



THE OHIO GEOLOGICAL SOCIETY



The Newsletter of the Ohio Geological Society

March 2010

An Affiliate (1963) of the American Association of Petroleum Geologists (AAPG)

2009-2010 Officers

President

Chris Gordon
Eagon & Associates, Inc.
100 Old Wilson Bridge Rd.
Worthington, OH 43085
(614) 888-5760
cgordon@eagon.cc

Vice President

Steve Zody
Zody Geoscience
P.O. Box 921
Wooster, OH 44691
(330) 262-4323
zodyoil@sssnet.com

Secretary

Amy Lang
Forman Energy, Ltd.
P.O. Box 340346
Columbus, OH 43234
(614) 717-9262
amy.lang@formanenergy.com

Treasurer

John Miller
EnerVest Operating, LLC
110 E. Wilson Bridge Rd.
Worthington, OH 43085
(614) 436-4631
jmiller@enervest.net

Spring is just around the corner and we have scheduled some exciting, pertinent talks over the next few months that should spark an interest in the majority of our membership. Remember that your membership with the Society is only worth what you put into it. The reason that I belong to the Ohio Geological Society is because it provides me with presentations relevant to our region and connects me with others that work in the same field that I do. The talks that you attend and the connections you make not only help you, but strengthen the Society as a whole. Everything is scheduled with you in mind and we hope that you find our meetings as intriguing as we do.

Our March talk will once again coincide with the OOGA winter meeting at the Easton Hilton on March 17th. John Wicks will be presenting "Key Concepts and Implications for Future Oil Supplies" at 4:00 pm. This talk is sure to bring a big crowd, so please arrive early to claim your seat!

We have two official events scheduled for this April. Marty Shumway will be presenting on the 8th, and a core workshop will be held at the Division of Geological Survey's Horace R. Collins Laboratory at Alum Creek on April 20th.

Marty Shumway's talk, entitled "Economic Analysis of Gas Production from the Silurian 'Clinton' Formation in Ohio," will be presented during our usual lunch time slot at the Ramada Plaza Hotel. Details will follow and can always be found on our Web site.

The Central Ohio Core Workshop on April 20th is an event that we, the Society, have agreed to sponsor because of our close relationship with the Division of Geological Survey and the need for something like this to be put together. Along with the help of Brian Mott (DLZ), the Survey is putting together one-page field guides for the mappable units of Ohio. The guides are aimed to educate anyone (not specifically geologists) that need to familiarize themselves with the distinguishing properties of both the unconsolidated and consolidated units found in Ohio. The idea is to have a field guide available that can be used by a wide range of professionals that might not be familiar with all the units in Ohio. We will keep you posted as to the price of the workshop and whether or not CEUs will be available on attendance.

Keep checking the Society Web site and reading your newsletter for meeting updates and general information. Hope to see you this Spring!

Chris Gordon





THE OHIO GEOLOGICAL SOCIETY

Wednesday, March 17th

4 pm

Easton E

Hilton Easton

Columbus, OH

www.hiltoncolumbus.com

John Wicks, J.L. Wicks Exploration

KEY CONCEPTS AND IMPLICATIONS FOR FUTURE OIL SUPPLIES

According to Colin Cambell, one of the leading advocates for the study of peak oil, "*the term Peak Oil refers to the maximum rate of the production of oil in any area under consideration, recognizing that it is a finite natural resource, subject to depletion.*" Methods for predicting peak oil have been controversial since the beginning of oil production back in the 1860's. Popular press has carried stories from time to time over the last 150 years of the imminent demise of oil production, often backed up by data from prominent geologists.

In 1956 M. King Hubbert, a Shell geophysicist, proposed a method for predicting peak oil by balancing the finding rate and size of oil discoveries with the production rates and volumes. Plotting discoveries over time yields a curve resembling a normal distribution while the depletion plots as a similar curve, shifted in time. He successfully predicted the peak production year and ultimate production for the United States lower 48 some 13 years prior to its decline. Since then these discovery and depletion curves, known as Hubbert Curves, have been used to predict the peak oil production in numerous basins throughout the world.

In recent years, world oil reserves have taken on considerable clarity as the world discovery curve has been defined. Balancing world production with historical discoveries suggests that the world is at or near peak production for conventional oil and lease condensate. As global demand continues to increase, it is clear that demand will soon outpace the supply. This realization is reflected in recent oil price volatility and particularly in the July 2008 peak oil price of \$138 per barrel. The world economic crisis has temporarily lowered demand and extended the duration of peak oil production, delaying what is predicted to be a precipitous decline in world conventional oil production.

