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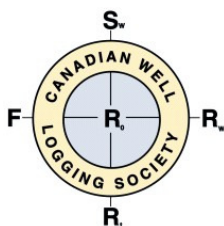
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Please see the CWLS Website at  
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**Notes:** Please forward this notice  
to any potentially interested co-  
workers. Thank you.



## **CANADIAN WELL LOGGING SOCIETY**

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### **Wednesday, September 9<sup>th</sup>, 2009 CWLS TECHNICAL LUNCHEON PRESENTATION FAIRMONT PALLISER HOTEL 133, 9TH AVE. S.W. CALGARY**

**TIME: 12:00 PM (COCKTAILS AT 11:30 AM)**

**RESERVATIONS BY: Friday, September 4th, 2009 (NOON) - CALL 269-9366 TO CONFIRM A SEAT**

**COST:** MEMBERS RESERVED MEAL: \$35.00; NON-MEMBERS RESERVED MEAL: \$40.00  
(SPECIAL NEEDS MEALS AVAILABLE WITH ADVANCED BOOKING ONLY; PLEASE  
REQUEST WHEN ORDERING TICKET)

**TOPIC: Shaly Sand Petrophysical Model Development in Low Porosity Sands**

**SPEAKER: Dick Merkel, Petrophysicist, Newfield Exploration**

#### **ABSTRACT:**

Petrophysical modeling was initiated in 1942 with the publication of "The Electrical Log as an Aid in Determining Some Reservoir Characteristics" by Gus Archie. Since then, his clean sandstone model has undergone numerous refinements to accommodate various complexities in mineralogy such as clay. Modeling in the low porosity shaly sand environment is complicated because of 1) multiple clay types, 2) the high ratio of clay to pore volume, 3) the clay depositional history and morphology, 4) clay diagenesis (and compaction), and 5) the formation water chemistry.

The physical and chemical properties of clays vary greatly. As a result, the identification and quantification of clays with log signatures also varies considerably. NMR technology has helped in shaly sand analysis, particularly in the direct measurement of the clay bound water (VCBW) and the irreducible water (BVWI) components. Measured VCBW values can be used to directly calculate shaly sand model parameters such as  $Q_v$ , CEC,  $R_{wb}$ , VCLY, and VSHL. The VCBW relationships also show inherent instability problems with some shaly sand models when they are taken to the limit as  $VSHL \rightarrow 1.0$ .

This talk focuses on the log response of clays, their quantification, and models that compensate for clay effects on porosity and water saturation. Examples will be shown of the log responses of various clay types in different geologic environments and techniques to determine shaly sand model parameters.

#### **BIOGRAPHY**

**Dick Merkel** is a Petrophysicist for Newfield Exploration where he works on teams that develop reservoir models for oil and gas reservoirs in the Rocky Mountain Region. Previously, Dick worked for EnCana Oil & Gas (USA) developing petrophysical models for tight gas sandstone reservoirs. Until its closure in 2000, he was a Senior Technical Consultant at Marathon Oil Company's Petroleum Technology Center in Littleton, Colorado where he worked on evaluating new logging tools and technology, and developing techniques for their application in Marathon's exploration and development programs. Dick has a Ph.D. in geophysics from Penn State and is a past president of SPWLA, the SPWLA Foundation, and the DWLS.