

# On the Rocks



*A Newsletter of the Michigan Basin Geological Society*

2004-2005 Number 8

[www.mbgs.org](http://www.mbgs.org)

April, 2005

## EVENTS

**April 11, 2005 (Monday):** This month is a joint meeting hosted by SPE. The title of the presentation is "Cement Design and Placement for the Life of the Well", by Kris Ravi. See abstract below.

**May 5-16, 2005:** MBGS Grand Canyon Field Trip. A few spaces still may be available, contact Mark Nida at 517-241-6136

**May 18, 2005:** Look forward to our last meeting of the year, which will take place in **Kalamazoo** near the grounds of WMU. The topic is in process but will likely center on getting geologic information in Michigan. We may also feature a barbeque dinner.

**September 11-14, 2005:** The Society for Organic Petrology (TSOP), 22nd Annual Meeting, Louisville, Kentucky. Information: Dr. James Hower, Center for Applied Energy Research, University of Kentucky, 2540 Research Park Drive, Lexington, KY 40511-8410, Phone: (859) 257-0261; Fax (859) 257-0360; E-mail: [hower@caer.uky.edu](mailto:hower@caer.uky.edu)

Abstracts due 4/30/05. Oral and poster sessions September 12-13. Conference themes include **CO<sub>2</sub> sequestration, coal utilization, coal bed methane, coal petrography, organic geochemistry**. Special technical sessions and field trips are planned, for further details go to: <http://igs.indiana.edu/tsop2005>.

TSOP also offers a \$1000 graduate student RESEARCH GRANT, application deadline, May 1, 2005. See [www.tsop.org](http://www.tsop.org) for details.

Organic petrology is the branch of earth sciences that studies the origin, occurrence, structure and geo-history of sedimentary organic matter and coal.

## **2004-2005 MBGS Officers**

**The Executive Committee meeting minutes are available on the website.**

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## **University Talks and Seminars Websites**

Western Michigan University:  
[www.wmich.edu/geology/SeminarGeos.html](http://www.wmich.edu/geology/SeminarGeos.html)

Michigan State University:  
[www.glg.msu.edu/news/lectures.html](http://www.glg.msu.edu/news/lectures.html)

University of Michigan, Turner Lecture Series:  
[www.geo.lsa.umich.edu/announce/turner02b.html](http://www.geo.lsa.umich.edu/announce/turner02b.html)

Michigan AIPG Section website: [www.aipg-mi.org](http://www.aipg-mi.org).

## **MEETING CANCELLATION POLICY**

Monthly meetings will be automatically cancelled whenever the National Weather Service issues a "Storm Warning" for the Lansing area. If driving conditions are poor but a "Warning" has not been issued please contact any member of the Executive Committee for the status of the meeting.

## **MICHIGAN BASIN GEOLOGICAL SOCIETY PUBLICATIONS**

**Historical CD #1: Nine out-of-print publications from 1949 through 1965 and 1998**, Devonian to Silurian Rock Fieldtrips to MI, WI, IL and Ontario, 2000, \$15

**Historical CD #2: Four out-of-print publications from 1947, 1959, 1983 and 1991**, Northern Devonian and UP Fieldtrips in MI, 2001, \$10

**Historical CD #3: Six out-of-print publications from 1947, 1959, 1983 and 1991**, Northern Devonian and UP Fieldtrips in MI, 2001, \$12

**Special Price - Historical CD #1, #2 & #3, \$30**

**Stratigraphic Lexicon for Michigan, 2001**, prepared by MBGS and published by DEQ, 56 pp., chart, \$2.65 picked up or \$4 mailed, Can be ordered from MBGS or Geological Survey Div. of the DEQ

Prices include postage, handling and any applicable sales tax. MBGS Members receive a 10% discount on MBGS publications. Orders for publications should be prepaid in U.S. Funds and addressed to:

MBGS – Publications  
PO Box 18074  
Lansing MI 48901-8074

## **MBGS Mug and Jacket Sale**

The Michigan Basin Geological Society is offering mugs and jackets with the society logo for sale. The mugs are \$5.00 each. The jackets are \$60.00 each plus postage. Please contact Dan McGuire at: Phone (517) 772-5219, Fax (517) 772-7021, or [danmcguire@sensible-net.com](mailto:danmcguire@sensible-net.com). Remember to include the correct size of the jacket and the quantity of each item. Checks should be made out to the MBGS.

# SPE/MBGS Meeting

April 11, 2005 (**Monday**)

Coyote Creek  
6951 Lansing Rd, Dimondale, MI.

Schedule: 5:00 to 6:00pm Social Hour  
6:00pm dinner  
Presentation after dinner

Cost \$25.00 / \$15.00 Student (includes dinner)

“Cement Design and Placement for the Life of the Well”  
by Kris Ravi

## SPE Dinner Meeting Reservation

Name: \_\_\_\_\_

Number Attending: \_\_\_\_\_

Fee Enclosed: \_\_\_\_\_

Will Pay at Door: \_\_\_\_\_

Please make checks payable to **SPE** and return to Tim Griffin by **April 11, 2005**

Tim Griffin  
El Paso Corporation – ANR Pipeline  
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Farmington Hills, MI 48334  
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## “Cement Design and Placement for the Life of the Well”

By Kris Ravi

Halliburton Energy Services

### **Abstract:**

The purpose of primary cementing is to provide zonal isolation during the life of the well so that the hydrocarbons can be produced safely and economically. In the last few years the industry is pushing the operating envelope of the well. For instance, the industry is exploring and producing in challenging environments such as high pressure, high temperature (HPHT) and Deepwater and are producing at much higher rates than before. The industry experience has shown that conventional cementing procedures are inadequate under such extreme operating conditions. Globally, there are a number of wells that are exhibiting pressure on the annulus side. Depending on the magnitude of the annulus pressure, some of these wells have been shutdown due to safety and environmental concerns.

