



MONTANA GEOLOGICAL SOCIETY

NEWSLETTER

MGS Vol. 55 No. 2

February 2011

**MGS Luncheon Meeting
Wednesday Feb. 23, 2011
Please join us**

**“Examination of
Potential Factors
Affecting Successful
Exploration and
Production of Devonian
Marcellus Shale Gas,
Eastern United”**

James Coleman Jr.

Members who do not
receive an e-mail reminder
can RSVP by calling Doretta Brush
at Ballard Petroleum 406-259-8790

All meetings are held at the
Billings Petroleum Club at
11:45 a.m. unless otherwise noted

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PRESIDENT'S LETTER

Andrew Urie

7 – 0, that's the current score of the Super Bowl...make that 14 – 0 after a sudden interception by the Green Bay packers! It's amazing how the momentum of the game ebbs and flows, not unlike the emotional rollercoaster of developing and pitching a prospect or bidding a job. All the hard work done before brings itself to one crucial and defining moment.

As geoscientists we often work for days, weeks, months, or even years on a single project. We compile every fact, anecdote, and subtlety that may have any possible impact on the as yet poorly defined conclusion. I equate this with the NFL Pre-Season. There are so many teams, players, stories, and so many possible and unpredictable outcomes, not even the world's best sports analysts can often if ever predict the final result.

So we the geologists dig deeper, we are motivated to find the key reference, we push harder, and dig deeper into our professional experience. Time is spent integrating as many facets of our diverse field as we can bring to bear and more clarity comes to the problem. It's now midway through the regular season, the Detroit Lions are once again in dead last place and the usual suspects have drifted to the top of the divisions and the odds in Las Vegas are growing tighter and tighter but there is still the possibility of the dark horse making a late season play-off run. Having exhausted the geology it's now time to call our friends the engineers to bring some good measured reality back to the geological fantasy that we've developed after thinking at great length how to integrate all the conflicting data into one coherent story. Luckily we have the aid of Angry Hanks Street Fight or surely this task would be impossible. The reality check and ground truth from the reservoir engineer is our playoffs. Only the best teams remain battling to come to the front and make it to the big game.

At this point in the process we've now come too far, we're committed, in fact often irrevocably so; we've put in too much time, effort, and pain to give up now. One last push through the meeting, the only satisfying victory for us now can be getting this deal funded or winning the bid. Loss at this point is devastating; we've reached the Super Bowl.

Back to the game at hand, it is half time the Packers are up 21-10, and the Black Eyed Peas are killing it. Asking "Where is the love?" and we the geologists are have just finished our pitch and left wondering the same thing. Who will win this game? Only the second half can tell us and we wait with bated breath. Enjoy the last half and remember it's only a game!

Take care of yourselves and each other,
Andrew

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MGS PAST PRESIDENT's of the PAST DINNER

This dinner, honoring all Past Presidents, will be held

Friday February 25th, 2011

Cocktails @ 6:00 pm; Dinner @ 7:00pm

Billings Petroleum Club

Please RSVP to Betsy Campen by Feb 21 st

Phone: (406) 652-1760, Email: Betsycampen@bresnan.net

Remember that this dinner is OPEN TO ALL MGS MEMBERS and their spouses.

For clarification, the "Past President's" part of the name means only that we will be honoring the Past President; it does not mean it is open only to those who have served as president.

We sincerely hope you can join us in one of the most important MGS social functions of the year! Things are a little different this year with Brad leaving us early and Andrew's extended President term, so we've decided to honor all Past Presidents this year. Jack Warne, Bob Schalla and others are preparing some stories from the MGS of yesteryear. We invite you do bring all your stories of past MGS experiences and share some with the crowd!!!

MGS Luncheon Meeting

Wednesday February 23rd

11:45 pm – Billings Petroleum Club

Please join us for lunch (\$14) and the talk (no charge)

RSVP – montanageologicalsociety@gmail.com , or 406-259-8790

An email reminder will be sent 3 days prior to the talk



JAMES L. COLEMAN JR.

