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# MEETINGS, CONFERENCES AND WORKSHOPS

**Compiled by Lorraine A. Manz, Editor**

**Thirteenth Williston Basin Petroleum  
Conference  
Held in Regina, Saskatchewan  
By Randy Burke**

The Thirteenth annual Williston Basin Petroleum Conference returned to its alternate venue in Regina, Saskatchewan, Canada in 2005. Once again the Delta Regina Hotel provided excellent facilities for the meetings that began on April 24<sup>th</sup> and ran through the 26<sup>th</sup>.

Leading off the meeting at 8 am Sunday morning was a pre-meeting short course titled Complex Well Technology for Earth Scientists and Engineers – A Multi-Disciplined Review of Application Screening, Design, Implementation and Intervention of Horizontal and Complex Wells presented by Robert Knoll of Mauer Engineering, Inc. Many favorable comments by attendees of the workshop were overheard later that evening at the ice breaker as everyone enjoyed good food, beverages and conversation with friends while perusing technical posters and commercial displays.

Officially opening the Conference Monday morning, attendees were welcomed by the Honorable Eric Cline, Q.C., Minister of Saskatchewan Industry and Resources and by the reading of a letter of welcome from the North Dakota Industrial Commission. Technical sessions began immediately after the introductions with a summary of drilling activities in the Williston Basin. Oral presentations ended Tuesday following an afternoon schedule filled with talks on the geology of the Bakken Formation and petroleum engineering completion techniques for the Bakken. Luncheon speakers, the Honorable Lorne Calvert, Premier of Saskatchewan on Monday, and the Honorable Eric Cline on Tuesday, presented rousing, positive and insightful presentations on the importance of the energy industry to their Province.

This year the traditional hosts of the Conference, the North Dakota Geological Survey and Saskatchewan Industry and Resources, were joined by the North Dakota Oil & Gas Division as a co-host. Thirty-three energy-industry and associated companies provided the majority of the funding to sponsor the meetings and activities. We thank them for continued support, for without their support registration would be exorbitantly high.

High oil prices and new, and developing, plays in the basin combined to swell attendance by 52% over the previous year for a total of 407. About a quarter of the registrants were from the United States, the majority from Canada and one from Korea. Excitement stemmed largely from success with Montana's ongoing middle member Bakken Formation

play that is just now spilling over into North Dakota and beginning to revitalize similar opportunities in Saskatchewan and Manitoba. Twenty-seven commercial displays and twenty-four technical posters filled the exhibit hall which experienced steady business activity and scientific discussion. In addition to the annual summaries of oil-industry activities in each of the states and provinces in the Williston Basin, oral presentations also included the following topics:

- Cooperative environmental management – the Saskatchewan Petroleum Industry/Government Environment Committee model
- Enhanced oil recovery initiative
- An overview of the Midale unit CO<sub>2</sub> miscible flood expansion project
- A status report on the artificial lift systems and challenges in North Dakota horizontal completions
- High accuracy surveying – Who cares?
- Horizontal high-pressure air injection well construction and operation
- Swelling packer technology – Case histories in open hole
- Progressive analysis in the development of tight gas shale plays
- Geological insights leading to significant plays – Past and future
- Application of sequence stratigraphy to the Mississippian strata of southeast Saskatchewan
- Stepping outside the confining box of conventional stratigraphic units to map new exploration targets: examples from the Souris Valley and the Kisbey beds
- Sandy lithofacies within the Icebox Formation (Ordovician), Williston Basin, North Dakota and Montana
- Keep an eye on your basement!
- HIS Energy: unified petroleum information for the Williston Basin
- An integrated approach to working in the Williston Basin
- The potential for horizontal drilling the middle member of the Bakken Formation, North Dakota
- Hydrocarbon potential of the Bakken and Torquay Formations, southeast Saskatchewan
- Bakken/Torquay Development: A Manitoba update
- New dual lateral fracturing tools used in Bakken Formation, Williston Basin, Montana and North Dakota
- Propped fracture simulations: a technical overview with a regional perspective in the Williston Basin

Topics for technical poster abstracts included the following:

