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It is spring and the smell of golf is in the air. Get your foursome together and make plans to attend one of our biggest events. The 41st Annual SPE-GCS Golf Tournament is planned for April 14, 2014, at the Kingwood and Deerwood Country Clubs. Sponsorship opportunities are available and details can be found on the SPE-GCS event calendar.

This is an important fundraising event that supports our Scholarship Fund. Scholarships help encourage deserving students to gain essential technical skills and knowledge for their careers, which in turn makes our industry better. Scholarships are even more important now to meet an unprecedented industry demand for science, technology, engineering and math (STEM) skills. Please enjoy some golf as we need your support more than ever!

At the Kickoff Meeting last August, I was asked a question about the gender diversity of GCS leadership. The SPE-GCS is privileged to have many women in our leadership ranks. On the Board, we have Jeanne Perdue, Vice Chair; Lucy King, Vice Treasurer; Valerie Walker, Communications; Patty Davis, Career Management; Amy Timmons, Community Services; Gabriel Guerre, Education; Xuan Vandeberg Harris, Membership; and Carol Piovesan, Technology Transfer. These capable section leaders contribute excellent viewpoints and generate new ideas. We also have many female Study Group and Committee leaders providing expertise and guidance. The oil industry in general is increasing the number of women in its ranks, according to a recent survey. Rigzone ran a series of articles last year and into 2014 about “Women Who Shine” in the oil patch. Parents, tell your daughters there is a lucrative and interesting career for them in energy, if they want it. Thanks to everyone who contributes to making the SPE-GCS a success.

THOUGHT YOU SHOULD KNOW...

HSE Now is an online source for news and technical information affecting the health, safety, security, environment, social responsibility, regulation, and quality aspects of the upstream oil and gas industry. HSE Now is updated continually and is available to all SPE members for free. To sign up for regular updates, sign in to SPE.org, and search for HSE Now.

OnePetro— Check out the enhancements to OnePetro, your comprehensive online library of technical literature and journal articles chronicling the E&P industry. You can now personalize your searches, get alerts, rate papers, and browse pages by journal and/or conference. Enjoy advanced sort-and-filter options and a Google Translate menu with 80 language choices. SPE is working hard to make sharing technology better and easier.

We want you to be involved with the section’s activities. There are lots of ways to become involved: attend an event and bring a friend, visit the website and explore the Study Groups, or send us an email and ask what you can do to help. I personally welcome your comments and ideas to help the SPE Gulf Coast Section serve you and your career better. Please contact me at mike-strathman@att.net.
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BOARD OF DIRECTORS MEETING

THU
March 13
7:30 AM TO 10:30 AM

LOCATION
SPE Houston Office
10777 Westheimer Rd.
Suite 1075
Houston, TX 77042

EVENT CONTACT
Sharon Harris
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Contact Jill Wyatt at: (713) 446-4633
This month, the SPE Gulf Coast Section wishes to recognize our Connect newsletter editor and Newsletter Committee Chair, John Jackson, better known to our Young Professionals as “J.J.” Compiling all the pieces of a 36-page monthly publication and making sure that the information is correct is a big job. We appreciate the high quality of our attractive newsletter, which is one of our Section’s primary means of communication with our members.

J.J. has been very active in the Young Professionals committee, serving as co-chair of the 2013 Roughneck Camp, an annual one-day conference focused on welcoming new members to the oil and gas industry. The event provided a technical overview of the industry as well as professional development and networking opportunities to a sold-out room full of 350 young professionals, students and interns.

After that success, J.J. was elected as Secretary of the YP Board, which involves organizing and documenting the monthly YP board meetings, acting as historian, maintaining the YP Bylaws, and overseeing the YP Annual Report and Outstanding YP section application.

In his paying job, J.J. is a sales engineer at CCR Technologies, where he supports North America with mobile reclaiming unit operations and develops equipment-rating spreadsheets to help troubleshoot and debottleneck existing facilities. He also generates and maintains process simulations of all projects and provides support to the fabricators of the company’s MEG and amine reclaimers. Prior to that, he was a sales support analyst and technical development specialist at Momentive Specialty Chemicals.

But at his roots, J.J. is a chemist. While he was earning his B.S. in Chemistry at Sam Houston State University, he taught organic and inorganic labs as a chemistry teaching assistant. With his free time, J.J. tutors math and science for middle and high school kids every week.
Due to strained U.S.-Panama relations, more and more American oil tanker owners are shifting their tanker registry from Panama to Liberia, the world’s leading flag of convenience.

The Ghawar “trend” in Saudi Arabia officially becomes a “field”, and is instantly recognized as the largest oil field in the world.

The pace of ultradeep drilling in the U.S. is rising, with 44 wells slated for targets below 17,500 ft in 1964, compared to only 38 in all of 1963.

What country is predicted to be the second biggest wildcatter for the rest of the decade? Would you believe Russia, as it forecasts to drill over 200 million ft of exploration hole through 1970. By comparison, the U.S. drilled 45 million ft of exploration hole in 1963.

East Texas crude oil - $3.10/bbl; U.S. active rig count – 1,440

Texaco comes up with a promising solution for the disposal of crude oil tank bottom sludge, using its coal gasification process that converts the sludge into medium BTU gas with no hazardous byproducts.

