- Inden, R., S. M. Goolsby, E. B. Coalson, and M. Sonnenfeld, 2005, Pore system variations in some major carbonate reservoirs in the Rocky Mountains: RMAG Core Workshop.

Numerous additional hydrocarbon and coal related publications.

A current reference list is available upon request.

EXHIBIT F

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

IN THE MATTER OF THE APPLICATION OF)
VECTA OIL & GAS, LTD. FOR AN ORDER)
ESTABLISHING EXPLORATORY DRILLING) CAUSE NO. 539
AND SPACING UNITS AND FIELD RULES)
IN AND FOR THE GREENHORN) DOCKET NO. 1208-SP-91
FORMATION IN MORGAN AND WELD)
COUNTIES, COLORADO)

SWORN WRITTEN TESTIMONY OF STEVEN M. GOOLSBY, Ph.D.

1. I am a Senior Geologist working for Vecta Oil and Gas, Ltd. ("Vecta") in Lakewood, Colorado. I have a Bachelor of Science degree in Geology from Stephen F. Austin State University and a Ph.D. in Geology from the Colorado School of Mines. I am Certified Petroleum Geologist #4053 from the Division of Professional Affairs of the American Association of Petroleum Geologists and a Registered Professional Geologist with the State of Wyoming. In addition to my employment with Vecta, I am currently co-owner in Goolsby Brothers and Associates, Inc., a Colorado geological consulting corporation established in 1981, and a partner in Coyote Oil and Gas, LLC, an oil and gas exploration partnership. I have been engaged in geological petroleum work in the Denver Basin for more than 30 years. I am an expert in geology.

2. Its Verified Application, Vecta asks the Commission for an order establishing fourteen approximately 640-acre exploratory drilling and spacing units on certain lands identified in the Verified Application (the "Application Lands") and also establishing field rules authorizing the drilling of up to two horizontal wells in each exploratory drilling and spacing unit.

3. I have studied the Application Lands. The Greenhorn formation beneath the Application Lands has had a very limited production history. Most wells drilled and completed in the Greenhorn formation in and near the DJ Basin have not been economic. It for this reason, in part, that the Applicant asks for the establishment of exploratory drilling and spacing units.

4. In support of Vecta's application, I have prepared five exhibits based on data from Commission and other records. I have personal knowledge of the matters discussed in my testimony.

5. Exhibit A is a map depicting the new Greenhorn spacing unit consisting of the Application Lands identified in the Verified Application.

6. Exhibit G depicts an Example Type Log showing the stratigraphy of the Application Lands. The well is located just to the west of the application area, and was chosen because a mudlog was available for the well. No mudlogs with this data are available on the Application Lands. Common industry stratigraphic names are shown on the log. In addition, designations for the Upper, Middle, and Lower Greenhorn zones that are used by Vecta are shown



on the log. Mudlog gas shows and source rocks that are recognized by the industry and have been published are also illustrated on the log.

7. Exhibit H is a U.S.G.S. topographic map for the Application Lands. The exhibit includes the location of the Mary Farnik #2 well, which is a key show well for the Greenhorn in the area. Two anticipated Greenhorn horizontal well locations are also shown, as well as the location of the Stratigraphic Cross Section depicted on Exhibit I.

8. Exhibit I is a Stratigraphic Cross Section depicting the Greenhorn formation in the application area. The cross section displays an interval from the top of the Ft Hays Limestone member of the Niobrara Formation to the base of the D Sandstone. The stratigraphic datum for the cross section is the base of the Ft. Hays Limestone. Either a SP or a gamma ray curve is displayed in track 1 and a resistivity log suite is displayed in track 2 for each well. The cross section illustrates three zones of the Greenhorn Formation identified in the area of the application lands, which are informally labeled the Upper Greenhorn, the Middle Greenhorn, and the Lower Greenhorn. The Greenhorn formation is a shale-dominated interval with calcareous zones which are interpreted as having been deposited in a marine environment below wave base. The Greenhorn is similar in lithological characteristics to the Niobrara Formation. The Upper Greenhorn and the Lower Greenhorn zones are the higher resistivity calcareous-rich zones of the formation that are brittle and provide natural fractures that are critical for economic production from the formation. As shown on the cross section, the Amerada Petroleum Company Mary Farnik 2 well in Section 1, T6N-R59W, was perforated in the Lower Greenhorn zone and produced 19,361 BO and 160,594 MCFG. The Greenhorn production was established after a bridge plug was placed above the abandoned D Sandstone perforations in the well. The initial drilling objective in the application area is this Lower Greenhorn zone, although both calcareous zones of the formation are considered economic reservoir intervals.

9. Exhibit J is a structure map constructed on the top of the Lower Greenhorn zone in the application area. The tops for this map were picked from wireline logs. The map depicts broad anticlinal and synclinal flexures across the application lands. This structural relief will likely contribute to fracturing in the brittle calcareous benches of the Greenhorn formation, which will provide greater reservoir storage and permeability and thus provide the deliverability necessary for economic hydrocarbon production from the formation

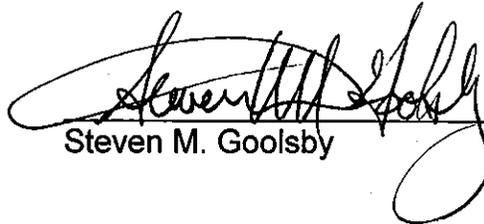
10. Exhibit K is an isopach map of the application area illustrating the thickness of the Lower Greenhorn zone in the application area. The isopach interval for the map is shown on Exhibit I, and encompasses the interval from the top of the Lower Greenhorn to the top of the X Bentonite, which is also the top of the Graneros Shale. The Lower Greenhorn zone is consistently around 90 feet thick in the application area except where it is cut by normal faults. Unlike the "listric" faults that are prevalent in the Niobrara Formation, the faults cutting the section in the Lower Greenhorn are interpreted as basement-related tectonic faults which may contribute to fracturing in the interval.

11. Exhibits G to K demonstrate the presence of the Greenhorn formation as a source of common supply beneath the Application Lands. Current drilling, completion and production techniques should permit the Greenhorn formation beneath the Application Lands to produce economic volumes of oil, gas and associated hydrocarbons from each of the proposed exploratory drilling and spacing units.

12. In my opinion, the Applicant or other operator should have the option of designing its drilling program so as to most efficiently and effectively explore for, encounter and establish production from the Greenhorn formation in each proposed exploratory drilling and spacing unit. A second optional horizontal well may or may not be needed to most efficiently and effectively produce hydrocarbons from each proposed exploratory drilling and spacing unit. In my opinion, vesting the operator with the discretion to make this determination after the first horizontal well is drilled, completed and begins producing will best promote the efficient and effective drainage of oil, gas and associated hydrocarbons from the Greenhorn formation underlying the Application Lands, prevent waste and protect correlative rights in a manner consistent with law.

I hereby declare under penalty of perjury that the foregoing statements, and the exhibits referenced therein, are true and correct to the best of my knowledge and belief, and that this statement was prepared under my supervision.