- Three emerging horizontal plays in the Williston Basin, North Dakota: Devonian Birdbear Formation, Madison Charles Formation, Ratcliffe interval and Madison Mission Canyon Formation, Frobisher-Alida interval
- Reservoir characterization of Cretaceous siliciclastic rocks in the Williston Basin, western and central Saskatchewan
- Lower Paleozoic map series – Saskatchewan Industry and Resources
- Preliminary results of organic matter analysis, Yeoman Formation, Saskatchewan: implications for biozones and further association with dolomitization patterns
- Phoenix mapping project – Saskatchewan Industry and Resources
- Regional stratigraphic framework of western Saskatchewan – Phase I
- Geologic map of South Dakota
- Updated regional Mississippian and Devonian structure and isopach maps for south-central Saskatchewan
- Geoscape southern Saskatchewan – beyond the poster
- Hydrocarbon trapping in the Mississippian Midale and Frobisher beds: Looking away from the subcrop edge
- Application of satellite and air photo remote sensing to risk assessment in the IEA Weyburn CO<sub>2</sub> monitoring and storage project, Canada
- Williston Basin architecture and hydrocarbon potential in eastern Saskatchewan and western Manitoba, Targeted Geoscience Initiative II (TGI II)
- Lithological variations within the Colorado and Montana Groups in Saskatchewan and its implications for gas exploration
- Estimates of CO<sub>2</sub> storage capacity in oil fields of the Plains CO<sub>2</sub> reduction (PCOR) partnership region

A forum on Geoscience Research needs in the subsurface of southern Saskatchewan, Manitoba and North Dakota was held as part of the technical session on Monday. A distinguished panel of regional experts presented short presentations on their fiscal, analytical and personnel resources available for petroleum industry related research. Similar short presentations were made by industry representatives and research providers from academia and government, all with the intention of soliciting input from oil industry representatives about their needs and suggestions for future energy research.

On Wednesday, following the meeting, a core workshop was presented by the Saskatchewan Geological Society. Over 100 people participated in listening to the formal presentations and examining the truths told in the rocks. The greatest activity was around the Bakken cores from

Saskatchewan and North Dakota. Core presentations included the following topics:

- Hydrocarbon potential of the Bakken and Torquay Formations, Southeastern Saskatchewan
- Hydrocarbon potential in the middle Devonian Ratner dolomite: southeast Saskatchewan
- Westward extension of the Mississippian Alida trend, Filmore Pool, southeast Saskatchewan
- Regional sequence stratigraphy of the Kisbey lowstand systems tract: implications for oil exploration
- Lithological variations within the Colorado and Montana Group in Saskatchewan and its implications for gas exploration
- Coal distribution in the Belly River Group (Upper Cretaceous) of SW Saskatchewan

At 5 am Thursday morning, a hardy group of enthusiastic geologists mounted a van for a field trip to an underground mine at Mosaic's Colonsay Potash Operation. This trip provided valuable insights into the stratigraphy, character and behavior of the evaporite units so important to understanding the geology of the Williston Basin. The Saskatchewan Geological Society made arrangements for the trip, lead by John Lake.

A 285 page conference volume and CD, including the conference agenda, and outline, abstract, or short paper, of the oral presentations was provided to all registrants. This volume can be purchased from Saskatchewan Industry and Resources for \$20 US (\$25 Canadian). Please make checks payable to Petroleum Conference and mail to: Petroleum Conference, c/o Bob Lavigne, Saskatchewan Industry and Resources, Subsurface Geological Laboratory, 201 Dewdney Avenue, Regina, SK, S4N 4G3 Canada. Bob can be reached at (306) 787-2621, fax (306) 787-2198, or email: [blavigne@ir.gov.sk.ca](mailto:blavigne@ir.gov.sk.ca). Past conference volumes may also be purchased from Bob.

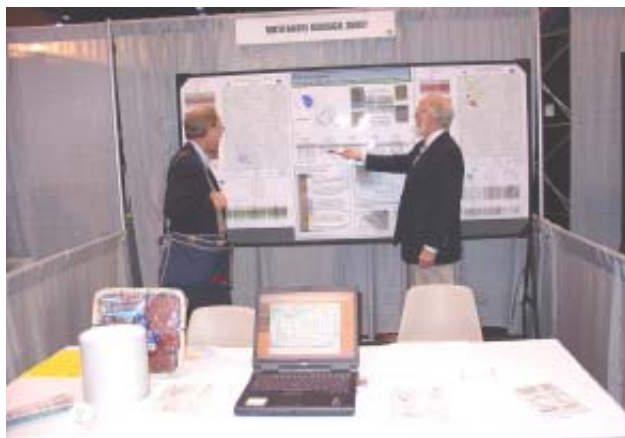
Current plans are to hold the Fourteenth Williston Basin Petroleum Conference in Minot at the Holiday Inn Riverside (1-800-468-9968). The 2006 Conference will be held on May 7-9. Mark your calendar and join us in Minot in 2006.

