

## DECEMBER 2007

### DEC 3, 2007

MGS Luncheon  
"Athabasca Oil Sands:  
Understanding Oil  
Sands from the Regional  
Scale"  
AAPG Distinguished  
Lecturer, Dr Mike  
Peacock.

The menu will be TBA,  
dessert, and coffee or  
iced tea  
for \$14.00.

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 – Bob Schalla**

It's truly amazing how far behind I can manage to get after spending just three weeks "out-in-the-field". Somehow the fact that I was assured that the job couldn't possibly last more than two weeks only makes my current situation worse. Well, this is my excuse and I am sticking to it. Brad T. wants to know, "where's the President's letter!" And I say, "I don't know ...but I'll look in all the usual places!"

So here's what I have on my mind this month. I hope everyone got the word in time regarding the change in date for our AAPG Distinguished Lecturer talk on December 3rd. I also hope everyone will make it to the "Oilies" Christmas Party on December 13; no golf, no ham and eggs at 2 am, but a great chance to have some good eats, enjoy some Christmas cheer and visit with some folks you might not have seen in awhile.

On other topics, you might have noticed that I have corralled Steve VanDelinder into being our Field Trip Chairman for the next year (or two ?). We had several good trips in '07 and we have already lined up David Lopez to lead a one-day excursion around the Billings area. (Sometimes we don't spend enough time looking at what's right under our feet!). There is also talk of another trip to the Beartooth Mountains to be led once again by Ennis Geraghty. I guess the consensus after the '07 trip was that there is a lot more to see, so thanks to Ennis for offering to be our fearless leader again. Several other day type trips near Billings have been suggested by various people, so it could be a fun year for people who like to get out and pound a few rocks. A trip that I am personally interested in would be a multi-day adventure down to the northern Black Hills to look at the Cretaceous section. This trip is in the conceptual stage right now, with a summer of '09 target date. If anyone out there would like to work with me on this one, please let me know. There is bound to be a lot of logistical planning involved, especially if we decide to put out a Guidebook or Road Log to go along with it (which I think we should).

One final thought regarding the photo below, who are these guys? And why do they look so happy?



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## AAPG Distinguished Lecturer

### Dr. Mike Peacock: Exploration/Development Manager, Imperial Oil, Calgary



### Abstract:

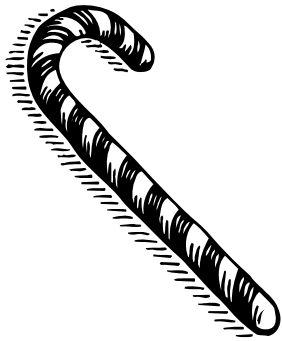
#### **Athabasca Oil Sands: Understanding the Oil Sands from the Regional Scale to the Project Scale, Kearl. - A Case History**

The Lower Cretaceous McMurray Formation in the Athabasca area of northern Alberta, contains Canada's strategically important oil sands resource with an estimated 800 billions barrels in place. Approximately 120 billion barrels can be exploited through surface mining. Kearl is a mining opportunity operated by Imperial Oil with regulatory approval to develop 4.4 billion barrels. The development would be a truck and shovel operation similar to other current mine developments. The regional geology of the Western Canada basin and the Athabasca area will be reviewed with Kearl positioned within that framework. The regional reservoir distribution of the McMurray formation is critical to understanding oil sands opportunities. The source and migration model for the Athabasca oil sands will also be presented. The reservoir for the Kearl deposit, are the unconsolidated fluvial and estuarine sands of the Lower Cretaceous McMurray formation. These form complex reservoir channel systems with significant reservoir heterogeneity. Net pays range from 25 to 75 meters with excellent reservoir parameters. The bitumen has an 8-degree API and a viscosity of 1.7 million cp. Fluvial-estuarine point bar reservoirs represent a large fraction of the resource that can be developed. Similar facies from the Syncrude mine can be organized into a hierarchy that subdivides channel-fills into bedsets, stories, bars and barsets. Inclined heterolithic stratification (IHS) surfaces can be identified. Significant resource delineation drilling has occurred and some regional 2D seismic lines acquired, prior to project approval, to reduce the reservoir uncertainty and improve resource definition. This allows for a unique opportunity to analyze a complex depositional system with abundant well and core control. Software techniques that quickly interpret large datasets have been successfully tested on an analogue dataset. Laser imaging of the mine face, will also be useful for recording stratigraphy and determining the mined volume of ore.

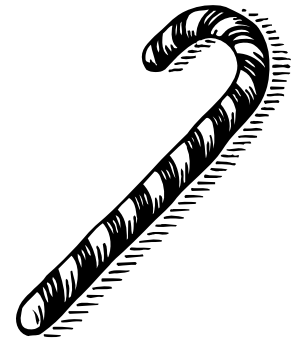


MGS/SPE/MAPL/BGS

# Christmas



# Party



Please Join Us



For an Evening of Festivity

Thursday, December 13th



5:00 p.m.



at the

Billings Petroleum Club

Come celebrate the season!



*Ho! Ho! Ho!* ★



## **Sage Grouse Study Now Available Online!**

I know many of you are eager to read the study by Renee C. Taylor of Taylor Environmental Consulting in Evansville, Wyoming assessing the impact of the Oil and Gas Industry on the sage grouse populations in Wyoming.