John is an oil and gas prospector and consultant with J L Wicks Exploration in Wooster, Ohio. He has been in the oil and gas industry since 1980. After receiving his masters degree in geology from the University of Toledo, he went to work in the Texas and Louisiana portion of the Gulf of Mexico first for Cities Service and then for Standard Oil of Ohio. In 1986 John moved to Alaska where he explored for oil on the North Slope for BP Exploration. He has been working in the Appalachian Basin, mostly Ohio, since 1994. John is a Certified Petroleum Geologist, member of AAPG, SIPES, and OGS.

Ohio Section of AIPG Honors Distinguished OGS Member

The Outstanding Achievement Award

William E. Shafer, CPG-1620

The Ohio Section of AIPG recognized OGS honorary life member William E. Shafer with its "Outstanding Achievement Award" at its annual dinner meeting, November 19, 2009. The Section recognized Mr. Shafer's contribution to the geologic profession; his legacy of service to the Institute; and his invaluable guidance and work in 2009, helping Ohio Section bring professional geological judgment on a pending issue of critical national importance - the Markey-Waxman "cap & trade" bill.

In reading the commendation, 2009 President Matt Justice stated "we are most privileged to present William E. Shafer with this high honor." The citation recognized Mr. Shafer's military service in the aftermath of World War II combat operations, as an active duty mountain and cold weather warfare instructor in the U.S. Army's Second Division (1946), and as a reservist until 1951. The award also recognized his four decades of service to the Ohio Section. Since 1971, Mr. Shafer served in every officer position, including president in 1974. As president he led the pursuit of state registration, gaining Ohio Senate sponsorship of the *Ohio Geologists Registration bill*.

After graduation from Ohio State University in 1951, Mr. Shafer launched a geologic career spanning five decades, beginning as a geophysicist with the United Geophysical Company, followed by Union Oil Company of California, and later the California Oil Company (Chevron). After service with the State of Ohio, Mr. Shafer worked thirty-three years in self-employment, founding Shafer Exploration Company Inc., and later the Resources Exploration Development Company Inc. (REDCO). He has contributed numerous technical reports, and expert consulting services, including an evaluation of the natural gas production potential of the Lake Erie basin for the Ohio Department of Energy.

The Outstanding Achievement Award was established in 1992, in response to a monetary gift from now deceased member, Dr. William A. Kneller, CPG-6365. Dr. Kneller's gift directed that medallions be cast for the award. Per his instruction, "the award is presented to any person who has made an outstanding, geologically related contribution to either science or the general public in the State of Ohio." Past recipients of the award are as follows: Robert G. Van Horn (2001), Stanley E. Norris (2003), Lawrence Wickstrom (2004), Horace R. "Buzz" Collins (2006), Dale Gnidovec (2006)



2009 Ohio Section President Matthew Justice (left) with 1974 Ohio Section President William E. Shafer (right)

Thursday, April 8th
Lunch at 11:30, talk at 12:30 pm

Please RSVP to Steve Zody at zodyoil@sssnet.com or 330-262-4323

Ramada Plaza Hotel & Conference Center
Columbus, OH

**Economic Analysis of Gas Production
from the Silurian "Clinton" Formation in Ohio**

Martin R. Shumway, P.E. – MacKenzie Land & Exploration Ltd.
Peter MacKenzie, C.P.G. – MacKenzie Land & Exploration, Ltd.

Abstract

Natural gas production data from over 10,000 wells completed in the Clinton formation in Ohio were used to determine composite decline curves by township for all townships in Ohio with cumulative gas production accounting for over 90% of total hydrocarbon production. Townships were screened for sufficient quantity and quality of gas production data to maintain statistical significance – over 100 townships were selected for analysis. Composite gas production decline curves were determined for each quartile of wells in each township that met these requirements (and for the state as a whole).

Decline curves for each quartile of wells were used to perform economic analysis for each township incorporating estimated lease and drilling costs (adjusted for depth) for realized gas prices between \$4-8 per mcf. Township were ranked based on several economic metrics including internal rate of return, discounted net cash flow, return on investment, and payout time for various realized gas prices.

For the state as a whole, the composite well for the 2nd quartile (median or 50th percentile) had an estimated ultimate recovery of 88 mmcf (1 mmcf per year cutoff), 10-year cumulative gas production of 64 mmcf, and first year production of 19 mmcf. The composite well for the 3rd quartile (75th percentile) had an estimated ultimate recovery of 180 mmcf, 10-year cumulative gas production of 117 mmcf, and first year production of 34 mmcf.