Dated this 6th day of August, 2012.



Steven M. Goolsby

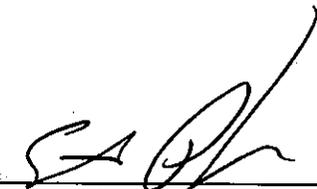
STATE OF COLORADO)
) ss.
COUNTY OF Jefferson)

This foregoing instrument was acknowledged before this 6th day of August, 2012, by Steven M. Goolsby.

Witness my hand and official seal.

My commission expires: 1/20/14





Notary Public

Vecta

Oil & Gas Ltd.

Greenhorn Spacing

Exhibit "G"

Example Type Log

Morgan and Weld, Colorado
By Steven Goolsby

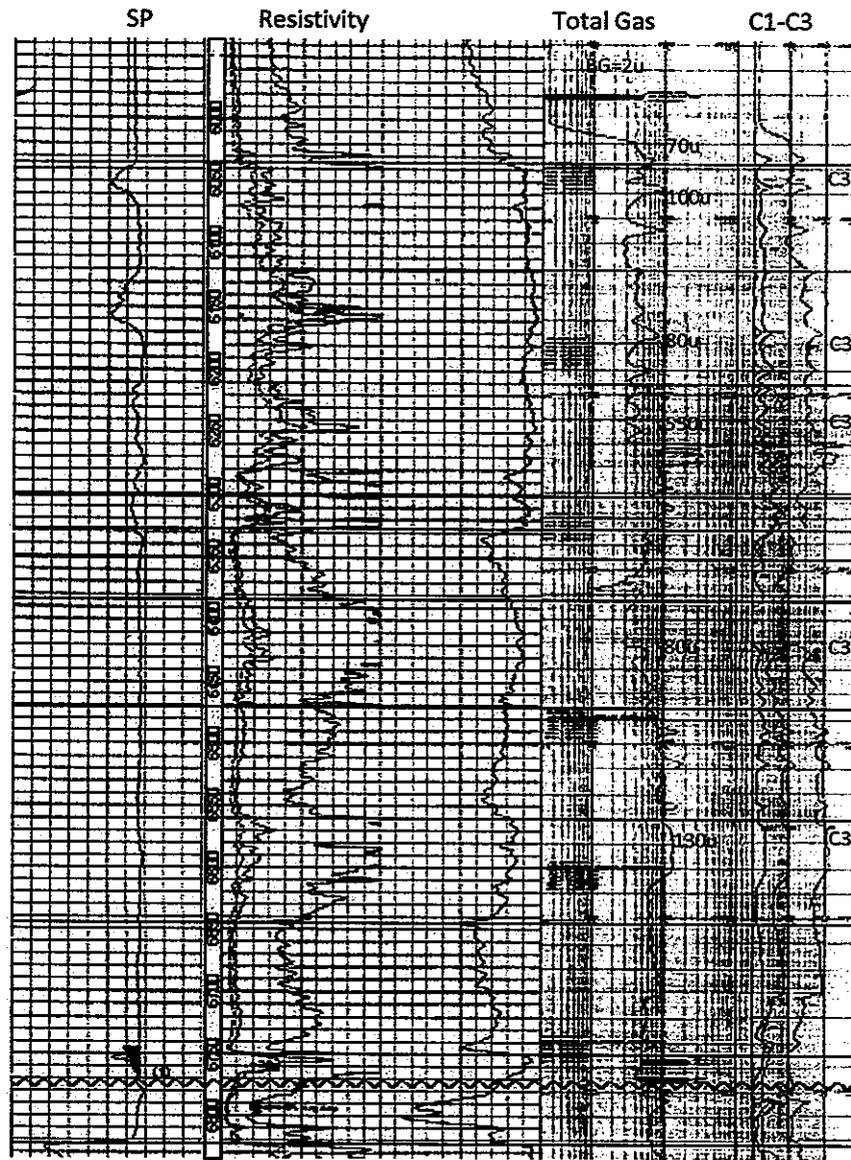
Cause No. 539
Docket No. 1208-SP-91

NORTHWEST EXPL CO
ENSERCH-STATE

1
T7N R60W S36

ELEV KB : 4,941
6/4/1982

Sharon Springs
Niobrara A
Niobrara B
Niobrara C
Lower Chalk*
Ft Hays
Codell
Carlile
Upper Greenhorn
Middle Greenhorn
Lower Greenhorn
X Bentonite
Graneros
D Sandstone
Huntsman
J Sandstone



