

**P. David Padgett**  
**7933 South Newbern Circle**  
**Aurora, Colorado 80016**  
**303-726-3880**

## **BACKGROUND/QUALIFICATIONS**

- Over 30 years energy Land Management experience
- Extensive Acquisition/Divestiture/Energy Development Strategies
- Coordination of all stages of oil and gas drilling/development projects in multiple states
- Preparation and negotiation of land contracts for active land department
- Capital budgeting and management/coordination/hiring and training of land staff
- Negotiation and finalization of complex drilling projects and joint ventures

## **ACCOMPLISHMENTS**

**Management/Supervisory-** Hired, trained, and supervised the largest Land Department in the Rockies managing a single basin asset, Wattenberg. Manage day to day operations for active land departments, drilling up to 500 wells per year, operating over 7,000 producing wells, and 800 non-operated wells, in multiple states, during busy drilling environment. Expanded the Land Department from initial 8 employees to staff of 80 over a 6 year period in order to meet demands of active 13 rig drilling program.

**Exploration/Drilling:** Staff Director for coordination of multiple state drilling/ exploration programs in Colorado, Wyoming, Kansas, Oklahoma and Texas. Responsible for and oversaw all land related issues associated with leasing, title, regulatory/permitting, contract preparation and dispute resolution of land related issues with landowners and working interest partners.

**Regulatory/State/Federal:** Extensive experience in Rulemaking and implementation of company policies to comply with Colorado Oil & Gas Conservation Commission (“COGCC”) rules and Regulations; spacing and regulatory issues in the Rockies and Mid- Continent Regions, and successful water flood and pressure maintenance projects in Oklahoma and Wyoming. Established strong working relationships with local, federal and state regulatory agencies.

**Business Development:** Coordination of all land functions associated with drilling and acquiring position in multiple exploration and development prospects in the Rockies and Mid-Continent Regions.

## **EMPLOYMENT HISTORY**

Noble Energy, Inc.	Director of Land , Sr. Land Manager	04/05 -- Present
Patina Oil & Gas Corporation	Consulting Land Specialist	02/98 -- 04/05
J.E.D. Energy Interests	Land Acquisition, Project Development	05/95 -- 02/98

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### **EMPLOYMENT HISTORY**

MarkWest Energy Partners	Founding Partner, Land Manager	01/87 -- 05/95
Louisiana Land & Exploration Co.	Consulting Landman	11/81--12/86
Ladd & Lukowicz	Landman	08/80--11/81

### **EDUCATION**

Bachelor of Sciences Liberal Arts	Wichita State University	Wichita, Kansas
Certified Professional Landman	Denver, CO	1998

### **PROFESSIONAL ORGANIZATIONS**

American Association of Petroleum Landmen  
Denver Association of Petroleum Landmen  
Member Industry Advisory Board, PLRM Program Western State College of Colorado

**Thomas J. Birmingham**  
**11881 West Cooper Ave.**  
**Littleton, Colorado 80127**

E-mail: [tom.birmingham@anadarko.com](mailto:tom.birmingham@anadarko.com)

Phone: (720) 929-6470

Fax: (720) 929-7470

Education:

- M.S., Geology - 1979 – University of Colorado, Boulder
- B.S., Geology – 1975 – State University of New York College, Oneonta

Professional Experience:

**Anadarko Petroleum/Kerr McGee/ HS Resources**

1990-Present

Project Geological Advisor/G&G Manager

- Geological analyses for the Denver Basin/Wattenberg Field. Generation of all key maps and interpretations for the development of the Wattenberg Asset.
- Drill and supervise completion of 4800 vertical drills and several horizontal well in the Wattenberg Field.
- Coordinate with all support disciplines (Engineering, Land, Drilling, Completions) to affect prudent execution of development strategy for asset
- Supervision and career development of Geological and Geotechnical support staff
- Advisor to management on reserves, planning and long-term vision

