SPWLA - Houston Chapter News
September 2010

September 2010 Luncheon Meetings

Westside BP Plaza Terrace Room Wednesday, September 8, 2010	Pressure Prediction Challenges in the Bossier Shale, North Louisiana *By Brent Couzens-Schultz, Shell*
Northside The Greenspoint Club Monday, September 13, 2010	Applications and Deployments of the Real-Time Compaction Monitoring System *by Jeremy Pearce, Shell*
Downtown Hess Office Wednesday, September 22, 2010	A New Dry Clay Total Porosity Model for Interpreting Pulsed Neutron Capture Logs in Shaly Sands *By Gary Simpson, ConocoPhillips*

SPWLA Houston Chapter recipient of the 2009-2010 BEST CHAPTER AWARD

For the last 10 years we have been focused towards serving our membership, with a current headcount of almost 700 active members, we hold three monthly meetings at our Downtown, Northside, and Westside locations. On average our meetings are attended by 50 members in each location. We also keep our members engaged by organizing a Spring Topical Conference in May of each year featuring a range of speakers on a particular topic of interest such as formation testing, unconventional reservoirs, and shaly-sand evaluation. In December of each year, an annual "Software, Computing, and Vendor Show" highlights computer software, hardware, and services that aid and expedite interpretation by petrophysicists, geologists, or anyone else who looks at logs.

Additionally, we have made the commitment to provide venues for our members to meet and to share experiences. For the last 3 years, we have organized an annual Golf Tournament, hosting around 70 players every year. Furthermore, we have created vehicles in the Internet for our members to network, to interact with each other, and to form professional relationships.

Over the last few years, we have also moved towards becoming more digital by developing a new website, using e-mail marketing system to manage our e-mail list, send meeting announcements, and conduct board elections. We went from a printed newsletter to a greener digital version which reaches more members and maintains advertising revenue at lower operating costs.

SPWLA Houston Chapter recipient of the 2009-2010 BEST CHAPTER AWARD (continued)

Last year we helped to organize the highly successful 2009 annual symposium at the Woodlands in which the SPWLA celebrated its gold anniversary under the theme "Petrophysics: Past, Present, and Future". Despite an imploding oil industry and a worldwide economic slowdown, the symposium was attended by approximately 1,000 delegates with substantial efforts and contributions of the symposium committee members.

At the symposium, we also integrated our younger members and organized a student luncheon and poster event, as well as sponsoring student subscription fees. The student luncheon allowed participants to engage with colleagues from other schools and industry professionals. The event also included a student poster session in which graduates and undergraduates shared their work and research with the symposium attendees.

For all of what the chapter has done, we have always been grateful for the feedback and continuous involvement of the membership. Nevertheless, now we are also honored for the Houston Chapter to be awarded as chapter of the year in the SPWLA 51st anniversary. Thank you for this recognition.

Want to contribute to the SPWLA Houston Chapter Newsletter?

Contact: Thaimar Ramirez
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President's Corner

September 2010

Dear Members,

The past year was of great success for our SPWLA Houston Chapter. We were rewarded with the Best Chapter Award given by our mother society during the 51st SPWLA Symposium in Perth, Australia. This award would have not been possible without the great work of our previous boards and the involvement of the membership. The year 2009-2010 was another period of growth for our Chapter, with the number of members rising to 700 and packed venues at each luncheon seminar. We are grateful to all the speakers that took time from their busy schedule to deliver high quality talks.

Many of the events we organized were well attended. We reached capacity in the 3rd Annual Golf Tournament at the Cinco Ranch Country Club in March. Weather conditions were not so friendly in October last year so the tournament was held in the Spring, the plan is to have it back in the Fall and possibly another one in early Spring 2011. Two traditional events continued to be a success last year, the Annual Software Show in December and the Spring Topical Seminar on "Rock Physics to Petrophysics: Closing the Loop" in May, both events were enthusiastically attended. The open format of the one-day Spring seminar allowed the participants to network with peers and to engage in additional discussions with the speakers.