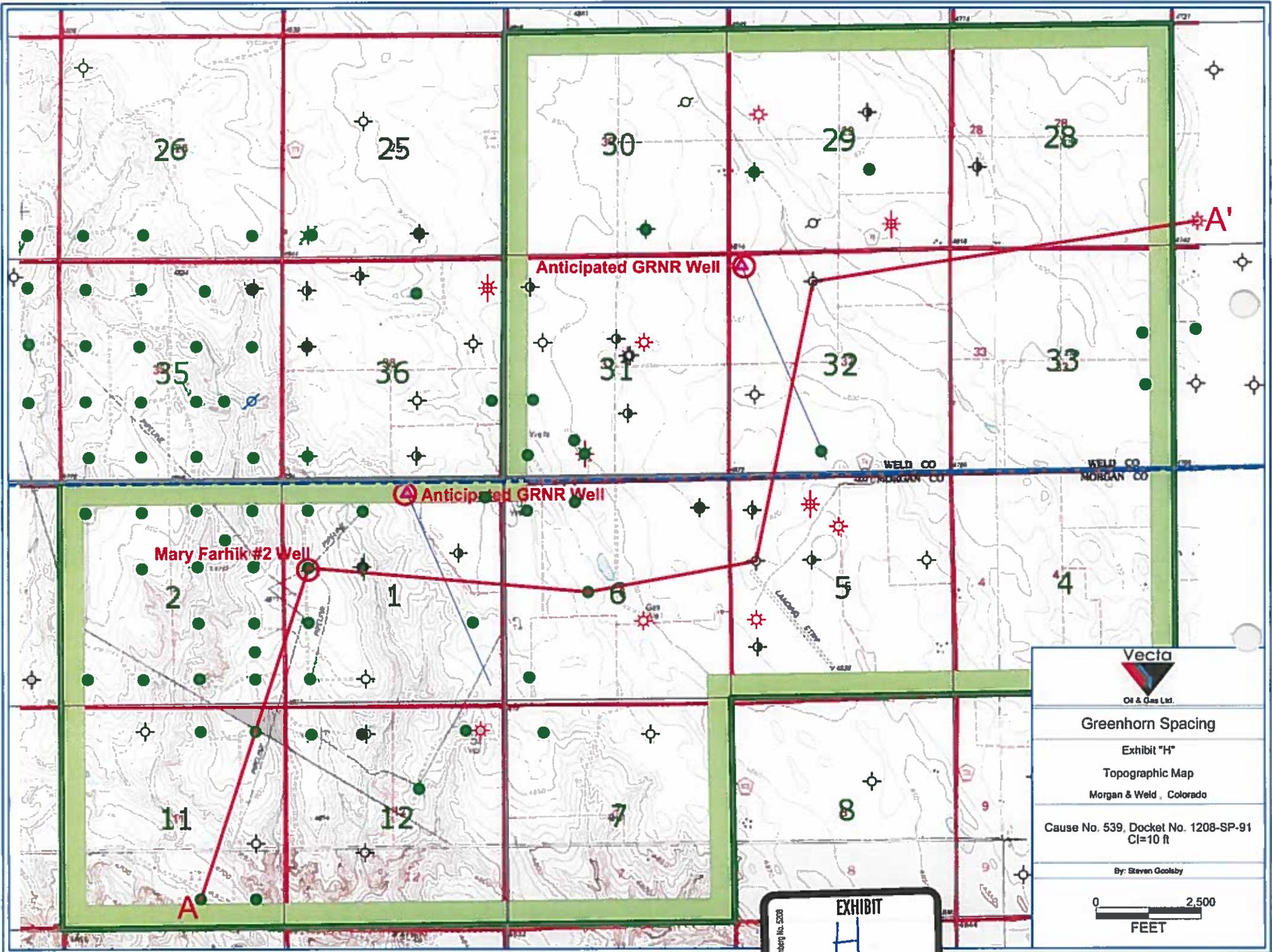
(Q) DST Recorder
40 FT IN

Published Source Rocks

Blumberg No. 5208

EXHIBIT

G



 <p>Vecta Oil & Gas Ltd.</p>
<p>Greenhorn Spacing</p>
<p>Exhibit "H"</p>
<p>Topographic Map</p>
<p>Morgan & Weld, Colorado</p>
<p>Cause No. 539, Docket No. 1208-SP-91 CI=10 ft</p>
<p>By: Steven Goolsby</p>
<p>0  2,500 FEET</p>

Blumberg No. 5308

EXHIBIT
H

DALRYMPLE & SWEARINGTON RIGSBY
 1
 T6N R59W S11
 IP_OIL : 122
 IP_WTR : 0
 ELEV_KB : 4,678
 602DKOTD
 6/11/1956

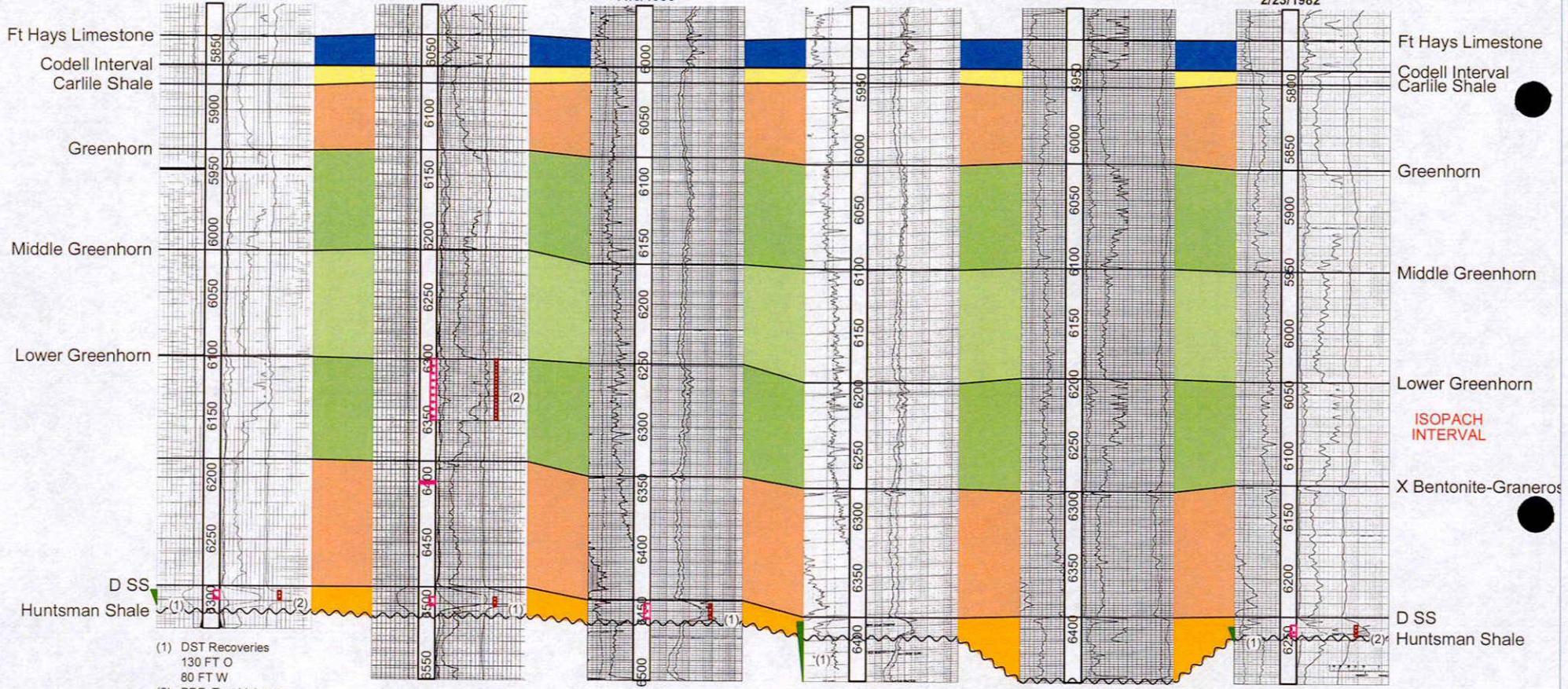
AMERADA PETRO CMPNY MARY FARNIK
 2
 T6N R59W S1
 IP_OIL : 201
 IP_WTR : 0
 ELEV_KB : 4,898
 602DKOTD 603GRNR
 19,361 BBLs
 160,594 MCF
 5/21/1955

HYNDREX RESOURCES WIRTH
 6
 T6N R58W S6
 IP_OIL : 5
 IP_GAS : 380
 IP_WTR : 35
 ELEV_KB : 4,876
 602DKOTD
 7,954 BBLs
 511,247 MCF
 366 BBLs
 11/8/1989

U S MINERALS EXPL WIRTH ANTONIA
 1
 T6N R58W S5
 ELEV_KB : 4,838
 4/4/1984

MERRION O&G CORP DOLL-HAFFKE
 1
 T7N R58W S32
 ELEV_KB : 4,801
 6/6/1987

HABCO INCORPORATED MERTENS
 1
 T7N R58W S27
 IP_OIL : 7
 IP_GAS : 390
 IP_WTR : 0
 ELEV_KB : 4,727
 602DKOTD
 1,161 BBLs
 197,661 MCF
 637 BBLs
 2/23/1982