**Bass Enterprises**

1982-1990

Geologist

- Responsible for all geological, drilling and completion activity in the Williston and Powder River Basins
- Coordinate with all departments to develop and expand Williston Basin development program
- Supervision and training of Geotechnical staff

**Reading & Bates Petroleum**

1979-1982

Geologist/District Geologist

- Development of Williston Basin development program.
- Coordinate with support departments to find new reserves and expand field development

- Mentor and train new Geological and Geotechnical staff

**Duncan Oil Properties**

1977-1979

Geotech/Assistant Geologist

- Assist all Geologist with cross sections, mapping and data search requests
- Developed local and regional geological interpretations in Denver, Powder River, Williston, Green River, Paradox and Sand Wash Basins
- Recommend best pursuit solutions for expiring leasehold areas

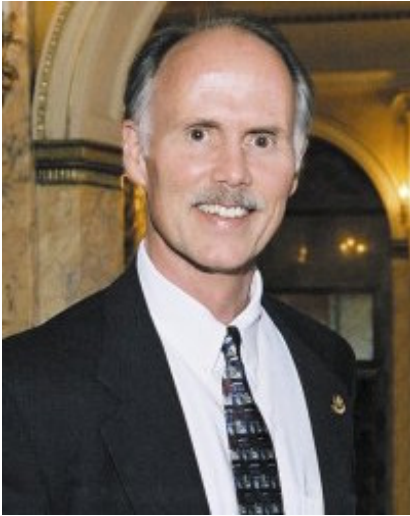
Relevant Publications

- Compartmentalization of the Codell and Terry (Sussex) Formations Using Clay Smear Technology, Wattenberg Field Area, Denver Basin, Colorado
- Enhanced Recovery from a Tight Gas Sand Through Hydraulic Fracturing, Codell Formation, Wattenberg Field, Colorado
- Several SPE Papers (co-author) on sidetracking methods to capture missing production zones, reservoir characterization, hydraulic fracturing (Wattenberg Field)



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## Dr. Steve Sonnenberg



### Contact Information

Professor and Charles Boettcher Distinguished Chair in Petroleum Geology  
Petroleum Geology  
[Department of Geology and Geological Engineering](#)  
[Colorado School of Mines](#)  
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USA

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(+1) 303-895-7663 (cell)

**Fax:** (+1) 303-273-3859

### Education

- Ph.D., 1981, Colorado School of Mines
- M.S., 1975, Texas A&M University
- B.S., 1974, Texas A&M University

### Research Interests

My research interests are in sequence stratigraphy, tectonic influence on sedimentation, reservoir characterization, unconventional resources and all aspects petroleum traps (e.g., reservoir, trap, seal, migration, source rocks). A complete understanding of a petroleum accumulation can provide an analog to discovering additional oil and gas fields. Much of the world's future resource lies in unconventional reservoirs (tight sands, CBM, and oil and gas shales).

## Work Experience

- Exxon Company USA
- Bass Enterprises Production Company
- North America Resources (sold to Pan Canadian)
- Pan Canadian Energy Resources (merged with Alberta Energy to form EnCana)
- EnCana Energy Resources
- Westport Oil and Gas (merged with Kerr McGee)
- Kerr McGee Oil and Gas (merged with Anadarko)
- Anadarko Petroleum

## Leadership Positions

- North American Resources: Team Leader DJ, Green River basins
- Pan Canadian: Exploration Coordinator/Manager, Rockies
- EnCana: Team Leader, North Piceance Basin
- Westport: Exploitation Manager, Northern Rockies
- Kerr McGee: Exploitation Manager, Northern Rockies
- Anadarko: Subsurface Manager, Union Pacific Railroad Land Grant

## Professional Society Leadership Positions

- AAPG: President, 2003-04
- AAPG: Vice President, 1995-96
- AAPG Division of Professional Affairs: President, 1998-99
- AAPG Rocky Mountain Section: President, 1993-94
- Rocky Mountain Association of Geologists: President, 1991
- Colorado Scientific Society: President, 1992
- AIPG Colorado Section: President, 1990
- SEPM, Rocky Mountain Section: President, 1987-88