## **North American Prospect Expo (NAPE) 2005** **By Ed Murphy**

Last fall, the North Dakota Geological Survey received a \$5,000 grant from the North Dakota Oil and Gas Research Council. The grant was to defray travel expenses for two of our subsurface geologists (Julie LeFever and Randy Burke) to attend the thirteenth annual North American Prospect Expo (NAPE) held in Houston, Texas on January 26-27, 2005. The expo is billed as the largest oil and gas production event in the world. This year, approximately 11,000 people attended the event. Survey geologists had never attended this event

and we wanted to determine how much interest we could generate in the oil and gas potential of the North Dakota portion of the Williston Basin by staffing a booth at this expo.

Randy and Julie created posters and handouts of the most prominent oil and gas plays in the Williston Basin (Middle Bakken, Birdbear, and Ratcliffe and Mission Canyon). Two hundred oil and gas play handouts were distributed at the meeting to interested oil company geologists, executives, landmen, and financiers that visited our booth to discuss the Williston Basin. We also handed out brochures from the North Dakota Petroleum Council to expo attendees.



North Dakota Geological Survey geologist Randy Burke (right) explains the geology of one of the oil plays currently taking place in western North Dakota to an interested attendee of the 2005 NAPE meeting. The laptop computer was open to the North Dakota Oil and Gas Division's subscription website. One of two gift packages from North Dakota Tourism is visible on the left side of the table.

### Other Oil Industry-Related Meetings

Randy Burke and Julie LeFever attended the annual AAPG convention in Calgary, AB June 19-22, 2005. This was a joint meeting with the CSPG (Canadian Society of Petroleum Geologists). They also attended the 2005 CSPG Core Conference, June 23-24. Both events were outstanding and indicated the depth of enthusiasm in the oil industry at this time.

### GSA North-Central Section Annual Meeting

The 39<sup>th</sup> annual meeting of the Geological Society of America (GSA), North-Central Section was held May 19-20, 2005 at the Radisson Metrodome on the University of Minnesota campus in Minneapolis. Fred Anderson and Ed Murphy collaborated on a presentation entitled: *Two Unconventional Sources of Methane in North Dakota*. This

presentation was a part of the technical session focused on the unconventional natural gas resources associated with glacial deposits and shallow bedrock in the upper-Midwest.

Lorraine Manz presented a paper on *Cosmogenic <sup>36</sup>Cl Dating of Late Pleistocene Glacial Deposits in Southwestern North Dakota* as part of a theme session on Mid-Continental Quaternary History in a Global Context. (See pages 13 to 16 in this Newsletter.)

### Digital Mapping Workshop

Lorraine Manz attended the annual Digital Mapping Techniques Workshop (DMT '05), which was held on the campus of Louisiana State University in Baton Rouge between April 24 and 27. These meetings are invitation-only events designed to bring together scientists, cartographers, and GIS specialists, mostly from State and Federal agencies, who are using digital techniques to create and manage geologic maps. This year's meeting was co-hosted by the Louisiana Geological Survey and Louisiana State University.

Approximately 100 people, representing 29 states, three Canadian provinces and four countries attended DMT '05. In response to complaints from previous years' attendees that the meetings were becoming too heavily biased towards GIS at the expense of geology, this year's meeting was a much more balanced affair. There were several presentations emphasizing field techniques and other methods of data acquisition. The meeting also included an excellent discussion session on light detection and ranging (LIDAR), led by representatives of MD Atlantic Technologies from Huntsville, AL, and Ian Duncan of the Texas Geological Survey.

### Friends of the Pleistocene Field Conference

Lorraine Manz, along with approximately 120 other members of the Midwest cell of the Friends of the Pleistocene (FOP) met in Streator, Illinois May 13-15 for its 51<sup>st</sup> annual field conference. Entitled "Big Ice Meets Big River," the meeting focused on an area of north-central Illinois in which glaciers of the Lake Michigan lobe repeatedly overrode the ancient course of the Mississippi River during Pre-Illinoian, Illinoian and Wisconsinian glaciations, preserving thick, complex, valley-fill and glacial sediments and diverting the river to its present course. FOP members visited several sites where sediments of the Ancient Mississippi River are exposed and also examined exposures of Wisconsinian and Illinoian Stage glacial and fluvial deposits, Wisconsinian loess, and the Sangamon paleosol.

The 52<sup>nd</sup> annual FOP field conference will cover areas of north-central North Dakota and is scheduled for June 3-4, 2006. More information will be published in the next newsletter.