

## CWLS EXECUTIVE 2011 – 2012

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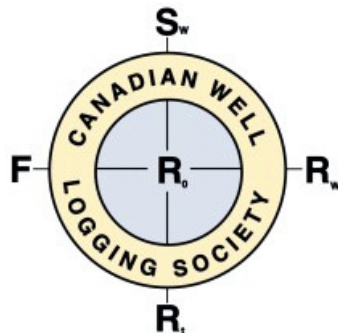
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Please see the CWLS Website at  
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**Notes:** Please forward this notice  
to any potentially interested co-  
workers. Thank you.



## CANADIAN WELL LOGGING SOCIETY

2200, 700 – 2nd Street S.W., Calgary, Alberta T2P 2W1  
Telephone: (403) 269-9366 Fax: (403) 269-2787  
[www.cwls.org](http://www.cwls.org)

*Wednesday, December 21<sup>st</sup>, 2011*

**CWLS TECHNICAL LUNCHEON PRESENTATION  
FAIRMONT PALLISER HOTEL  
133, 9TH AVE. S.W. CALGARY**

**TIME: 12:00 PM**

**RESERVATIONS BY: DECEMBER 16th, 2011 (NOON) - CALL 269-9366 TO CONFIRM A SEAT**

#### COST:

MEMBERS RESERVED MEAL: \$40.00; NON-MEMBERS RESERVED MEAL: \$45.00  
(SPECIAL NEEDS MEALS AVAILABLE WITH ADVANCED BOOKING ONLY; PLEASE  
REQUEST WHEN ORDERING TICKET)

#### TOPIC:

**AN INTEGRATED TECHNOLOGY APPROACH TO GEOSTEERING –  
CASE STUDIES**

#### SPEAKER:

**ROCKY MOTTAHEDEH, UNITED OIL & GAS CONSULTING LTD.**

**ABSTRACT:** Geosteering is essentially good well placement that delivers value to E&P and is applicable in both exploratory and development scenarios. It is used in all resource types including Heavy Oil, Tight Oil, Shale Gas, CBM and Conventional Oil & Gas. The term Geosteering is often incorrectly used to describe active well placement because there are significant differences between interactive 3D model based geosteering and simpler processes.

Directional Drilling (DD) companies take directions for well placement from E&P Operation Geologists and Well-site Geologists. Typically this is a 24/7 operation where personnel are exhausted by the end of the process. New technologies are available to help E&Ps by providing data/communication/real time modelling tools to optimize the geosteering of one or more wells simultaneously. The payoffs are substantial especially when large capital is employed in Tight Oil/Resource Plays.

Geosteering software that employ 1D or 2D methods typically use only one offset well and as a result, do not take advantage of 3D structure and 3D characterization changes within the target intervals. This can introduce errors and disorientation resulting in drilling issues and placement outside targets. Pre-drill 3D geo-modelling can help by starting with the best geological/geophysical context. The integration of the 3D pre-drill model with real-time data provides a better visual target and updated drilling corridor for all stakeholders. The integrated 3D models also have reservoir engineering and simulation plug-ins to optimize well placement and examine the footprints of tight oil wells for capital optimization.

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More efficient and user friendly systems allow stakeholders to improve well placement while drilling. These systems are now implementable at any rig, anywhere in the world. Geologists and stakeholders no longer need to be on site to view real-time data streams and geosteering their wells. The advantages also include cost reduction in personnel and HSE benefits. It is clear that good technology can improve processes and manage the drills in order to reduce costs by avoiding side-tracks and optimizing well placement. Better well placement also improves the odds of effective reservoir contact, making the most out of expensive multi-staged completions.

Advanced real-time data connectivity through WITSML in conjunction with a geological profile from a 3D geo-model allows us to map the corridor of drilling in real time that allows DDs to reduce the dog leg severity and improve well placement in the target.

Currently there are more DD tools available to E&Ps than ever before. These include sensor tools such as Gamma and gas detection or more advanced Azimuthal Gamma and Resistivity tools. To take advantage of these more advanced tools, decisions need to be made on the fly with the understanding of the current position of the well within the geological context. There are cost-effective true geosteering solutions available for E&Ps that will improve drilling program success.

### **BIOGRAPHY: ROCKY MOTTAHEDEH, P. Eng., P.Geol**

Rocky is President of United Oil & Gas Consulting Ltd. based in Calgary.

Over 30 years of geological and reservoir engineering experience, Rocky graduated from the Geological Engineering program at the University of Toronto back in 1981. Rocky has served as a Board Member for the Canadian Section of SPE, Petroleum Society and is currently a member of CSUR, CSPG, AAPG, CWLS, CHOA and SPE.

In 1991 he established his consulting company and since then has been providing a full range of studies encompassing geological and reservoir engineering services (including 3D mapping and characterization, optimization and geosteering services), in Canada, US & internationally. United has provided its services to a variety of E&P clients large and small.

Since 1996, Rocky & United have been engaged in technology development of 3D & 4D geological mapping, reservoir characterization, visualization and geosteering for both unconventional and conventional resources. Integrating the engineering with the geological models, the company's SMART4D Geo-modelling software has been used for numerous geosteering, geo-models and reservoir optimization purposes.