## Teaching Experience

### Colorado School of Mines

- Adjunct Associate Professor, Department of Geology and Geophysics.  
Geophysics Field Camp (1992-2000)
- Integrated Exploration (1992)
- Adjunct Assistant Professor (1982). Advanced Petroleum Geology

## Industry

Several industry short courses:

Pertamina Oil (Jakarta, Indonesia; teaching one week short courses on: Development Geology, Basin Analysis, Reservoir Geology, Structural Geology Problems, Structural Styles in Petroleum Exploration)

## Registrations and Certifications

- Certified Professional Geologists #6201 (AIPG)
- Certified Petroleum Geologist #2558 (AAPG)
- Certified Professional Earth Scientist #2158 (SIPES)
- Registered Professional Geologist (# 288, State of Wyoming)
- Registered Professional Geoscientist (# 1284, State of Texas)
- Licensed Professional Geologist (#5375639-2250, State of Utah)

## Professional Society Memberships

- American Association of Petroleum Geologists
- Rocky Mountain Association of Geologists (Honorary Member)
- SEPM
- RMS SEPM
- Geologic Society of America
- Wyoming Geological Association
- Houston Geological Society
- American Institute of Professional Geologists
- Society of Professional Earth Scientists
- Colorado Scientific Society (Honorary Member)

## Other Organizations

### Colorado School of Mines Alumni Association

- Board of Directors (1990)
- Secretary (1991-92)
- Treasurer (1992-93)
- President Elect (1993-94)
- President (1994-95)

### Department of Geology and Geological Engineering, Colorado School of Mines

- Visiting Committee 2002-2004
- Department Enhancement Committee (2006-P)(Founding member)

### Department of Geology and Geophysics, Texas A&M University

Advisory Committee 2006-P

### **Colorado Energy Research Institute, CSM**

Board member, 2004-P

### **Colorado School of Mines Foundation**

Board of Directors (1995-97)

- Secretary (1996-97)

### **Colorado Oil and Gas Conservation Commission**

Appointed to terms 1997-99 (Gov. Roy Romer) and 1999-03 (Gov. Bill Owens).

- Served as Chairman of the Commission (1999-03)

## **Awards**

- Young Alumnus Award (1989), Colorado School of Mines Alumni Assoc.
- Outstanding Alumnus Award (1998), Colorado School of Mines Alumni Assoc.
- Life Member (1998), Colorado School of Mines Alumni Assoc.
- Mines Medal (1998), Colorado School of Mines
- Distinguished Achievement Medal (2001), Geoscience and Earth Resource Council, Texas A&M University
- Best Paper Award (1985), RMAG Mountain Geologist (2nd Place)
- Best Paper Award (1988), RMAG Friday Noon Luncheons (Honorable Mention)
- Best Paper Award (1991), RMAG Friday Noon Luncheons (2nd Place)
- Distinguished Service Award (1992), RMAG
- Honorary Member (1996), RMAG
- 75th Anniversary Special Service Award (1998), RMAG
- Honorary Member (1993), Colorado Scientific Society
- 6 Certificates of Merit-AAPG (1994, 2-2001, 2-2002, 2003)
- Certificate of Appreciation (1997), AAPG
- Distinguished Service Award (1999), AAPG
- Distinguished Service Award (2001), DPA-AAPG
- Geologic Society of America: Fellow 2003



**JOHN W. ARSENAULT**  
*Vice President*  
*Sr. Reservoir Engineer*



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Fax: +1 303 277 0267  
Email: jarsenault@mhausa.com

### **Education:**

- B. S., Petroleum Engineering, Colorado School of Mines, 1985
- Graduate Studies in Petroleum Engineering, Colorado School of Mines
- Fluent in Spanish