(1) DST Recoveries
 130 FT O
 80 FT W
 (2) PDF: Test Volumes

(1) PDF: Test Volumes
 201 BPD OIL
 (2) IP: Test Volumes
 Date: 05/21/1955
 30 B OIL

(1) IPP: Test Volumes
 Date: 11/08/1989
 5 BPD OIL
 380 MCFD GAS
 35 BBL WATER

(1) Status: MISRUN
 DST Recoveries
 30 FT M

(1) DST Recoveries
 60 FT C
 30 FT W
 (2) IPF: Test Volumes
 Date: 02/23/1982
 7 OIL
 390 MCFD GAS

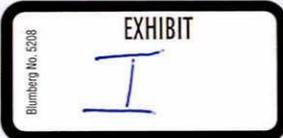


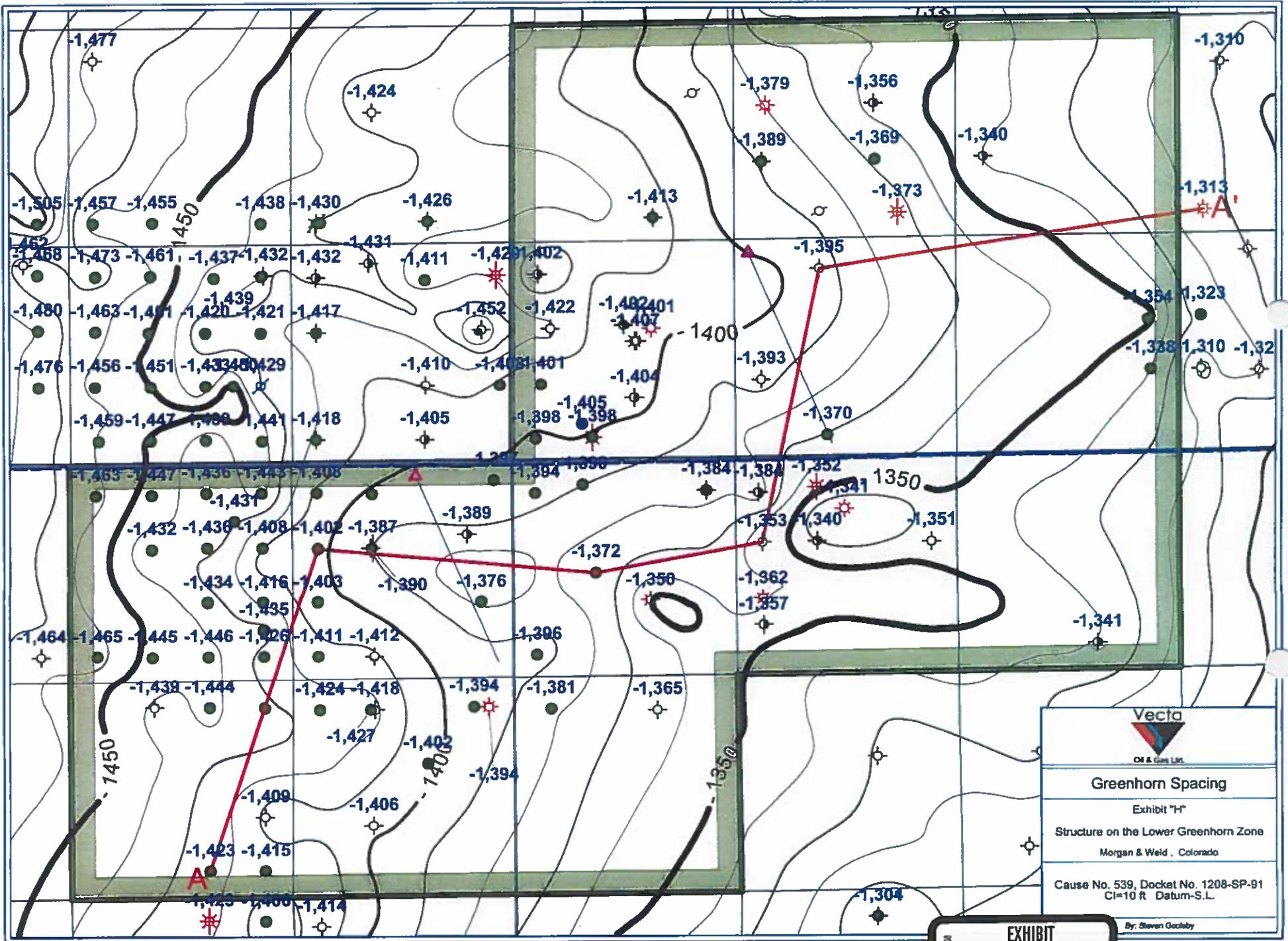
Greenhorn Spacing

Stratigraphic Cross Section A-A'

Exhibit "I"

