

The Rock Record – April 2006

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Newsletter*

The SGS Newsletter is produced by the SGS executive. Letters, announcements, notices, comments, photos, news and information about SGS members, etc. are always welcome. Call an executive member or write to us at:

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www.sgshome.ca

All advertising inquiries should be directed to Cameron Bartsch

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SGS PUBLIC LECTURE

**APRIL 27TH, 7:30 Royal Saskatchewan Museum
Saskatchewan Diamonds
Shawn Harvey, Shore Gold Inc.**

Thursday, April 13th

**Kaolinized sandstone of the Whitemud Formation,
southern Saskatchewan:
A potential source of meta-kaolin for high-
performance concrete.**

Presented by:

Lynn Kelley

Whitemud Resources Inc.

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Cameron Bartsch 787-2506

By NOON, Wednesday, April 12th, 2006

Tuesday, May 2nd

**AAPG Distinguished Lecturer
Reservoir Quality Assessment:
Petrography as a Tool for Deciphering Kinetically-
dominated Systems
and the Need for Petrographic Education**

Dr. Kitty Milliken

The University of Texas at Austin, Austin, TX

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Jeff Coolican 787-8729

By NOON, Monday, May 1st, 2006

Luncheon Talk Thursday, April 13th

Kaolinized sandstone of the Whitemud Formation, southern Saskatchewan: A potential source of meta-kaolin for high-performance concrete.

**Lynn Kelley, Chris Curry and Kelly Babichuk
Whitemud Resources Inc.**

Abstract

Intensely-weathered sandstone at the base of the Whitemud Formation, containing up to 60% kaolinite, crops out near the village of Wood Mountain, about 100 km south of Moose Jaw, and in the Frenchman River valley, near the town of Eastend. The kaolinite is considered to have been formed *in situ* through weathering, specifically leaching of alkalis from feldspathic components in arkosic sandstone. The weathered product is a massive, grain-supported to matrix-supported, white to light-grey rock composed of 40 to 80% quartz sand and 20 to 60 % clay minerals, principally those of the kaolin group.

The kaolinized sandstone was investigated by at least four groups between the early 1980s and 2001 as a potential source of kaolin for filling and coating high-grade papers. More than 200 drill holes outlined a potential resource in the Wood Mountain area that has been estimated to be well in excess of 100 million tonnes (pre-NI 43-101), but the brightness of the kaolin was not equal to the industry-standard material currently mined in Georgia.

Whitemud Resources Inc. acquired a core ground position in 2001 and began exploring markets in which the physical and chemical properties of kaolin were primary and brightness was a secondary consideration. Kaolin that has been kiln-heated to between 600°C and 800°C (calcined) is known as meta-kaolin, and has been used as a Portland cement substitute in specialty and high-performance concretes since approximately the mid-1960s. Meta-kaolin replacement of up to 20% of the Portland cement in concrete mixes has been shown to produce concretes that exhibit increased strength at earlier set times; are more durable and less permeable; and are much less susceptible to the alkali-silica reaction or sulfate attack. Numerous third-parties have verified enhanced performance in concrete using meta-kaolin produced from Whitemud's Gollier Creek deposit in the Wood Mountain area.

While the advantages of using meta-kaolin in concrete are known, its use is not widespread because currently available sources result in increased concrete costs. Whitemud intends to offer meta-kaolin to the cement and concrete industries at a price that will enable concrete producers to offer high-performance products at prices competitive with traditional concrete. Meta-kaolin substitution will also allow concrete producers to "stretch" their limited, sometimes rationed, supplies of Portland cement in a North American market that is experiencing a domestic supply deficit of some 20% or 30 million tonnes per year. Whitemud Resources Inc. expects to begin supplying the North American cement and concrete markets with meta-kaolin in 2007.

Luncheon Talk Tuesday, May 2nd



2005-06 AAPG Distinguished Lecture

Abstract

KITTY L. MILLIKEN

Jackson School of Geosciences
The University of Texas at Austin, Austin, TX

Funded by the AAPG Foundation through the J. Ben Carsey Endowment

Reservoir Quality Assessment: Petrography as a Tool for Deciphering Kinetically-dominated Systems and the Need for Petrographic Education

As exploration efforts turn increasingly to unconventional reservoirs and, especially, to deep, hot targets, accurate prediction of reservoir quality becomes a great challenge. In rocks that have experienced a protracted history of post-depositional chemical and mechanical alteration, rock properties cannot be readily predicted from primary sediment characteristics. A dominant reason for this difficulty is that, despite temperatures that are somewhat elevated compared to the surface, reactions in sedimentary basin are relatively sluggish and driven largely by kinetics (rate-controls) rather than by thermodynamics. In such systems, prediction of reaction paths and mechanical behavior cannot be obtained from an understanding of bulk composition and thermal conditions alone. In sedimentary basins, rocks inevitably preserve a complex history of their modifications. Efforts to predict the progress of an individual, pore-modifying reaction (e.g., quartz cementation) must take the proper historical context of the reaction (i.e., its individual rate-control) into account. Predictive approaches that do utilize such a conceptual framework can meet with great success.