### **Professional Profile:**

- Over 23 years of industry experience
- Unconventional reservoirs
- Reserves and economic evaluation
- Integrated Study management
- Oil and gas field studies
- Tight gas sand stimulation and development
- Property evaluation
- Gas Storage
- Reservoir simulation
- Waterflood feasibility studies
- Coalbed methane

### **Work Experience:**

MHA PETROLEUM CONSULTANTS LLC, Denver, Colorado:  
(May 2006) **Vice President and Senior Reservoir Engineer**

Project manager and reservoir engineer. Performs evaluation of low permeability gas reservoirs, reserves valuations, economic analysis, and simulation. Prepare testimony for regulatory hearings regarding unconventional reservoir spacing in the DJ Basin. Other unconventional reservoir experience includes reserve analysis, A&D, and simulation.

SPROULE ASSOCIATES, INC., Denver, Colorado:  
(2001 – 2006) **Senior Reservoir Engineer**

Performed reservoir evaluations; low permeability gas reservoir studies; reservoir simulation; coalbed methane simulation; CO<sub>2</sub> sequestration and economic analyses in a variety of geographical locations within the United States and abroad.

SCHLUMBERGER HOLDITCH RESERVOIR TECHNOLOGIES, Denver, Colorado:  
(1987 - 2001) **Petroleum Engineer**

Mr. Arsenault joined the staff of Jerry R. Bergeson and Associates in 1987. He developed expertise as a petroleum engineer through the various mergers and corporate sales that culminated as Schlumberger Holditch Reservoir Technologies. From 1998 to 2000, Mr. Arsenault managed the Gas Resource Development Project of the Burgos Basin in Reynosa, Mexico.

EVANS, CAREY and CROZIER, Bakersfield, California:  
(1987) **Petroleum Engineer**

Participated in the study of the Elk Hills Naval Petroleum Reserve.

**Professional Memberships:**

- Society of Petroleum Engineers

**TIMOTHY L. HOWER, P. E.**  
*Chairman*



**MHA Petroleum Consultants LLC**

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Denver, Colorado 80202 USA  
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Mobile: +1 303 204 0220  
e-mail: [thower@mhausa.com](mailto:thower@mhausa.com)

**EDUCATION**

- B. S., Petroleum Engineering, Penn State University, 1981
- M. S., Petroleum Engineering, Penn State University, 1983

**PROFESSIONAL PROFILE**

In excess of twenty-nine years of petroleum engineering evaluation experience including:

- Supervision/Project Management of technical studies including
  - Reserves certification, resource valuation, field development studies, reservoir modeling and technical training courses for coalbed and shale gas projects in the U.S., Australia, China, India and Europe.
  - Field development studies, low permeability gas assets located in the southern North Sea; consultant to Shell affiliate Nederlandse Aardolie Maatschappij (NAM); Assen, Netherlands.
  - Acting Manager, Offshore Australia Business Unit, Santos Ltd; Adelaide, South Australia from May 1999–July 2000. Responsible for the appraisal and development of oil and gas assets located offshore; Western Australia, Northwest Shelf and Timor Sea.
  - In-house consultant to BEB Erdgas und Erdöl GmbH (now ExxonMobil Production Germany); Hannover, Germany from 1997 – 2003. Responsible for the reservoir evaluation and simulation of numerous gas fields and underground gas storage reservoirs.
  - Reservoir engineering consultant to Williams (formerly Barrett Resources) and Lance Oil & Gas Company on the Powder River Basin coalbed methane development; 1997 – present; results of technical studies were used as the basis for the statewide 80-acre spacing order for the Ft. Union coals.
  - Reserve valuations, equity studies and acquisition due diligence of major oil and gas assets located in the domestic US and worldwide.
- Unconventional gas reservoir development (coalbed methane, shales, tight gas).
- Black oil, compositional, and unconventional reservoir simulation studies (North/South America, Europe, Africa, Australia and China).