Cause No. 539, Docket No. 1208-SP-91



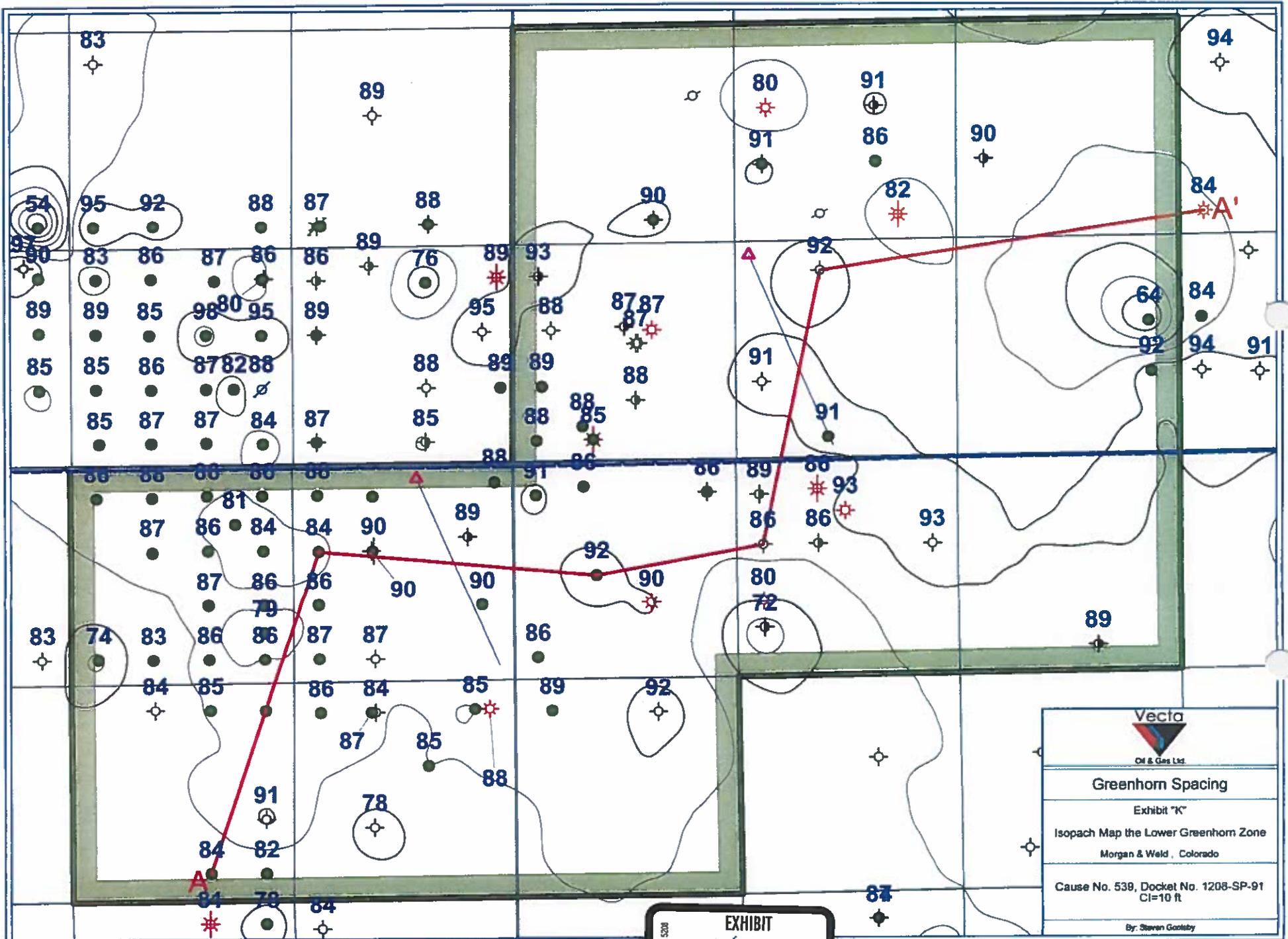


 Vecta <small>Oil & Gas Ltd.</small>
Greenhorn Spacing
Exhibit "H" Structure on the Lower Greenhorn Zone Morgan & Weid, Colorado
Cause No. 539, Docket No. 1208-SP-91 CI=10 ft Datum-S.L.
<small>By: Steven Gochley</small>

Bumby's Inc. 5208

EXHIBIT

J



Blumberg No. 520
EXHIBIT
K

EXHIBIT L

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

IN THE MATTER OF THE APPLICATION OF)
VECTA OIL & GAS, LTD. FOR AN ORDER)
ESTABLISHING EXPLORATORY DRILLING) CAUSE NO. 539
AND SPACING UNITS AND FIELD RULES)
IN AND FOR THE GREENHORN) DOCKET NO. 1208-SP-91
FORMATION IN MORGAN AND WELD)
COUNTIES, COLORADO)

SWORN WRITTEN TESTIMONY OF H. RICHARD PATE

1. I am Vice President of Engineering for Vecta Oil & Gas, Ltd ("Vecta"). This testimony is based on my personal knowledge and is true, correct and accurate.

2. I received a Bachelor of Science degree from the University of Wyoming in 1975. I have 34 years of experience working as a senior engineer and manager in the exploration and production sector of the oil and gas industry. I have extensive experience studying, planning and conducting oil and gas operations on lands in Colorado, Wyoming, Montana and North Dakota. I am an expert in Operations and Reservoir Engineering. A copy of my resume is attached as Exhibit M.

3. In its Verified Application, Vecta asks the Commission for an order establishing fourteen approximately 640-acre exploratory drilling and spacing units on certain lands identified in the Verified Application (the "Application Lands") and also establishing field rules authorizing the drilling of up to two horizontal wells in each exploratory drilling and spacing unit.

4. I have studied the Application Lands. The Greenhorn formation beneath the Application Lands has had a very limited production history. Most vertical wells drilled and completed in the Greenhorn formation in and near the DJ Basin have not been economic. It for this reason, in part, that the Applicant asks for the establishment of exploratory drilling and spacing units.

5. In support of the Verified Application, I have personally prepared exhibits marked as Exhibits N through Q. These exhibits were selected and prepared using well-established principles of engineering based upon reliable and relevant data collected from Commission records and other reliable sources.

6. Exhibit N is a table summarizing reservoir data, OOIP, and estimate of recoverable reserves for the Greenhorn formation.

7. Exhibit O is a show map depicting DST recoveries and/or production from the Greenhorn formation.



8. Exhibit P is a core data report from a nearby well in the Greenhorn formation.

9. Exhibit Q is a summary report of the Jackpot Field and production from the Mary Farnik #2 well from the Greenhorn formation.

10. Use of current drilling, completion and production techniques should allow horizontal wells drilled to and completed in the Greenhorn formation beneath the Application Lands to produce economic volumes of oil, gas and associated hydrocarbons from each of the proposed exploratory drilling and spacing units. Horizontal drilling and completion technologies have been improved dramatically during the last two decades and have been applied successfully to the Niobrara formation in and near the DJ basin. The Greenhorn formation has similar geologic deposition and reservoir characteristics as exhibited by the Niobrara. Exhibit N depicts the reservoir parameters of the Greenhorn formation in the proposed spacing unit area.

11. OOIP for the Lower Greenhorn Formation has been calculated at 7.7 MMBO per 640 acres. It is estimated that the use of present horizontal drilling and completion techniques could reasonably result in recoverable reserves of 270 MBOE (250 MBO, 20 MMCF) from a 4200'-4500' lateral wellbore in the Greenhorn. This is approximately 7.7 times the hydrocarbon recovery from the vertical Mary Farnik #2 Greenhorn production (refer to Exhibit Q). For comparison, Niobrara horizontal wells are exhibiting from 12 and up to over 40 times hydrocarbon recoveries of offset producing vertical wells. The estimated recovery of 270 MBOE is 3.5% of the calculated OOIP per 640 acres (or less than 25 acres). Recoveries are dependent on the matrix porosity and natural fracture permeability. The extent of natural fracture permeability is difficult to determine and encountering an increase in natural fractures would increase the estimated drainage areas.

12. The Applicant or other operator should have the option of designing its drilling program so as to most efficiently and effectively explore for, encounter and establish production from the Greenhorn formation in each proposed exploratory drilling and spacing unit. From an engineering perspective, the foreseeable production from one or more wells drilled in each unit (pursuant to the proposed spacing rules) will allow the operator to analyze geologic and reservoir parameters in relation to drilling and completion techniques in order to optimally locate and produce wells from the reservoir's most productive areas. A second optional horizontal well may or may not be needed to most efficiently and effectively produce hydrocarbons from each proposed exploratory drilling and spacing unit. In my opinion, vesting the operator with the discretion to make this determination after the first horizontal well is drilled, completed and begins producing will best promote the efficient and effective drainage of oil, gas and associated hydrocarbons from the Greenhorn formation underlying the Application Lands, prevent waste and protect correlative rights in a manner consistent with law.

14. In addition, one horizontal well and one other option horizontal well may be drilled and produced within each proposed exploratory drilling and spacing unit in a manner consistent with the protection of public health, safety and welfare, including protection of the environment and wildlife resources.