U. S. Geological Survey, Reston, VA

AAPG DISTINGUISHED LECTURE

Funded by the AAPG Foundation

Examination of Potential Factors Affecting Successful Exploration and Production of Devonian Marcellus Shale Gas, Eastern United

The Devonian Marcellus Shale is one of several, very high profile shale gas plays in the United States and is the most significant new play in the Appalachian Basin in several decades. The following key factors will probably determine whether or not this play will develop into a natural gas resource that meets national expectations:

(1) The volume of economically extractable resources. Assessments of the amount of undiscovered, technically-recoverable gas vary and depend on the effectiveness of horizontal drilling and multi-stage hydraulic fracture stimulation. Estimates of undiscovered, technically recoverable natural gas range from 0.8 to 3.7 trillion cubic feet by the U. S. Geological Survey (USGS) in 2002 to more than 100 times these amounts by industry consultants in 2008.

(2) The availability of sufficient fresh water for drilling, stimulation, and completion of the wells. Current shale gas well designs call for use of three to nine million of gallons of fresh water per well to attempt a successful completion. Given the number of forecasted wells necessary to extract the resource, there is concern that there will not be enough fresh water available for the work.

(3) The capacity for effective disposal or reclamation of post-completion drilling and completion fluids and solids. All of the material pumped into the reservoir that is recovered back to the surface must be disposed or recycled. Currently, there is inadequate capacity to handle this flow-back material properly at the scale planned for full development.

(4) The potential for significant wildlife habitat fragmentation caused by drill pad density and gathering, compression, and pipeline facilities. In areas of large, contiguous habitat, the activities associated with well-site construction, maintenance, and production activities may produce unintended consequences with respect to forest health and invasive species.

With collaborators, the USGS is studying the relative importance of these factors and the role that they may play in the evolution of the Marcellus Shale gas play so that we can meet our mission obligation to improve the nation's understanding of ecosystems and resources. Proper and prudent planning with foresight to managing the entire natural resource base will be necessary if the Marcellus shale gas play will reach its stated potential. The first steps in this planning effort involve examining and understanding the baseline conditions of these four factors.

Biography

Jim Coleman is the Director of the Eastern Energy Resources Science Center, U. S. Geological Survey (USGS), which conducts research and resource assessments on fossil fuel resources and examines the effects of their presence and use on human health and the environment. At the USGS, he has continued his research on unconventional gas systems and oil and gas resource assessments in the Appalachian, Gulf of Mexico, and Arkoma-Ouachita Basins. Before joining the USGS in 2003, Jim worked for 25 years with Amoco and BP on a variety of international and domestic oil and gas exploration and production and produced water management projects.

Jim has published articles on unconventional gas reservoirs, oil and gas resource assessments, basin and petroleum system evolution, deep water sandstone deposition and reservoir development, thrust- and fold-belt structural geology and petroleum accumulations, and carbonate sedimentology. His work comparing the American Petroleum Industry with the American Whale Oil Industry was recognized with the best presentation award for his talk at the Energy Minerals Division session at the 1994 Denver AAPG annual meeting. He received an M.S. in geology from Mississippi State University in 1978. He lives in Sterling, Virginia, with his wife Jane.



How to Find Bypassed Pay in Old Wells Using DST Data

Monday - Wednesday, March 14-16, 2011

Billings Petroleum Club, Crowne Plaza Hotel Billings Montana

Fee: \$525; Includes: refreshments, workbook, and PDH certificate

Instructor: Hugh Reid

Geologists, engineers & technicians who encounter or utilize DST results and reports in their exploration & production decisions. In fact any professional who needs to make more sense of the numerous old DSTs which are present in so many wells, often with confusing results. Particularly appropriate for those prospecting for bypassed pay using logs and geology, who may wish to verify their conclusions from the DST or for regional geologists using show maps of DST results.