- Exploration, exploitation and infill development of oil and gas reservoirs.
- Gas storage reservoir assessment, design, implementation and monitoring.
- Design and management of waterflood and tertiary recovery programs.
- Integration of “4D” geophysical data into geological and reservoir simulation models.
- Development and instruction of reservoir engineering, production optimization and reservoir simulation industry training courses offered through OGCI-Petroskills.
- Manager of software client support and instruction of training courses for the ECLIPSE suite of software products.
- Field gathering system design and optimization.
- Expert witness testimony and testimony before various regulatory commissions.

Registered Professional Engineer: Colorado, Wyoming U.S.A.

## **WORK EXPERIENCE**

### MHA PETROLEUM CONSULTANTS, LLC., Denver, Colorado:

(July, 1997 - Present) **Chairman and Petroleum Engineering Consultant**

Responsible for the day to day operations of an organization of approximately 30 people with active engineering projects throughout the world. In charge of staff development, staff recruitment, development of new business and new business contacts, as well as maintaining relationships with the company’s existing client base. Project Manager of numerous engineering consulting projects worldwide. Instruction and development of industry training courses.

### ENRON OIL & GAS COMPANY, Denver, Colorado and Houston, Texas:

(October, 1995 to June, 1997) **Engineering Manager**

In charge of a staff of reservoir, production engineers, and support personnel. Responsible for property evaluations, exploration and exploitation drilling programs, secondary recovery design and implementation, reservoir simulation studies, reserve and acquisition evaluations, and annual budgeting and forecasting for EOG’s largest division.

### INTERA Petroleum Division, Denver, Colorado:

(October, 1990 to September, 1995) **Sr. Manager, E&P Studies; Consulting Engineer**

Manager of the North American consulting group which included a staff of more than 30 geologists, geophysicists, petrophysicists and engineers. Responsible for staff development, staff recruitment, and profit/loss for Intera’s largest global consulting group. Provided engineering, simulation and software support services for clients in North and South America, Europe, Africa, Australia and China.

CNG Development Company, Pittsburgh, Pennsylvania:

(October, 1988 to September, 1990) **Staff Engineer**

Management of oil and gas properties in conventional and unconventional (tight sands, shales, and coalbed) reservoirs. Production forecasting, field optimization, reserve estimates, formation evaluation, and depletion and drainage studies.

TENNECO OIL Exploration and Production, Denver, Colorado:

(June, 1983 to September, 1988) **Senior Reservoir Engineer**

Responsible for management of oil and gas properties in the Rocky Mountain Region. Unitization studies for several enhanced recovery projects in North Dakota. Lead engineer for Tenneco's significant interests in the San Juan Basin of New Mexico.

## **PROFESSIONAL HONORS AND MEMBERSHIPS**

- C. Drew Stahl Distinguished Alumni Achievement Award, presented April 2011 by the Pennsylvania State University, University Park, Pennsylvania
- Chairman – Denver Section of the Society of Petroleum Engineers (SPE); 2001/2002
- SPE *Henry Matson Technical Service Award*, May 2000, for innovative contributions in the field of engineering in gas reservoirs.
- Chairman; SPE Reprint Series on Layered Reservoirs
- Editor; SPE Reprint Series on Reservoir Management
- Professional Engineering Registration Committee
- General Chairman, 1993 SPE Low Permeability Reservoirs Symposium
- Program Chairman, SPE Low Permeability Reservoirs Symposium (1995, 1998, 2000)
- SPE Gas Technology Committee; SPE Reprint Series Committee
- SPE Distinguished Lecturer Selection Committee
- General Chairman; 2005 SPE Rocky Mountain Technical Conference