H. Richard (Dick) Pate

PROFESSIONAL SUMMARY

Thirty-four (34) years of extensive experience in the E & P sector at positions in senior engineering and management levels. Strengths in acquiring, building and developing projects from the ground level. Extensive experience in implementation and management of start-up and up through large development programs through innovative use of appropriate technology and effective team leadership. Ability to recruit, build and retain both technical and field staffs.

EMPLOYMENT HISTORY SUMMARY

Oct. 2010 to date	Vice President – Engineering	Vecta Oil and Gas, Ltd
➤ 2009-2010	Manager – Engr./Operations	Julander Energy Company
➤ 2006-2009	Vice President – Engr./Operations	Redwine Resources, Inc.
➤ 2001-2006	Vice President & Chief Tech. Advisor	Julander Energy Company
➤ 2000-2001	President – CSGHA	Personal (one year)
➤ 1999-2000	Vice President – Operations	Santa Fe Snyder Corporation
➤ 1988-1999	Vice President – Major Gas Projects	Snyder Oil Corporation
➤ 1981-1988	Region Engineer	Mitchell Energy Corporation
➤ 1979-1981	Division Staff Engineer	Champlin Petroleum (UPRC)
➤ 1976-1979	Senior Operations Engineer	Atlantic Richfield Company

KEY EXPERIENCES AND ACCOMPLISHMENTS

Vecta O&G, Ltd (2010 – Present)

- *Member of Core team which raised \$200 million financing for Vecta's Unconventional Resources. Formed new venture named Foreland Resources.*
- *Manage Vecta's engineering and operations for its' Rocky Mountain Properties (CO,MT,ND,WY).*
- *Developed and implemented Vecta's horizontal D&C Programs in Williston Basin (Bakken/3 Forks) and DJ Basin (Niobrara/Greenhorn).*

Julander Energy Company (2001-2006 and 2009-2010)

- *Developed horizontal drilling-completion strategy and plan for exploitation of the Sussex and Niobrara formations (oil prospects) in JEC's properties.*
- *Developed valuation and negotiated sale of JECs' CBM acreage resulting in proceeds of \$3.2 million, retention of 5% royalty and drilling of five (5) development wells.*



Redwine Resources, Inc. (2006-2009)

- ***Opened and staffed Denver office in 2006. Developed and implemented the drilling and completion programs for internally generated exploratory wells.*** Projects varied from CBM wells (1000') to tight sand exploratory wells (13,500'). Specific well designs included implementation of S-type and horizontal wells applications in various projects.
- ***Initiated the start-up of an internal drilling company, Badger Drilling, in 2006.*** Rebuilt three(3) rigs (1000 HP, 800 HP and 500 HP). Hired operations manager and staffed company.

Santa Fe Snyder (1999-2000)

- ***Integrated SOCO's key personnel with Santa Fe Energy after merger.*** Elected to accept an employment severance contract after the successful transition of SOCO personnel.

Snyder Oil Corporation (1988-1999)

- ***Piceance Basin(Mamm Creek), GGR Basin (Jonah and Washakie Basin): Responsible for all development activities (drilled over 200 successful wells in 4 yrs).***
 - Increased net asset value (NAV) by \$240 million in 4 year period.
 - Implemented new drilling designs for pad drilling (S-type curve wellbores).
- ***D-J Basin: Responsible for initiation of SOCO' first large scale development drilling program (drilled over 650 successful wells in 3 yrs).***
 - Increased NAV by \$200 million in 3 year period.
 - Implemented Niobrara horizontal drilling program in Silo Field and northern D-J Basin.
- ***HS&E Program: Developed and initiated a new health, safety and environmental program.*** Resulted in a record 3 years of accident free work. Implemented corporate wide.

Mitchell Energy (1981-1988)

- ***Austin Chalk: Developed initial designs and of medium and long radius horizontal wells. Coordinated and implemented a four (4) well program with drilling group.*** Increased Austin Chalk property value by \$5.2 million.
- ***Barnett Shale: Engineering team leader responsible for the development and implementation of first large frac stimulations to determine development potential.*** Initial program lead to the future development of this shale resource.
- ***JVO Property Management:*** Developed and implemented a system to manage all JVO properties in the region. Results were an average savings of \$0.5 million per year.

Champlin Petroleum Company, sub. UPRC(1979-1981)

- ***Sorrento Field: Responsible for engineering and field development of largest Morrow Discovery in SE CO.*** Lead Engineer responsible for unitization of field. Improved drilling and completion techniques. Results increased NAV by \$2.5 million.

- ***D-J Basin: Implemented new frac designs in the J- Sand.*** Increased EUR's 50% and cash flows of 35% per well during 2 year period.
- ***Rocky Mountain Overthrust: Responsible for all technical evaluations and capital expenditure recommendations*** to senior management for WI participation in newly discovered fields with Amoco (fields incl. Moxa Arch, Ryckman Creek, E. Anschutz Ranch).

Atlantic Richfield (1976-1979)

- ***Powder River Basin, WY:*** Managed engineering and field implementation of all operational activities in 6 major waterflood projects.

EDUCATION

B.S., Chemical Engineering University of Wyoming December 1975

ADDITIONAL EDUCATION

1200 hours of advanced studies in the following areas:

- Advanced Management (management skills, business economics & leadership)
- Advanced Technical Skills (completions, drilling, frac technology, petrophysics)
- Safety and Environmental Management
- Advanced Crisis Management

PROFESSIONAL PRESENTATIONS

IPAMS, Rocky Mountain Energy Technology Conference "Improvement in Drilling Costs through *Technology Transfer in the Rocky Mountain Basins*" (1998)

COGA, Keys to Success in the Rockies Seminar
"Continuous Operations and Process Improvement" (1998)

AWARDS

Hart's Oil and Gas World, Best of Rocky Mountain (1996)
 Best New Technology (Team Award)

Hart's Oil and Gas World, Best of Rocky Mountains (1997)
 Best Environmental Project (Team Award)

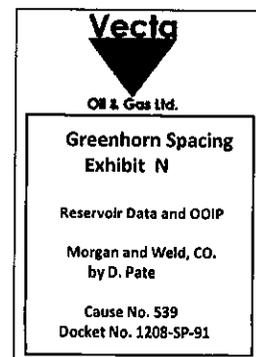
Commendation from the U.S. Department of the Interior (1997)
 (Recommendations while serving on the Green River Basin Advisory Committee)