Objectives

By the end of the course participants should be able to accomplish the following:

- understand DST pressure charts to identify obvious formation damage & depletion (small reservoir) and mechanical problems (eg. tool plugging).
- recognize high vs. low permeability tests.
- understand why data from cores and logs often conflict with DST data.
- “make more sense” of DST results printed in PI well cards and field reports where no chart is available and even estimate approximate permeability & damage in some cases.
- identify presence of limited natural fractures.
- appreciate where recoveries of “oil cut mud” and gas rates of “TSTM” may be significant from an exploration standpoint.
- determine when a gas test is co-producing water.
- identify gas presence even where no gas was reported in certain tests.
- identify potential oil zones from DSTs which recovered no oil (from the chart shape and air blow description).
- estimate the approximate gas rate in DSTs of “GTS TSTM” by knowing the time gas took to reach the surface and the air volume of the test string.
- make a decision as to whether old DSTs can be recompleted as commercial wells today from limited information.

Content

This course is a non numerical introduction to understanding DSTs & DST pressure charts focusing on pattern recognition and practical “quick look” techniques. Numerous field examples & case histories are utilized and theory is kept to a minimum. Course manual contains numerous DST charts which can be used for trouble shooting problem DSTs later. It is a permanent reference source. To avoid problem of attendees forgetting procedures taught at the course, all techniques are given in cookbook format ‘fill in the blanks’.

A key emphasis of the course is to show how to identify missed (damaged) pay in competitor’s ‘dry’ wells & additional pay in your own producing wells. This is an important skill to complement log skills!

Reid, Hugh W., operates a petroleum consultancy in Calgary, Canada, which specializes in DST design and interpretation. He has broad experience in teaching DST courses to the petroleum industry in Canada and overseas. He received his B.Sc.(Geol.) from the Univ. of Bristol, U.K. in 1968; he has 26 years experience in DST analysis and hydrodynamics, 10 years with Mobil Oil in Calgary and over 16 years as an independent DST analyst and as technical manager for Delta P Test Corp (specialized DSTs in tight gas sands). Mr. Reid is the author of various DST manuals and technical articles on formation damage and closed chamber DSTs in tight gas sands. He is past president of the Canadian Well Logging Society, and also a member of SPE, AAPG & CSPG.

Class Descriptions and Register Online: www.pttrockies.org

For more information, contact Mary Carr, 303.273.3107, mcarr@mines.edu

PTTC gratefully acknowledges support of industry, academia and the DOE’s National Energy Technology Laboratory.

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Science Expo 2011



Judging Day - Friday, March 25

Dinner & Orientation: 5 – 6 p.m.

MSU-B Student Union Building Ballroom

Projects Preview: 6 – 6:30 p.m.

MSU-B Main Alterowitz Gymnasium

Project Judging: 6:30 – 8:30 p.m.

MSU-B Main Alterowitz Gymnasium

Please sign up on-line: www.billingsclinic.com/scienceexpo

If you have any questions or concerns.

Contact: Marietta Reviczky-Dolan

406-247-6456

mreviczkydolan@billingsclinic.org

Stay tuned and start planning:

**MGS/MAPL Golf Tournament is
scheduled for Friday, July 8th at the**


Laurel Country Club

MGS Calendar and Reminders


- Feb. 23** **MGS Luncheon – Examination of Potential Factors Affecting Successful Exploration and Production of Devonian Marcellus Shale Gas, Eastern United States**
Petroleum Club, Billings, MT
- March 10** AAPG Distinguished Lecturer
- Feb. 25** **MGS Past Presidents' Dinner – 6pm - Petroleum Club, Billings, MT**
- March 14-16** **How to Find Bypassed Pay in Old Wells Using DST Data – MGS Short Course – Hugh Reid – Billings**
- April 10-13** **AAPG Annual Convention and Exhibition – Houston, TX**
- June 25-29** **RMS-APG Meeting – “Energy on the Rocks” - Cheyenne, WY**

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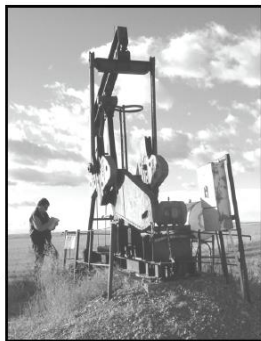
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