After our first fully web-based election ballot, we have elected several new officers. I would like to give a warm welcome to our incoming board members, Randy Mitchell as Downtown VP, Rob Hengel as Northside VP, Loren Roberts as Secretary, Thaimar Ramírez as Editor, and Kent Mooney as Webmaster. We are lucky to have super veteran Paul Connolly taking care of our finance as Treasurer for yet another year and Alexander Kostin who has moved up in the ladder as the new Westside VP. Alexander did a great job as secretary modernizing the e-mail distribution list and election ballot and keeping us posted with all the events and Chapter's activities. I would also like to thank José Silva for his great contribution during his tenure as Chapter President. José will continue in the board as Past President. We will miss our dear friend Don Hartman who is stepping down from editor's post. Don has been an active member of the Chapter board for a number of years. A note of appreciation also goes to the outgoing Downtown and Northside VPs, Simon Clinch and Jeff Grable for their unconditional service to the membership by bringing excellent speakers to share their knowledge with us. They will still be involved with the board organizing the Spring Topical Seminar and the Golf Tournament, respectively. I thank Ken Kemp and Rob Kasten for their assistance during the last couple of years. Ken and Rob are good examples of how to be involved with the Chapter activities without holding an official title in the board.

This year our Chapter members can expect a new round of monthly luncheons to be held at their usual locations. Loren will be sending out meeting invitation and reminders via email. We encourage you to attend and learn from the outstanding speakers that our VPs are lining up. Please, do not forget to RSVP to your specific organizing VP to aid in planning.

We look forward to working with all of you in the next year in helping our Chapter succeed and grow. Please feel free to contact myself or any other board members with any questions or comments. Our members can also check http://www.spwla-houston.com for meeting information and contacts. The website continues showcasing the advertising campaign led by Paul Connolly and implemented by Webmaster Kent Mooney. Please, do not hesitate to refer your colleagues. We always welcome new members!

Jesús M. Salazar
Houston Chapter President

Westside Luncheon Meeting

BP Plaza Terrace Room, **1st floor next to the cafeteria** 501 Westlake Park Boulevard, Houston, TX 77079 **Parking:** BP Plaza Garage **Lunch:** 11:30 **Talk:** 12:00 Wednesday, September 8, 2010	Pressure Prediction Challenges in the Bossier Shale, North Louisiana ***By Brent Couzens-Schultz, Shell*** *Kostia Azbel, Kirk Hansen, Jon Jincai Zhang, Brian Driskill, Lisa Ashabranner, Claudia Hackbarth* **RSVP Alexander Kostin before 3:00 p.m. Tuesday, September 7th** westvp@spwla-houston.org

Abstract

Drilling for gas in the Upper Jurassic Haynesville shale in northwestern Louisiana and northeastern Texas presents many challenges, including depths greater than 10,000 ft and high subsurface pressures and temperatures. In the Bossier shale, above the Haynesville and beneath the Knowles Lime member of the Cotton Valley Group, the pore pressure gradient increases from mild overpressures to 15-18 ppg mud weight equivalent. The rate that pore pressure increases and the magnitude of that increase, appears variable across the play. Pressure "kicks" in the Bossier shale are common drilling events and are problematic as they can exceed fracture strength in the Knowles. Uncertainty in where these kicks may occur drives a conservative approach to set intermediate casing just beneath the Knowles. Pore pressure studies focused on understanding the causes and distribution of overpressure were undertaken to create predictive tools that could positively impact drilling and help exploration identify which leases to maintain or obtain.

The geologic environment is unfavorable for traditional pore pressure techniques and therefore a broad range of options had to be considered in order to create a predictive model. Determining the mechanisms responsible for pressure generation and retention in the Bossier/ Haynesville is a complex problem made more difficult due to gas effects on compressional velocity and bulk density measurements. Nevertheless, initial results imply that disequilibrium compaction played a small part in pressure generation while pore fluid expansion and unloading were much more important; presence or absence of coarser clastic material within or capping the Upper Bossier also strongly influences the present-day pressure distribution.

A multi-well calibration of log properties to pressure was constructed and used to constrain a large 3D model covering all or parts of 13 Texas counties and 10 Louisiana parishes. A basin model covering the same area was used to gauge the effects of Cretaceous and Tertiary uplift and erosion on pressure generation. Drilling mudweights, pressure kicks, minifrac test data, core tied to image log interpretations, isotope geochemistry, geomechanical parameters, stratigraphy, and paleogeography were all used to calibrate and constrain the 3D pore pressure model.

Biography

Brent Couzens-Schultz joined Shell in 1997 after completing a PhD in geology at Texas A&M University. He is a specialist in structural geology and worked on fault seal related research when he first joined Shell. More recently, he has worked on pore pressure and rock properties prediction problems for exploration. He is currently the focal point for the Global Pore Pressure Prediction Team (GP3T) at Shell.