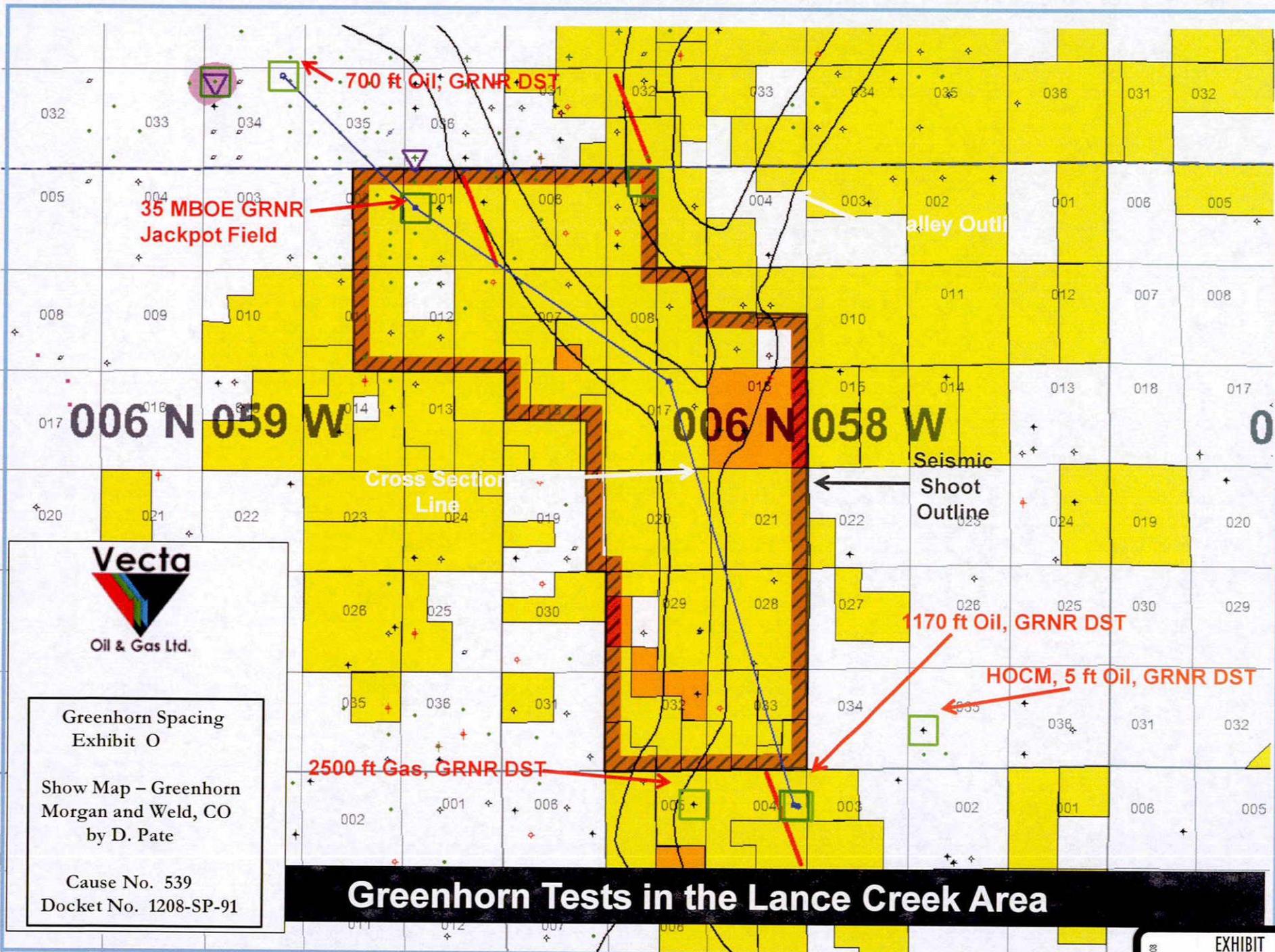
PROFESSIONAL AFFILIATIONS

- Colorado Oil and Gas Association – Past Director
- Petroleum Association of Wyoming – Past Executive Director
- SPE of AIME – Member
- IPAMS – Member

**GREENHORN FORMATION
RESERVOIR DATA AND VOLUMETRICS**

Formation.....	<i>Greenhorn</i>
Reservoir Depth (feet-avg.).....	6300
Reservoir Pressure (psi) - est. from DST data.....	2600 (0.41 psi/ft)
Reservoir Temp. (degrees F) – est. from logs/DST	165
Porosity (%-avg.) – est. from core data/logs.....	10 %
Water Saturation (%-avg) – est. from core data/logs.....	40%
Oil Gravity (API @60 degrees F).....	40
GOR (CF/BO) – est. from production.....	830
FVF (RVB/STB) - <i>calculated</i>	1.35
Spacing Unit (acres).....	640
Net Pay Thickness (feet-avg.) - estimated.....	35
OOIP (MBO) - calculated.....	7,728.0
Recoverable Oil (MBO) - estimated.....	250.0
Recoverable Gas (MCF) – est. w/ GOR.....	20,750
Recovery Factor (%).....	3.5%





Greenhorn Spacing
Exhibit O

Show Map – Greenhorn
Morgan and Weld, CO
by D. Pate

Cause No. 539
Docket No. 1208-SP-91

Greenhorn Tests in the Lance Creek Area

Blumberg No. 5208

EXHIBIT

CORE LABORATORIES, INC.
Petroleum Research Engineering
DALLAS, TEXAS

Company ALSO TEXAS COMPANY Formation GREENHORN & "D" SAND Page 1 of 1
Well MORGAN COUNTY INVESTMENT NO. 2 DIA. CONV. File. RP-2-1998
Field NORTH SIOUX Drilling Fluid WATER BASE MUD Date Report 10-6-58
County MORGAN State COLORADO Elevation 4394 OR Analyst DI
Location SE SW 31 SW 59W Remarks SERVICE NO. R

CORE ANALYSIS RESULTS
(Figures in parentheses refer to famous remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCY		POROSITY P.W. (%)	SHRINKAGE		FLOCCULE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL		ON	OFF		
GREENHORN FORMATION								
1	5900-01	0.0	0.0	8.5	42.3	56.6	(2)	Shale, Calcareous, Limestone Stringers.
2	5905-06	0.0	0.0	11.6	28.5	70.6	(2)	Shale, Calcareous, Limestone Stringers.
3	5910-11	0.0	0.0	10.9	44.0	55.0	(2)	Shale, Calcareous, Limestone Stringers.
4	5914-15	0.0	0.0	6.3	70.0	31.8	(2)	Shale, Calcareous, Limestone Stringers.
5	5915-16	0.0	0.0	8.9	42.6	55.0	(2)	Shale, Calcareous, Limestone Stringers, Vertical Fracture.
6	5920-21	0.0	0.0	11.3	37.0	62.0	(2)	Shale, Calcareous, Limestone Stringers, Vertical Fracture.
7	5925-26	0.0	0.0	11.9	30.2	69.0	(2)	Shale, Calcareous, Limestone Stringers.
8	5929-30	0.0	0.0	11.5	35.6	63.6	(2)	Shale, Calcareous, Limestone Stringers.
CORE NO. 2 - "D" SAND								
9	6066-67	0.0	0.0	6.0	16.7	81.7	(2)	Shale, with Thin Sandstone Stringers.
10	6071-72	0.0	0.0	4.6	47.9	45.6	(2)	Shale, with Sandstone Thin Stringers.
11	6076-77	0.0	0.0	4.7	17.0	74.6	(2)	Shale, with Thin Sandstone Stringers.
12	6081-82	0.0	0.0	3.6	13.9	83.4	(2)	Shale, with Thin Sandstone Stringers.
13	6086-87	0.0	0.0	4.3	11.6	86.0	(2)	Shale, with Thin Sandstone Stringers.
14	6091-92	0.0	0.0	6.1	8.2	90.3	(2)	Shale, with Thin Sandstone Stringers.
15	6096-97	0.0	0.0	6.7	7.5	91.1	(2)	Shale, with Thin Sandstone Stringers.
16	6102-03	0.0	0.0	3.7	13.5	73.0	(2)	Shale, with Thin Sandstone Stringers.