This analysis, combined with sound geology and a competent drilling and completion program, is a tool designed to identify areas within the state to initiate Clinton lease and drilling programs that will maximize the probability for high returns and minimized risk. Furthermore, the results identify townships with the potential to generate acceptable returns, even with realized gas prices as low as \$4 per mcf.

Bio – Martin R. Shumway, P.E.

Martin R. Shumway (Marty) earned his B.Sc. and M.Sc. degrees from the College of Engineering at the Ohio State University in Columbus, Ohio and is a licensed Professional Engineer in Ohio and Kentucky and an AAPG Certified Petroleum Geologist. Marty's professional experience includes base metal and gold exploration work in Alaska and western Canada, geotechnical and structural engineering analysis and design work, oil and gas exploration, development, reserve determination, and prospect generation and evaluation.

Professional association memberships include the Society of Independent Professional Earth Scientists (SIPES #3162), Society of Petroleum Engineers (SPE), the American Association of Petroleum Geologists (AAPG), the American Society of Civil Engineers (ASCE), and the Ohio Geological Society.

Marty joined MacKenzie Land & Exploration (MACKEX) in October 2005. MACKEX was formed in 2003 by Peter MacKenzie and maintains a fully equipped exploration geology office in Worthington, Ohio. MACKEX is actively developing and participating in oil & gas exploration and development projects throughout Ohio. MACKEX offers consulting services to the industry including; geological & geophysical services, seismic planning & interpretation & review, acreage evaluation, new well optimization plans, project review, bank reserve evaluations & economic projections, GIS mapping of assets - leases & wells, subsurface geological and production mapping, SPCC plan certification, and acquisition & divestiture advising.



John F. Miller
EnerVest Operating, LLC
110 E Wilson Bridge Rd
Worthington, Ohio 43085
614 436 4631 ext 262
jmiller@enervest.net

Ohio Geological Society and OOGA Members:

Enervest is seeking a contract field geologist to do well site geology for the 2010 Knox Unconformity drilling program. This work would entail sitting the wells during drill in to monitor mud logging activity and reservoir characterization. This person would work on site with company drilling engineer and company geologist in the office to correlate wells and pick TD. The contract geologist would also oversee the e-logging job and assure quality on selected logging suites and transfer of information to the office geologist to make well completion decisions.

The work would involve 2-3 field days per well. The wells would be throughout Eastern Ohio and Northwestern Pennsylvania.

Qualifications:

- Bachelors Degree in Geology**
- 3-5 years experience in well site geology, including sample evaluation and familiarity with various logging suites used in the Appalachian Basin.**
- Ability to transfer digital data in the field to office on a daily basis and during logging runs.**
- Communicate with the field drilling engineer on changing geologic conditions in the well**

Please send cover letter, daily rates, and contact information to myself at the enclosed address or email. Enervest will begin potential drilling program in mid May.

Sincerely,

John F. Miller

The Marcellus Shale: Energy Development and Enhancement by Hydraulic Fracturing

Pittsburgh, Pennsylvania

May 5-6, 2010

When: May 5-6, 2010 (8:30 am - 5:00 pm Wednesday and Thursday)

Where: Crowne Plaza Pittsburgh Airport Hotel, 1160 Thorn Run Road, Coraopolis, PA 15108. A block of rooms has been reserved at a rate of \$105 per night. For hotel reservations call (412) 262-2400. Be sure to mention AIPG for the room discount which will be honored until 4/20/2010.

Program: The conference is structured to allow consideration and ample discussion of the most crucial aspects of the hydrofracturing process as it pertains to gas production in shale and other tight formations. Slickwater fracturing is one of the most recent developments in the hydrofracturing process related to unconventional shale gas development.

We welcome abstracts of up to 250 words. Oral presentations will be approximately 30 minutes, which includes 10 minutes for questions and discussion.

Conference Registration Includes:

- Conference Materials
- Keynote Speaker and Lunch on May 5th (*May 6th Lunch is on your own*)
- Continental Breakfast both days
- Breaks both days

Registration:

On or before April 28, 2010

- * \$295 AIPG member
- * \$345 Non-member

After April 28, 2010

- * \$320 AIPG member
- * \$370 Non-member

Sponsors/ Exhibitors:

- **Sponsors** \$250 or \$425 (*\$250-includes your choice of sponsorship for the breakfasts or breaks, a full one-page color ad or company summary in the conference materials and your company name and logo added to our website with a link to yours*) or (*\$425 includes one complimentary conference registration, acknowledgement as a lunch sponsor, a full one-page color ad or company summary included in the conference materials and your company name and logo added to our website with a link to yours*).
- **Exhibitor Booth** \$425 (*includes one complimentary conference registration and a full one-page color ad or company summary in the conference materials and your company name and logo added to our website with a link to yours*).

