

**Michigan PTTC Satellite at the
Michigan Geological Repository for Research and Education,
Geosciences Department, Western Michigan University
and the**



MICHIGAN OIL AND GAS ASSOCIATION

Jointly present

Michigan Field Experiences

A one-day workshop with exhibitors

March 26, 2009, 7:15am to 4:15pm

At the Soaring Eagle Inn (formerly the Holiday Inn), Mt. Pleasant, Michigan

Program:

7:15-7:55—Registration, breakfast, time to visit exhibitors

7:55-8:10—Welcome

8:10-8:40—Josh Kirschner, Geoscience graduate student, Western Michigan University, will talk about complex stratigraphy and reservoir characteristics in the Dundee Limestone, and how these issues affect the assessment of regional geological sequestration potential. The Dundee Limestone is also a major petroleum producer in the Michigan Basin, and the same stratigraphic and reservoir quality relationships apply to hydrocarbon reservoirs. Josh earned his BS in geology from Western Michigan University, and is near completion of his MS from the same institution. His interests include: petroleum geology, geological sequestration, structural geology, and geodynamics.

8:40-9:10—Steve Schaefer, co-founder, Polaris Energy, Inc., will present a case history of the conversion of the Lyon 29 Niagaran reef reservoir in Oakland County to gas storage by Consumers Energy. The Lyon 29 field was a single well gas reef discovered by Somoco in 1986. The well produced 1,773 mmcf/d between May, 1986 and August, 1995, with peak daily production of 1.6 mmcf/d. Based in part on the results of a 2D swath seismic survey, Consumers Energy drilled a total of seven horizontal legs in the reef from three surface locations. The field is currently capable of delivering 250 mmcf/d. The presentation will focus on the interpretation of the 2D swath seismic survey. Steve received a BS in physics from the University of Notre Dame in 1974, and a MS in geophysics from St. Louis University in 1977. He worked for Gulf Oil Co., Hosking Geophysical, and Ladd Petroleum prior to co-founding Polaris Energy, Inc. with John Fowler in 1986. Co-author **Jim Philo** received a BSME from Michigan Technological University and a MBA from Eastern Michigan University. He has been with Consumers Energy for 37 years, and is currently Senior Lead Engineer for underground gas storage.

9:10-9:40—Tim Brock, Vice president of operations at NuEnergy Operating, will discuss a number of considerations to take into account when looking at planning a development on the southern edge of the Northern Michigan Antrim play. This presentation will incorporate information gathered from NuEnergy's Silverwolf USP to help make it a case study of what happened in one project. Tim has a BS in geological engineering from Michigan Technological University and has been involved in the Michigan Basin since 1980 in various capacities.

9:40-10:00—Break

10:00-10:30—Holly McDaniel, Senior technical professional with Halliburton, will discuss considerations needed in shale log analysis that are not used in conventional log analysis, including what defines barriers when fracturing a formation that typically acts as a barrier. She will apply this information to the Antrim, showing how this analysis can be useful when developing previously undeveloped areas. Holly earned her BS in petroleum engineering from Marietta College in 2004. A few months later she started working for Halliburton as a coiled tubing engineer in Pennsylvania. For almost the past 4 years, she has been working in West Virginia, and has analyzed logs in the Marcellus, New Albany, Utica, Lower Huron, and Antrim shales. Last semester, Holly had the opportunity to teach the Hydrocarbon Phase Behavior class to the junior petroleum students at her alma mater.

10:30-11:00—G. Michael Grammer, Associate professor, Department of Geosciences, WMU, and principal at Michigan Geological Repository for Research and Education (MGRRE), will discuss recent research activities that have focused on the 3-D reservoir characterization and modeling of Niagaran pinnacle reefs in the Michigan Basin. He received his PhD at the University of Miami, FL and specializes in the application of high resolution sequence stratigraphy to enhance production of carbonate reservoirs. He has been an AAPG Distinguished Lecturer, has led several AAPG field courses and has published extensively on carbonate reservoir characterization issues, including as lead editor of AAPG Memoir 80 “Integration of Outcrop and Modern Analogs in Reservoir Modeling”, winner of the 2006 R.H. Dott Sr. Memorial Award from AAPG. His industry-related experience includes senior research positions with Texaco and ChevronTexaco working carbonate reservoir characterization issues in various parts of the world, most notably with super-giant fields in the former Soviet Union, as well as various consulting activities with several domestic and international petroleum companies.

11:00-11:30—Dennis Schmude and Paul Schmude, Schmude Oil, will discuss the exploration techniques used and give scientific insight into the successful re-drilling of Niagaran reefs in Michigan. Several case studies will be presented to illustrate their conclusions. Dennis Schmude received his BS in geology from Wayne State University in 1970 and has 40 years of experience in oil and gas exploration. His subsurface work allowed him to come up with techniques to discover more than 75 new Niagaran reefs in Michigan. Currently he operates and manages his own exploration company, Schmude Oil, which he has done for over 20 years. Paul Schmude received his BS in geology from Grand Valley State University and also holds a BS in biology from Hope College. Paul has been working for Schmude Oil for the past 8 years.

11:30-12:25—Buffet lunch

12:25-12:55—Dan Kulka, is managing partner of K5 Holdings LLC, which was formed to initiate enhanced oil recovery opportunities using its patented “State of Art” EOR method. He will introduce a portable source of gas comprised of N₂/CO₂, which is 2-3 times more efficient than 100% CO₂. He will also discuss a gas/gravity stable vertical flood method which presents an opportunity to recover up to 75% of the OOIP.