THE TEXAS CO. #2 MORGAN COUNTY INVESTMENT, 20 20 SW 31-59-59W, 640 1/2 3018 1/2 W
 Comp 1st
 Spud 8-20-58. Cas 8-5/8" @ 827 w/100. Sh 4444 KB. Log Top Nichols 8050. Greenhorn
 1800. D 24 2400. J 24 2127. Ctd 5221-59. Run 24 24 w/ thin s stringers. Ctd 5220-59. sec 24
 11 sh w/s stringers 9 sh w/s stringers, some small bedding of oil base calcitic bedding 19 sh w/s stringers. Ctd 5142-6145.
 sec 24 - 1 sh 271 sh. Black. hard w/ thin lam. sh. layers. DST 5129-44. 7 hrs. 21 00 min; sec 24 muddy w/s. 3 sand, no shows.
 total pumped, no PP. SP (24 min) 1850. DST 5129-44. 7 hrs. 21 00 min; sec 24 muddy w/s. SP 5-22. SP (24 min) 1850.
 5190 TD. Comp 10-11-58. D & A.

PETROLEUM RESEARCH ENGINEERING
CORPORATION
DALLAS, TEXAS

CORE LOG # 5774 page 1 of 1



Oil & Gas Ltd.

**Greenhorn Spacing
Exhibit P**

Core Data - Greenhorn

Morgan and Weld, CO.
by D. Pats

Case No. 539
Docket No. 1208-SP-51

EXHIBIT

P

Banner No. 528

Vecto

Oil & Gas Ltd.

Greenhorn Spacing
Exhibit QProduction - Greenhorn
(Jackpot Field)
Morgan and Weld, CO.
by D. PateCause No. 539
Docket No. 1208-SP-91**JACKPOT FIELD****JACKPOT FIELD****"D" Sand; Greenhorn Limestone**
T 6 N, R 59 W, Morgan County, Colorado
T 7 N, R 59 W, Weld County, ColoradoBy: **Mark Webster**
Hunt Oil Company**GEOLOGY**

Regional Setting: East flank of Denver Basin
Surface Formations: Tertiary White River Group;
 Cretaceous Fox Hills Sandstone
Discovery Method: Seismic mapping and subsurface geology
Trap Type: Stratigraphic
Producing Formations: Upper Cretaceous Greenhorn Limestone; Upper Cretaceous "D" Sandstone
Thickness and Lithology of Reservoir Rocks: Greenhorn Limestone, average thickness 50 feet; "D" Sandstone, average thickness 6 feet
Geometry of Reservoir Rocks: Greenhorn Limestone: Fractured shaley limestone; "D" Sand: Discontinuous lenticular transgressive sands
Oldest Stratigraphic Horizon Penetrated: Lower Cretaceous Skull Creek Shale, NW SW Sec. 1, T 6 N - R 59 W

DISCOVERY WELL — "D" SAND

Name: John L. Nelson, #1 Farnick
Location: NW SW Sec. 1, T 6 N - R 59 W
Elevation (KB): 4879 feet
Completed: January 21, 1955
Total Depth: 6735 feet
Casing: 10-3/4" @ 288 feet w/175 sacks; 5-1/2" @ 6570 feet w/150 sacks
Perforations: 6474-1/2 - 6480-1/2 feet w/5 shots per foot
Treatment: None
Initial Potential: Pumped 150 BOPD, no water

DISCOVERY WELL — GREENHORN

Name: Amerada Petroleum #2 Mary Farnick
Location: SW NW Sec. 1, T 6 N - R 59 W
Elevation (GR): 4894 feet
Completed: Originally completed in D Sand May, 1955, recompleted in Greenhorn Limestone November, 1956
Total Depth: 6589 feet
Casing: 8-5/8" @ 200 feet w/150 sacks
 5-1/2" @ 6587 feet w/250 sacks

LOGGING PRACTICES

Early logging practices generally included running an electrical log, micro-log and gamma-ray neutron log. More recent practice has been to run a dual-induction laterolog, density log and often a sonic log.

DRILLING AND COMPLETION PRACTICES

Common practice was to set 8-5/8" surface casing at ± 200 feet, drill to TD, log, run 5-1/2" production string through the

D sand, perforate and treat. Typical treatment was to stimulate the well with a small volume sand frac during initial completion or early in the production life.

RESERVOIR DATA — "D" SAND

Proven Productive Area: 1440 acres
Approved Spacing: 40 acres
Net Pay-Maximum: 15 feet
 Average: 6 feet
Porosity: 15.8 % (core)
Permeability: 60 md (core)
Water Saturation: 27 % (core)
Initial Field Pressure: 1760 psi
Type of Drive: Solution gas drive
Oil Gravity: 39° API
Gas-Oil Ratio: 800 cu ft/bbl
Estimated Primary Recovery: 1,040,687 BO
Type Pressure Maintenance or Enhanced Recovery: Water Injection
Estimated Ultimate Recovery: 1,364,879 BO; 2.4 BCF
Market Outlet: Permian Pipeline

RESERVOIR DATA — GREENHORN

Proven Productive Area: 40 acres
Thickness-Maximum: 50 feet
Porosity: Unknown
Permeability: Unknown
Gravity: "High gravity oil"
Gas-Oil Ratio: 714 cu. ft./bbl.

FIELD COMMENTARY

Jackpot was developed on 40 acre drainage spacing with a total of 36 wells. Sixteen wells were completed as flowing wells, and twenty were on artificial lift. Under primary depletion 1,040,687 BO were recovered. Waterflood operations as a means of secondary recovery were initiated in August, 1960. From January, 1961 to July, 1968, 369,377 BO were recovered. A total of 1,364,879 BO and 2.4 BCFG were recovered by the time Jackpot was abandoned in July of 1968.

As of July, 1980, three wells have been drilled within the old unit boundary. All three tested the D Sand and were economically unsuccessful, although one is still on production. The three wells are as follows:

1. Jacob Farnick #1, SE NW 1-6N-59W, TA 1-75 then P&A.
2. Weld County #1, NW SE 35-7N-59W, IP 13 BO, 67 BW 5-75. Acidized and fractured, P&A on 2-78.
3. Frank Farnick #1, C-E/2 SE 2-6 N-59 W, IP 25 BO & 1 BW, 10-78.