Go to www.aipg.org for more information and to register!!



American Institute of Professional Geologists
1400 W. 122nd Avenue, Suite 250, Westminster, CO 80234
(303) 412-6205, Fax (303) 253-9220, email cld@aipg.org



The Ohio Geological Society
P.O. Box 14304
Columbus, OH 43214
www.ohgeosoc.org

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CALENDAR

- March 17** **OGS Meeting**
Key Concepts and Implications for Future Oil Supplies
John Wicks – J.L. Wicks Exploration
Hilton Easton, Columbus, OH
www.ohgeosoc.org
- March 17-19 2010 OOGA Winter Meeting
Hilton Easton, Columbus, OH
www.ooga.org
- April 8 OGS Meeting
Economic Analysis of Gas Production from the Silurian "Clinton" Formation in Ohio
Martin Shumway – MacKenzie Land & Exploration, Ltd.
Ramada Plaza Hotel, Columbus, OH
www.ohgeosoc.org
- April 11-14 AAPG 2010 Annual Convention & Exhibition.
Ernest N. Morial Convention Center, New Orleans, LA
www.aapg.org
- April 20 Ohio Geological Survey Core Workshop
Horace R. Collins Laboratory, Delaware, OH
www.dnr.state.oh.us
- April 29-
May 1 2010 Oil History Symposium
Lafayette Hilton Hotel, Lafayette, LA
www.petroleumhistory.org
- May 8 State Science Day
The Ohio State University, Columbus, OH
www.ohiosci.org
- May 14 OGS Meeting
Carbonate Sequence Stratigraphy - What is it? Can it really help us find more oil and gas?
Dennis Prezbindowski – Petroleum Consulting, Inc.
Horace R. Collins Laboratory, Delaware, OH
www.ohgeosoc.org
- September 16 OGS Golf Outing
Chapel Hill Golf Course, Mount Vernon, OH
chapelhillgolfcourse.com

Visit www.ohgeosoc.org for all upcoming events

Ohio Geological Society Publications

The in-print publications of the Ohio Geological Society may be purchased from the Ohio Division of Geological Survey. Members of the Society receive a discount; the member price is in parentheses (M:). For more information on the Society, write the Ohio Geological Society, P.O. Box 14304, Columbus, OH 43214.

OGS 4. Clinton sandstone papers presented at the Ohio Oil and Gas Association Winter Meetings 1961 to 1978 (abridged reprint of 1980 volume). 228 p., 1985. \$25.00 (M: \$20.00).

OGS 5. The new Clinton collection--1985, edited by Jack Gray, Andy Maslowski, Warren McCullough, and W. E. Shafer (2nd printing). This edition includes a transcript of "Deeper Clinton-Medina drilling in southeastern Ohio" from a March 1986 Ohio Geological Society meeting. 257 p., 1985. \$25.00 (M: \$20.00).

OGS 7. Computer-aided analysis of geologic data, edited by Lawrence H. Wickstrom. A collection of papers from a seminar presented at the 1987 AAPG Eastern Section meeting. 100 p., 1987. \$15.00 (M: \$12.00).

OGS 8. Maps and cross sections of the Cambrian and Lower Ordovician of central Ohio, by G. G. Shearrow. 31 p., 8 pls., 1987. \$12.00 (M: \$10.00).

OGS 10. The Ohio Geological Society anthology, the Morrow County, Ohio "oil boom" 1961-1967 and the Cambro-Ordovician reservoir of central Ohio, edited by William E. Shafer. 452 p., 1994. \$25.00 (M: \$20.00).

OGS 14. Ohio Geological Society Fifth Annual Technical Symposium. Proceedings from the November 1997 technical symposium held in Akron, Ohio. 11 papers. 117 p., 1997. \$25.00 (M: \$20.00).

OGS 15. Petroleum seismology in the digital age. Course notes from the Ohio Geological Society's 3-D Seismic Seminar presented at the 1998 AAPG Eastern Section meeting. \$20.00 (M: \$15.00).

OGS 17. Into the new millennium: The changing face of exploration in the Knox play. Proceedings from the Sixth Annual Fall Symposium held in Akron, Ohio, October 1999. 16 papers. 120 p., 1999. \$25.00 (M: \$20.00).

To order any of the Society's publications contact: The Geologic Records Center, Ohio Division of Geological Survey, 2045 Morse Road, Columbus, Ohio 43229-6693. Telephone (614) 265-6576.
FAX: (614) 447-1918. E-mail: geo.survey@dnr.state.oh.us.