## **PUBLICATIONS**

1. "Coalbed Methane Reserves and Resources", workshop presented 8 May 2011, Brisbane, Australia.
2. "Modeling Unconventional Gas Reservoirs", workshop presented 20-21 February 2010, Adelaide, Australia.
3. "Performance Evaluation of CSG Reservoirs", workshop presented 17-19 February 2010 and 9-11 May 2011, Brisbane, Australia.
4. "Reservoir Aspects of Unconventional Gas Resources: Coalbed Methane, Shales and Tight Gas", workshop presented at the SMi Unconventional Gas Conference, London, April, 2009
5. "Coalbed Methane Geology, Engineering and Reserves", workshop presented for Petronas Carigali, Kuala Lumpur, January, 2009

6. "Coalbed Methane – Progressing from Resource to Reserves", workshop presented at the SMi Unconventional Gas Conference, London, March, 2008
7. "Coalbed Methane Reserves Workshop", Brisbane, Australia, 2008
8. "Recent Developments in Forecasting Coal Seam Methane Production", presentation for the Brisbane, Australia SPE Section, 15 February 2005.
9. "A U.S. Perspective. Forecast for the Future – Reliability of Supply and Deliverability of Coal Seam Methane Resources", presentation at the December 2003 Australian CBM Conference in Brisbane.
10. Hower, T.L., "Coalbed Methane Reservoir Simulation: An Evolving Science," paper SPE 84424 presented at the 2003 SPE Annual Technical Conference and Exhibition, Denver, Colorado, 5-8 October.
11. Hower, T.L., Jones, J.E., Goldstein, D., Harbridge, W.: "Development of the Wyodak Coalbed Methane Resource in the Powder River Basin," paper 84428 presented at the 2003 SPE Annual Technical Conference and Exhibition, Denver, Colorado, 5-8.
12. Gas Reservoir Management, Applied Reservoir Engineering, Reservoir Engineering for Others; technical training manuals for OGCI/Petroskills industry training courses; 2001/2002.
13. *Principles of Reservoir Engineering and Reservoir Engineering Mechanisms*, technical training manuals for British Petroleum Corp., Sunbury, UK; 1999.
14. *Managing Water-Drive Gas Reservoirs*, co-author of the textbook published by the Gas Research Institute, Chicago, Ill, 1993.
15. *Gas Reservoir Management and Gas Reservoir Modeling*, technical training manuals for Amoco Production Company, Houston, Texas, 1993.
16. Hower, T.L., Fugate, M.W., and Owens, R.W.: "Improved Performance in Aquifer Gas Storage Fields Through Reservoir Management", paper SPE 26172 presented at the 1993 Gas Technology Symposium, 28-30 June, 1993, Calgary, Alberta.
17. Hower, T.L., and Owens, R.W.: "Reservoir Management of a Gulf Coast Water-Drive Gas Field", presented at the 1992 International Gas Research Conference, 16-19 November, Orlando, Florida.
18. Hower, T.L., Lewis, D.R., and Owens, R.W.: "Recovery Optimization in a Multi-reservoir Offshore Gas Field with Water Influx", paper SPE 24865 presented at the 1992 SPE Annual Technical Conference and Exhibition, 4-7 October, Washington, D.C.
19. Hower, T.L., and Decker, M.K.: "Identifying Recompletion Candidates in Stratified Gas Reservoirs", presented at the 1992 Mid-Continent Gas Symposium, 13-14 April, Amarillo, Texas.
20. Hower, T.L. and Jones, R.E.: "Predicting Recovery of Gas Reservoirs Under Water-Drive Conditions", paper SPE 22937 presented at the 1991 SPE Annual Technical Conference and Exhibition, 6-9 October, Dallas.

21. Hower, T.L.: "Using Depletion Ratios to Select and Evaluate Drilling Locations in Naturally Fractured Gas Reservoirs", paper SPE 20758 presented at the 1990 SPE Annual Technical Conference and Exhibition, 23-26 September, New Orleans.
22. Hower, T.L. and Collins, R.E.: "Detecting Compartmentalization in Gas Reservoirs Through Production Performance", paper SPE 19790 presented at the 1989 SPE Technical Conference and Exhibition, 8-11 October, San Antonio