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2012 – 2013

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SPWLA – Houston Chapter News

March, 2013

Luncheon Meetings

Northside **Mon, Mar 4th , 2013** The Greenspoint Club	**Sourceless Formation Evaluation While Drilling** by Ana Peternell, Schlumberger
Downtown **Wed, Mar 20th, 2013** Chevron Auditorium	**Impact of Experimental Studies on Unconventional Shale Reservoir Mechanisms** by Richard Rosen, Marathon Oil
Westside **Thu, Mar 21st, 2013** BP Westlake 1 –Terrace Room	**A Borehole Transient Electromagnetic System for Reservoir Monitoring** by Sushant Dutta, Baker Hughes

Local SPWLA Upcoming Events

Golf Tournament

April 26, 2013 (Blackhorse Golf Club)

Event Sponsors needed, contact Rob Hengel

Spring Topical Conference

May 15, 2013 (Chevron Auditorium)

54th Annual SPWLA Symposium

June 22nd to 26th

New Orleans, LA

Complete Calendar of Events

President's Corner

March, 2013

Dear Chapter Members,

With spring approaching, we are looking forward to your participation in our traditional ***golf tournament at the Blackhorse Golf Course on Friday, April 26th***. You do not have to wait any longer to start looking for the players of your foursome, registration is now open for only $100/player. Check-in and lunch starts at 11:30 a.m. and the tournament at 1:00 p.m. followed by dinner and awards. Several levels of sponsorship are also available. Your company can support teams, drink carts, and/or awards. For more information, please, visit our golf tournament website or contact Rob Hengel (treasurer@spwla-houston.org) and/or any of the officers.

We are also working on the agenda for our ***2013 Spring Topical Conference*** on "***New Technologies and Integrated Workflows in Challenging Reservoirs"*** that will take place on ***May 15th at the Chevron Auditorium***. Feel free to submit your paper/talk or suggest speakers at president@spwla-houston.org. We encourage your attendance for a day of knowledge sharing and networking among service and operating companies and the academia.

Another month went by with exciting luncheons. The Northside SPWLA Houston chapter hosted Joe Comisky (Apache Corporation), who presented the talk titled "Size Effects on the Application of Mercury Injection Capillary Pressure for Determining the Storage Capacity of Tight Gas and Oil Shales". A quick overview of the measurement basics and sample preparation was followed by comprehensive discussion of results. The Westside meeting guest speaker was Gordon Moake, a chief scientific advisor for formation evaluation for Halliburton. The topic was on the modeling and determination of accurate Pe measurements. The interesting talk drew some in-depth questioning from some of the attendees. Thanks to BP for the use of a new room while our usual venue was closed for construction. The Downtown venue hosted SPWLA Distinguished speaker Dr. Oliver Mullins (Schlumberger) with his topic on "Downhole Fluid Analysis coupled with Nanoscience for Reservoir Evaluation". It was a very informative talk that presented the latest advances in asphaltene science.

Our term will be coming to an end in May, 2013. I would like to encourage members to consider the volunteering opportunities that the Chapter offers. There are multiple positions open for the upcoming elections. For more information on the board positions, feel free to read our bylaws or to contact any of the officers if you would like to further discuss the experience of a board member.

Finally, I would like to thank all our sponsors and the Houston members for their continued support to our local Chapter. If you have questions or would like to give us your feedback or your suggestions, please, contact any of us. For more information about the Houston Chapter and upcoming events, visit our website (www.spwla-houston.org).

Thaimar Ramirez
Houston Chapter President
president@spwla-houston.org

Thanks to our sponsors!!!

There's still time to add *YOUR* company ad.

Northside Luncheon Meeting

Date: Monday March 4th, 2013
Lunch: 11:30 Talk: 12:00
Reservations: Email Mitch Pavlovic
RSVP before 9:00 A.M., Thursday Feb. 28th. Walk-ins are welcome, but lunch may not be available without an advance payment.

Place: The Greenspoint Club
16925 Northchase Drive, Houston, TX 77060

Sourceless Formation Evaluation While Drilling

Ana Peternell, Schlumberger

Abstract

Pore pressure uncertainties and depleted zones are examples of major safety hazards encountered while drilling in the fields of the north Gulf Coast. Exploratory or development wells can face the risk of not being able to use radioactive sources while drilling or using wireline conveyance. A Ruggedized Pulse Neutron Generator (PNG) has replaced the chemical Americium-Beryllium source in a multifunction platform while Drilling, providing Sourceless Neutron Porosity measurements for many years now. The electronic control of the neutron output, higher count rates and higher neutron energy levels, has allowed the acquisition of advanced measurements such as Elemental Capture Spectroscopy and Thermal Neutron Capture Cross-Section (more commonly known as sigma) while drilling. In addition, the PNG has been central to the recent development of the Sourceless Neutron-Gamma Density (SNGD) measurement, the industry's first density measurement that does not require a radioisotopic chemical source.

This presentation includes the performance analysis of the Sourceless Neutron-Gamma Density under different job conditions related to Offshore Gulf of Mexico. The ability to simultaneously acquire the Sourceless Density with the conventional radio-isotope derived density makes it possible to analyze side by side examples in both Shelf and Deep Water environments in the Gulf of Mexico. The addition of Sourceless NGD to sourceless neutron porosity, Sigma and Elemental Capture Spectroscopy enables this Logging While Drilling platform to provide valuable answers in a wide range of complex and high risk environments.