The broad field of sedimentary petrography involves the tools and skills required to assess kinetically-dominated processes and the complex historical records they leave behind. Although polarized light microscopy remains fundamental, the tool-kit of the modern petrographer encompasses a broad range of supporting methods. Cathodoluminescence, both SEM- and light microscope-based, fluorescence microscopy, and back-scattered electron imaging are examples of techniques that are yielding vital new insights into the post-depositional processes operative in reservoir rocks. Despite the advent of such technologies, and the great (and growing) practical utility of petrography, opportunities for university students to learn petrography have been diminished as a consequence of several intersecting historical factors that have displaced petrography courses from the curriculum. A multi-media digital resource, *Sandstone Petrology: A Petrographic Image Atlas*, is the result of an NSF-funded project to create and assess materials that lend efficiency to the study of highly visual subject matter. It is the hope that projects such as this will serve to support the growing industry demand for expertise in the area of rock characterization and rock property prediction.

PUBLIC LECTURE AND SCHOOL SERIES

Shawn Harvey of Shore Gold Inc. will be presenting a talk based on the history of Diamonds in Saskatchewan to approximately 500 grade 7's and 8's on April 27th as part of our School Liaison program. In addition, Mr. Harvey will be giving the annual SGS Public Lecture at 7:30 PM on April 27th at the Royal Saskatchewan Museum. The abstract for his public lecture is presented below:

SGS Annual Public Lecture Series Royal Saskatchewan Museum April 27th, 7:30

Canada: A Diamond Producing Country; Saskatchewan: A Diamond Producing Province?

Shawn Harvey, Shore Gold Inc.

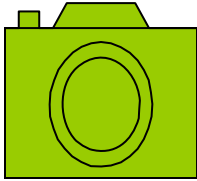
For centuries diamonds have been produced in India, Brazil, Southern Africa, Russia and others while the thought of diamond mining in Canada remained a far fetched dream. In the 1990's this changed with Canada quickly, and unexpectedly, becoming a strong diamond producing nation. Canada's diamond industry has now become an industry worth more than \$2.0 billion with all indicators pointing to potential for future growth. As part of this potential growth, Saskatchewan hopes to turn its Fort à la Corne kimberlite field (the rocks that host diamonds) into one of the largest diamond mines in the world.

Rumours of Saskatchewan diamond finds have been abound since the 1940's but it was not until recently that the true potential has been realized based on the recovery of high value, large stones from one of the largest kimberlites in the world. Shore Gold Inc. recently completed a 25,000 tonne bulk sample program where they recovered over 4,000 carats of diamonds. They are currently in the midst of a prefeasibility study to test the potential for Saskatchewan's first diamond mine.

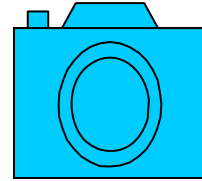
This presentation will give a brief background on diamonds and the diamond industry through time with updates on diamond exploration, diamond discovery, and diamond mining in Canada with specific focus on the potential of the Fort à la Corne kimberlite field in Central Saskatchewan.

Other Events

Still haven't renewed your membership? A membership form is conveniently attached to this Rock Record – and you can also download a copy at www.sgshome.ca.



SGS Photo Contest and Calendar



And don't forget about the SGS photo contest. We are trying to secure some corporate sponsorship so that we can turn the winning entries into a 2007 SGS calendar. The SGS will be accepting photo entries starting immediately, up until August 30th, 2006. The photos must be of Saskatchewan and feature landscape of geological subject matter. You can submit photos digitally or as a hardcopy. Unfortunately we cannot guarantee that you will receive your photos back, so if you are sending a hard copy, make sure you keep the original. For digital photos please try to reduce the resolution to limit the file size. If we select your photo for the calendar we will request a higher resolution version for printing.

Submit Photos to:

Kate MacLachlan or Jennifer Smith
Saskatchewan Industry and Resources
2101 Scarth St.
Regina, SK
S4P 3V7

Or email photocontest@sgshome.ca



Saskatchewan and
Northern Plains
Oil & Gas Symposium

CALL FOR PAPERS

This symposium will address current research and exploration activities involving oil and gas in Saskatchewan and surrounding regions of the northern plains including North Dakota, Montana, Alberta and Manitoba.

Topics will include basement influence on sedimentary fill, Bakken and Torquay hydrocarbon occurrences, Paleozoic carbonate plays, developments in heavy oil, shallow gas exploration strategies, and oil sand potential in Saskatchewan, among others.

Submissions are encouraged from industry explorationists, university researchers, and government survey geoscientists.

**The Symposium will be held at the Delta Regina Hotel
Regina, Saskatchewan, Canada**

October 17th & 18th, 2006

A core workshop will be held Monday, October 16th

Please submit a 400 word abstract by April 7, 2006

E-mail to: Symposium2006@sgshome.ca

For more details, please visit <http://www.sgshome.ca>



Organized by the Saskatchewan Geological Society