Mr. Tom Richmond of the Montana Board of Oil and Gas has placed the study on their website. If you would like to check it out please go to:

<http://bogc.dnrc.state.mt.us/PDF/WYsageGrouseNov2paper.pdf>

## **Climate Models Don't Match Up With Paleomagnetic Records**



Sandstone cliff in Vermillion Cliffs National Monument, Ariz., composed of the deposits of three large, Jurassic sand dunes (person for scale in lower center). Each dune migrated toward the present southeast (toward the right in this photo). The dune sand accumulated about 200 million years ago, just above sea level in a slowly subsiding sedimentary basin. Circulating groundwater cemented the sand into sandstone. Uplift of the region in the last 10 million years led to erosion of the rocks, forming canyons and cliffs. Climate models constructed for the supercontinent Pangaea suggest that the sands accumulated near the equator, and were swept by strong monsoonal winds that reversed direction every six months. Evidence based on the magnetic properties of rocks; however, indicate that the sand accumulated much farther north -- about 20 degrees north of the equator.

For the complete article, go to [http://www.sciencedaily.com/news/earth\\_climate/geology/](http://www.sciencedaily.com/news/earth_climate/geology/)  
(Credit: Image copyright Science, courtesy of University of Nebraska-Lincoln)

## **Hello Petroleum Fans,**

Many of you are probably not aware the Billings Section of SPE has what we fondly refer to as the

"Magic Suitcase". It is actually a couple of plastic tubs containing interesting "stuff" we use when we're giving presentations to school kids and other members of the public. It mostly contains core samples (many of which are not identified) and a blender to make cross-linked polymer frac gels (always a hit with the kids). The last time I used it, I realized it could use an upgrade. I'm hoping some of you might have some cool "stuff" you would be willing to donate to this upgrade project. Some ideas are:

- \* cores from a known formation and any additional information you might have about the core such as porosity or permeability
- \* a core with a hydrocarbon odor
- \* a small drill bit (by small I mean in the 2 7/8" range)
- \* pieces of tubing with perforations in it
- \* a short chunk of wireline cable
- \* interesting logs, especially the new color logs
- \* cutting samples
- \* frac sand samples
- \* oil samples from a known reservoir and any additional information you might have such as API
- \* cement samples if there is something wrong with it (I have a good cement sample)
- \* a blank shape charge
- \* a paraffin sample
- \* recovered formation sands
- \* geological maps
- \* a seismic presentation

or anything else you can think of that would make an interesting visual prop.

Sometimes the most interesting things are the result of an "oops". I promise to "tight hole" the sender of any of those items!

**If you can help please contact me at [joystevens1@bresnan.net](mailto:joystevens1@bresnan.net).**

Hope you have a wonderful holiday season.

Joy Stevens

**2008**  
**Montana Bureau of Mines and Geology Screensaver**  
**Now Available!**

The new 2008 screensaver from the Montana Bureau of Mines and Geology is now available for download from our website, at:

<http://www.mbmg.mtech.edu/about/highlights.asp#screensaver>

As in previous years, all photos were taken in Montana, by MBMG staff or their families. All new, all stunning photos! For those who can't download the file (about 39 Mb), we will have a CD available in December. This screensaver is for Windows only, though the pictures will be available on the CD for Mac users.

We hope you enjoy the beautiful pictures!

Susan Barth

Publications Editor

Montana Bureau of Mines and Geology

**New Publication!**

The Montana Bureau of Mines and Geology has released a new publication, Report of Investigation 18, The Tensleep Play of South-Central Montana: A Part of the Permo-Pennsylvanian Petroleum System of Montana and Wyoming. This publication reviews the stratigraphy, geology, oil accumulations, and hydrodynamic considerations in the Tensleep regional petroleum system. Available from the MBMG at our Butte and Billings offices. Please contact our publications sales office at 406-496-4167 or [pubsales@mtech.edu](mailto:pubsales@mtech.edu), or see our website at

<http://www.mbmg.mtech.edu>.

Susan Barth

Publications Editor

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## MGS PUBLICATIONS

2006 Montana Oil & Gas Fields CD-----	\$65.00
MGS - NRGDC Northwestern Geologic Service Sample Logs (MT, ND, SD) ----- Over 2500 sample logs on CD-ROM, regional sets also available	\$2500.00
2000 Guidebook: Northern Montana & the Montana-Alberta Thrust Belt (2 Vol. Set) ----- 50 <sup>th</sup> Anniversary Symposium	\$125.00
1998 8 <sup>th</sup> International Williston Basin Symposium -----	\$55.00
1998 Core Workshop Guide for Williston Basin Symposium -----	\$30.00
1997 Bighorn Symposium Guidebook -----	\$50.00
1997 MGS-TRGS Field Conference Guide -----	\$25.00
<i>"The Edge of the Crazies: Where the Mountains Meet the Plains"</i>	
1996 AAPG Rocky Mountain Section Meeting Expanded Abstracts Volume -----	\$25.00
1995 Guidebook: Seventh International Williston Basin Symposium -----	\$100.00
1993 Guidebook: Energy and Mineral Resources of Central Montana -----	\$54.00
1991 6 <sup>th</sup> International Williston Basin Symposium -----	\$55.00
1991 Guidebook: Geology and Horizontal Drilling of the Bakken Formation -----	\$50.00
1991 Field Trip Guides: Beartooth Mountains ----- Sequence Stratigraphy of the Eagle Sandstone at Billings -----	\$7.50 \$7.50
1989 Guidebook: Geologic Resources of Montana -----	\$80.00
1986 Guidebook: Geology of the Beartooth Uplift and Adjacent Basins -----	\$45.00
1985 Symposium: Montana Oil and Gas Fields -----	\$55.00
1978 Economic Geology of the Williston Basin -----	\$100.00
1971 Catalog of Stratigraphic Names -----	\$10.00
1969 Guidebook: Economic Geology of Montana -----	\$8.50
1951 BGS 2 <sup>nd</sup> Annual Central Montana Field Conference -----	\$12.50
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