Biography

Ana Peternell is the North Gulf Coast (NGC) LWD Petrophysics Domain Champion for Drilling and Measurements in Schlumberger. She received her BS degree in Control Engineering from UANL, Mexico. Ana started her career with Schlumberger as a wireline field engineer in South America. Later on, she moved to Data and Consulting Services where she hold several positions as Petrophysicist/LWD Interpretation Development in US and Mexico. She has authored diverse papers regarding LWD technology as well as contributed in the development of new LWD answer products. Ana is a SPWLA member.

Downtown Luncheon Meeting

Date: Wednesday, March 20th, 2013
Lunch: 11:30 Talk: 12:00
Reservations: Email Libny Leal
RSVP before 4:00 P.M., Monday, March 18th
Cost: $30 (includes lunch*) Please, use PayPal.

Place: **Chevron Auditorium**, Ground Floor
1500 Louisiana St., Houston, Texas 77002

Impact of Experimental Studies on Unconventional Shale Reservoir Mechanisms

Richard Rosen, Marathon Oil

Abstract

Physical properties of rocks are controlled by composition and texture. Texture can be considered the result of the many geologic processes imposed upon a rock throughout time. This includes the effects of deposition and diagenesis. Pore systems, and how they connect, are intimately related to these processes. The science of petrology is devoted to understanding these influences and provides the critical link between the geosciences and engineering applications. As such, it is a commonly held belief throughout the history of petroleum science that laboratory core measurements need to be made at representative conditions. This has always been accepted for conventional reservoirs and is no less true for unconventional reservoirs.

Apparatus has been developed for both steady and unsteady-state methods for nano-Darcy (nD) range fine-grained shale material. The steady state method is based upon a dual pump system at high pressure using super critical fluids. Super critical fluids have the unique advantage of having low viscosity, low compressibility, and miscible at appropriate conditions. Low viscosity allows measureable flow rates and low compressibility minimizes the amount of time to achieve steady-state equilibrium by reducing the length of time of unsteady-state transients. Specially designed and configured pump systems seals and sleeves and reduces leak rates to allow Darcy permeability determination below 1 nD. In this report we present a summary of over 200 such measurements and additionally document many of the same reservoir mechanisms long known in conventional reservoirs: stress dependency for both matrix and fractures, hysteresis, and rate dependent skin. Taken together for dual porosity reservoirs composed of matrix storage feeding fracture systems forms the basis of simulation models for these types of reservoirs. Examples are presented from Woodford, Haynesville, Bakken and Eagle Ford formations.

Biography

Richard Rosen joined Marathon in 2010 as a Senior Technical Consultant. Prior, he worked at Shell for 30 years, 7 months and 18 days. During part of that time he was leader of the Petrophysical Sciences Lab and Principle Technical Expert in Coring and Core Analysis. He holds a Master of Science Degree in Geophysics from Colorado School of Mines and a Bachelor of Arts in Geology from State University of New York at New Paltz.

Westside Luncheon Meeting

Date: Thursday, March 21st, 2013
Lunch: 11:30 Talk: 12:00
Reservations: Email Matthew Blyth
RSVP before NOON, Wednesday March 20th

Place: **We are back in our regular location** -- BP Plaza Westlake 1– Terrace Room
501 Westlake Park Boulevard, Houston, TX 77079

A Borehole Transient Electromagnetic System for Reservoir Monitoring

Sushant Dutta, Baker Hughes

Abstract

Conventional and enhanced oil recovery (EOR) processes such as waterflooding, steam–flooding, and chemical flooding cause key changes in reservoir fluid composition over time. Existing cross-well borehole electromagnetic technology measures the resistivity contrast due to injected fluids between a pair of wells. This approach uses continuous-wave discrete frequency wireline instruments and has shown potential for detecting changes in the reservoir over time. The technology, however, has limitations; the most notable being that the measurement is limited to the region between the well pair. In this paper we describe a new borehole reservoir monitoring technology based on transient measurements that has important advantages over existing borehole electromagnetic technology.

Transient measurements are obtained by abruptly switching off the transmitter current, which induces eddy currents in the formation. The induced eddy currents diffuse farther into the formation with time. These transient measurements provide a distinct advantage over traditional continuous-wave measurements in that different segments of the transient signal can be mapped to different parts of the formation. For example, the measured signal at a later time stage is more sensitive to a more distant part of the formation. Furthermore, the measured transient signal encounters no interference from the transmitter because the transmitter is silent when the formation signal is acquired. This technology eliminates the need for using two separate wells simultaneously, and it has better spatial resolution for the region close to the well.

We use realistic models of waterflooded reservoirs as benchmarks to present several simulation results for triaxial transient transmitters and receivers, demonstrating that this technology can provide deep (up to 1,000 ft) and azimuthally selective single-well measurements. We envision this technology will be implemented as a permanent sensor borehole system.

Biography

Sushant Dutta has been working as a scientist in the Drilling and Evaluation Research group for Baker Hughes in Houston, TX for five years. He holds MS and PhD degrees in mechanical engineering from Rice University. His background is in system modeling and computational electromagnetics. His current work focuses on forward modeling, analysis and interpretation of resistivity instruments and data. He is a member of SPWLA and SPE.