A design methodology has been developed to determine the effect of loading on the cement sheath from various operations during the life of the well. Examples of the well operation are pressure testing, completions, hydraulic fracturing and hydrocarbon production. The properties needed in cement sheath to withstand stresses from these operations and provide long term integrity should be determined from engineering analysis and the cement system developed and tested under downhole conditions.

The cement system should then be placed in the entire annulus by effectively displacing the drilling fluid. Any amount of optimizing the cement design in the laboratory will not deliver the goal of long term zonal isolation if the slurry is not effectively placed in the annulus and vice-versa. Hence, it is absolutely essential to design cement system for long term integrity and place it effectively in the annulus. Design procedures to engineer the parameters for effective cement placement and the cement properties for long-term integrity are discussed. Procedures to test the cement sheath in the laboratory and deduce the mechanical properties are presented. Examples from laboratory testing are presented and discussed. Case histories are presented showing the well performance before and after implementing the new design procedures. The incremental benefit and the economic value created by deploying the design methodology are presented and discussed.

### **Biography:**

Kris Ravi received his PhD in chemical engineering from Oklahoma State University in 1989 and thereafter joined Halliburton. He served in a variety of R&D assignments in cementing including Team Leader of the engineering group. He worked for three years at the Halliburton European Research Center in Holland. During this period he was responsible for initiating and successfully completing joint industry projects with major customers and technology providers in Europe. He completed his MBA in 1997 in Holland and now works in the Halliburton Cementing/Baroid (Fluids) group in Houston. He has more than 25 publications, 8 patents and is a member of AIChE (American Institute of Chemical Engineers) and the SPE (Society of Petroleum Engineers). He has served in professional capacities in the industry in API (American Petroleum Institute) and SPE committees.

## NEW MBGS PUBLICATIONS

### **Northeast Lower Peninsula Geological Field Conference, 2004, CD \$10**

Ty Black, Mark Wollensak, 133 pp., illus., maps and presentations.

### **Historical CD #4: Out-of-print publications, 2004, \$15**

1957 – Silurian Rocks of the Northern Peninsula of Michigan

1958 – Cambrian Geology of Parts of Dickinson & Iron Counties, Michigan

1961 – Geologic Features of Parts of Houghton, Keweenaw, Baraga & Ontonagon Co.

1967 – Correlation Problems of the Cambrian & Ordovician Outcrop Areas, N. Peninsula

1968 – The Geology of Manitoulin Island

1970 – Devonian Strata of Alpena & Presque Isle Counties, Michigan

**MBGS members receive a 10% discount.** Additional publications on page 2.

Contact Tom Hoane, [hoanet@michigan.gov](mailto:hoanet@michigan.gov) or 517-241-3769.

## **PTTC ASKS FOR YOUR SUPPORT:**

Following a very successful PTTC meeting on Antrim resources, we received the following information and request from our Michigan of PTTC representatives, Linda and Bill Harrison and Mike Grammer.

We are sending this email to everyone who has attended our PTTC workshops because we urgently need your help to keep our funding. The administration has proposed that the 2006 budget cut ALL FUNDS for oil and gas research and development and for the PTTC.

We hope you have benefited from our previous workshops and that you would like to see us be able to continue bringing you this information. We know from the evaluations that many of you have learned new technology and drilled new wells because of information you learned at our workshops.

So, we are asking for your help. A vote may be taken in the next 10 days. Would you please email the Chairman of the Energy and Water Development Subcommittee by filling out his email form at <http://www.house.gov/hobson/formmail.htm> and send an email to your U. S. senators.

In Michigan, our Senators can be emailed at [senator@stabenow.senate.gov](mailto:senator@stabenow.senate.gov) and at <http://levin.senate.gov/contact/index.cfm> bullet "Position on an Issue" at Step 2, at the "Issue area" drop-down box, please highlight "Energy" and bullet "Yes" or "No" for response requested. At Step 3 you can enter your email.

Please also email your U. S. representative. In Michigan they are:

• Dingell, John D. , Michigan, 15th	• McCotter, Thaddeus, Michigan, 11th
• Ehlers, Vernon J. , Michigan, 3rd	• Miller, Candice, Michigan, 10th
• Hoekstra, Pete , Michigan, 2nd	• Rogers, Mike , Michigan, 8th
• Kildee, Dale , Michigan, 5th	• Schwarz, John J.H. "Joe" , Michigan, 7th
• Kilpatrick, Carolyn , Michigan, 13th	• Stupak, Bart , Michigan, 1st
• Knollenberg, Joseph , Michigan, 9th	• Upton, Fred , Michigan, 6th
• Levin, Sander , Michigan, 12th	