Northside Luncheon Meeting

The Greenspoint Club 16925 Northcase Drive, Houston, TX 77060 **Price:** $30 (with reservations) **Lunch:** 11:30 **Talk:** 12:00 Monday, September 13, 2010	Applications and Deployments of the Real-Time Compaction Monitoring System ***By Jeremy Pearce, Shell*** **RSVP Rob Hengel before 9:00 a.m. Monday, September 13th** rhengel@restechinc.com

Abstract

Reservoir compaction, overburden dilation, slip surface movement, and other geomechanical stresses can impart large loads, which threaten the life and production of a well. Current well integrity monitoring technologies either require re-entry to the well and/or lack the spatial resolution to capture local events that can happen on 2-3 foot scale. Detecting these events sufficiently early, before well failure, facilitates early decision-making to extend the life of the well, maximize production, and ultimate recovery.

A novel technology, the Real-Time Compaction Monitoring System (RTCMS), has been developed for continuously monitoring well deformation and integrity without requiring the use of invasive logging tools. The RTCMS consists of a special fiber optical cable containing many thousands of closely spaced (~1 cm) strain gauges (Fiber Bragg gratings), which is helically attached to a wellbore tubular. An interrogation unit, located at the surface and connected via a lead-in cable to the strain sensing fiber, simultaneously records the strains off the individual gauges. As a result of the very large number of sensors, the RTCMS acquires a profile of the strain distribution that is directly interpreted into a three-dimensional image of the well deformation.

The RTCMS is a rapidly maturing technology. Shell and Baker Hughes have successfully deployed this technology in a land well on casing. While the initial application of the RTCMS was on casing, the technology has been recently extended to sand control systems (gravel pack systems for 9 $^{5}/_{8}$" casing sizes and frac pack systems for 7 $^{5}/_{8}$" casing sizes). In this paper, new results of monitoring and testing of the RTCMS on sand control systems are presented. We describe the newly developed hardware, laboratory deformation testing, horizontal gravel pack testing, and the successful deployment in a North American land well.

Biography

Jeremy Pearce is a research petrophysicist for Shell International E&P at the Bellaire Technology Center in Houston. His current research focus is in applying fiber optic technologies to well integrity monitoring and reservoir surveillance. He joined Shell in 2005 after receiving his PhD and MS degrees in electrical engineering from Rice University. He also holds a BS degree in computer engineering from Texas A&M University.

Downtown Luncheon Meeting

Hess Conference Center **Ground Floor, 1C** 500 Dallas Street Houston, TX 77002 **Lunch:** 11:30 **Talk:** 12:00 Wednesday, September 22, 2010	A New Dry Clay Total Porosity Model for Interpreting Pulsed Neutron Capture Logs in Shaly Sands ***By Gary A. Simpson, ConocoPhillips*** *Jerome A. Truax, Halliburton* **RSVP Randy Mitchell before 3:00 p.m. Tuesday, September 21st** ramitchell@hess.com

Abstract

Interpretation of Pulsed Neutron Capture (PNC) logs in shaly sands has always been challenging using the basic volumetric interpretation model. This industry-wide volumetric model is premised upon having homogeneous formations. Increases in formation shale volume tend to drive the water saturation to low values and can result in serious interpretation errors. Historically, several different models have been devised to compensate for the effects of formation shaliness in interpreting PNC logs. These models include the Stieber non-linear volume of shale approach, the Neuman variable sigma matrix approach and the Schlumberger cased hole dual water model. Conversely, methods for interpreting open hole log data in shaly sands such as the Waxman-Smits, Dual water, and Juhasz methods have been centered around the clay properties and uses a total porosity approach. This paper presents a method that integrates the volumes of dry clay and total porosity in the interpretation model. We will review the previous models and show examples of the computation of this new model to the older methods.

Biography

Gary A. Simpson is currently a staff petrophysicist working for ConocoPhillips, in Houston, Texas for production development teams primarily in tight-gas formations. Gary has more than 30 years experience in the petroleum industry, mainly in petrophysics. Previous positions include open-hole field engineer, sales, interpretation development, technical marketing, and global product champion for pulsed neutron and carbon oxygen services. Gary has a BS degree in Mechanical Engineer Technology from Texas A&M University and is a member of SPWLA and SPE.