12:55-1:45—John Esch, Michigan Department of Environmental Quality (MDEQ), Office of Geological Survey (OGS), Mineral and Mapping Unit, will discuss ongoing statewide mapping projects, including a future structural lineament map, oil and gas fields map, bedrock outcrop map, bedrock topography map, and drift thickness map. John received his BS in geology from Central Michigan University. He previously worked as a hydrogeologist for DEQ/DNR. Prior to that, he worked in subsurface mapping in the Michigan oil patch. He has been with the OGS for 2.5 years. **Mark Snow**, Michigan Department of Environmental Quality (MDEQ), Office of Geological Survey (OGS), Permits and Bonding unit, will present a year in review for oil and gas activity in Michigan, a summarization of the latest Trenton-Black River Supervisors Order (S.O. 18-2007), and detail new additions to the Geo-Survey's web site. Mark earned his BS in geology from Michigan State University; past work includes land surveying and environmental consulting, having spent the last three years with the MDEQ-OGS.

1:45-1:55—Stretch

1:55-2:25—Lyn Canter, senior sedimentologist and petrographer at Whiting Petroleum, will describe the importance of primary depositional facies on reservoir distribution in the Red River Formation (in part a Trenton Formation equivalent) from the Williston Basin. Ten fields were evaluated as exploration and exploitation analogs and facies analysis of more than 5,500 feet of core highlighted variations in depositional facies on both field- and regional-scales that are critical to predicting reservoir development and distribution. Primary depositional fabrics are the single most important control on both primary and secondary porosity and fracture distribution in these Ordovician reservoirs that lack hydrothermal dolomite. Lyn holds BS and MS degrees in geology from the University of Idaho and a PhD in Geology and Geochemistry from the Colorado School of Mines (in prep).

2:25-3:00—Chuck Knox, Geologist and historian with St. Joe Valley Exploration, will discuss the Fort Wayne and Moore Fields, both on the Southern edge of the Michigan Basin, completed in the Trenton formation. The Moore was a gas field developed in the early 1960's by Northern Indiana Fuel and Light. The Moore area has a history of gas production dating back to the beginning of the historic Lima-Indiana Field and had some of the world's deepest wells at the time. The Fort Wayne Field was developed in the 1960's as a gas field by Indiana Farm Bureau Coop and subsequently operated and abandoned by Tejas of Indiana. Pioneer Drilling of Ohio re-entered and expanded the Fort Wayne into a gas and oil field in the late 1980's and early 1990's. The Fort Wayne Field gives us a varied and unique view of the Trenton. We have a good set of cores, fairly modern electric logs and data from the first lateral hole drilled in the State of Indiana.

3:00-3:15—Break

3:15-3:45—Jennifer Schulz, M.S. Candidate, Department of Geosciences, Western Michigan University, will discuss her current research focused on evaluating the level of control that facies and sequence stratigraphic framework may have on the distribution of reservoir quality away from major fault zones in the Albion-Scipio Trend, Michigan Basin.

3:45-4:15—Lew Murray, Exploration manager for Continental Resources, will discuss recent activity in the Trenton/Black River formation and the relationship between the Van Wert zone of the Black River and hydrothermal reservoirs. Lew holds a BS in geology from the University of Oklahoma and has worked various plays in the Michigan Basin since 1981.

Workshop fee: For early registrations, paid by March 16, it's \$130. After that, it's \$160. That includes breakfast, lunch, refreshments, and your workbook.

Sorry, we can't "save" seats without payment.

Booth fee: \$200 and that includes one person who can attend the workshop.

Cancellations: We'll refund in full for cancellations received by March 16. After that, we'll refund if a paid participant takes your place.

For engineers and others who need verification of PDH hours: At the end of the workshop, you will get a certificate with a printed schedule showing to 6 PDH credits.

Location: Soaring Eagle Inn (formerly the Holiday Inn), 5665 E. Pickard Road, Mt. Pleasant, MI 48858. For rooms, call (800) 292-8891, and ask for PTTC rates. Maps at

<http://www.hiresort.com/M-Maps.htm>

To register with a credit card by phone, please call Kathy Wright at (269) 387-5486 or Linda Harrison at (269) 387-8633. To register by e-mail, contact linda.harrison@wmich.edu.

To register by fax, please use the form on the next page. Our FAX number is: (269) 387-5513.

The Workshop Registration form is on the NEXT PAGE.

Workshop Registration Form

Michigan Field Experiences

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Soaring Eagle Inn (formerly the Holiday Inn), Mt. Pleasant, Michigan

NAME _____ (For your name tag)

Second registrant _____ (For name tag)

COMPANY _____

STREET OR MAILING ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ E-MAIL _____
(Please print e-mail)

Engineers: Do you need a PDH certificate? _____

_____ Reserve a booth

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How are you paying? (Please check one payment type)

_____ **By Credit Card:** (please circle one card type) **Visa** **MasterCard ***

Card No. _____ Exp. Date _____

*Sorry, we can't take Discover or American Express.

PLEASE NOTE: Your credit card will show the charge was made by Western Michigan University.

_____ **By check**—made payable to "WMU Geosciences Department" and mail it to:
Workshop--Harrison
Geosciences Department
Western Michigan University
Kalamazoo, MI 49008-5241