Japanese oil companies are being pressured by their government to cut Iranian crude oil imports as a result of the Ayatollah Khomeini’s call for the death of U.K. author Salman Rushdie.

Deep wildcats are proposed in the Chukchi Sea off of Alaska by Shell and in eastern West Virginia by Texaco and Exxon.

Phillips is reported to be negotiating a joint venture with South Korea’s Hyundai for a $100 million, 3-year exploration campaign in the Beaufort Sea off California and in the Gulf of Mexico. Could Hyundai gas stations be on the horizon?

WTI crude oil - $18.37/bbl; U.S. active rig count – 757

Operators line up to file applications to build LNG complexes along the west coast and in the Gulf of Mexico, specifically, Marathon and ChevronTexaco off Baja California and Freeport-McMoRan in Main Pass.

Virginia and Maryland officials are closely watching a 6-mile fuel oil slick about 50 miles off the Virginia coast resulting from the explosion on a Norwegian tanker en route from New York to Houston. Three crewmen were killed and 18 others missing following the explosion.

During a ceremony granting a license to ChevronTexaco to explore for natural gas off of Venezuela’s northeastern coast, President Hugo Chavez reiterates Venezuela’s desire to continue commercial relations with the U.S. and other countries in the hopes of obtaining “peace, respect, and integration.” So much for those goals!

What company submitted the largest number of high bids in this year’s Gulf of Mexico central lease sale covering Louisiana, Mississippi, and Alabama, you ask? Would you believe Magnum Hunter Production?

Light sweet crude oil - $36.64/bbl; Natural gas - $5.48/MMbtu; U.S. active rig count – 1,129

Demand for the T (the letter doesn’t stand for anything special) propelled Henry to devise the ideal way to manufacture it. In the years 1913-14, at Ford Motor’s Highland Park plant on the outskirts of Detroit, he and his team introduced the modern assembly line, cutting the amount of time required to build a Model T from 12 ½ hours to 93 minutes, and slashing the car’s retail price to $440. By the mid-1920’s, a T could be assembled in fewer than 30 minutes and sold for $290.

This month we continue our look back at the life and times of Henry Ford.
Ford Motor Company became the world’s biggest car company and America’s highest-profile firm. By 1915 Henry Ford was one of the most famous men alive – a folk hero admired by millions. In his earlier years, as he worked on engines and cars, Henry Ford often exhibited an appealing openness. He was willing to play with new ideas, to listen to others, to mess around imaginatively. Later on, as the Model T became more and more successful, as he became richer and more powerful, those tendencies faded. Openness, perhaps, made him feel too vulnerable. He let the flinty stuff inside of him take over. He became egocentric and controlling.

Ford’s dark side mushroomed into shocking rigidity, paranoia, and cruelty. The story of his deterioration is not well documented, enshrouded as he is in noble legend, but respected historians and journalists have confirmed it.

Next month, Henry’s dark side becomes violent.

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**Then & Now March Quiz**

This one goes back a ways! Arrange the following commodities in increasing order of their cost per pound in the Babylonian Empire circa 500 B.C.: a) purple dye b) asphalt c) wool d) iron and e) copper

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**Answer to February’s Quiz**

Of the companies: Gulf, Sohio, ARCO, Texaco, and Phillips, only Phillips failed to earn $1 billion in calendar year 1979

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**No Winner for January**

If you would like to participate in this month’s quiz, e-mail your answer to contest@spe.org by noon, March 15th. The winner, who will be chosen randomly from all correct answers, will receive a $50 gift card to a nice restaurant.

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U.S. Natural Gas Export Opportunities

With an abundance in natural gas resources, it seems certain that the United States will become a major natural gas export country in the next decade. Mr. Antonov will discuss his views on the natural gas market, pipeline gas export to Mexico, and LNG export to the global market. He will also discuss the opportunities and challenges faced by a global gas producer like Gazprom and present GM&T USA’s experiences and involvement in the upcoming export growth.

Mikhail Antonov

Mikhail Antonov is President and Managing Director for Gazprom Marketing and Trading USA (GM&T USA). Gazprom is one of the world’s largest gas companies with a 14% share of worldwide production and an 18% share in worldwide natural gas reserves. GM&T USA is a fully owned Gazprom subsidiary operating in the U.S. and Mexico. It is active in trading, marketing and supplying natural gas, and business development in the Americas.

Prior to Gazprom, Antonov spent over a decade with the largest private Russian oil company, Lukoil. He was involved in strategic planning, investment analysis, and corporate M&A at Lukoil. Later he moved into refining operations and petrochemical and gas processing. His recent positions include First Deputy Head of Global Refining for OAO Lukoil, where he was responsible for global refining, petrochemical operations and business development of 14 Lukoil refineries, petrochemical, and gas plants.

He also worked as Refining Director in Lukoil Trade and Supply Company (LITASCO) in Geneva and Planning Director for the Lukoil ISAB refinery in Italy. His primary focus was the integration and operation of Lukoil Western European refineries, following their recent acquisitions.

He has served as the head of and a member of various steering committees, supervisory boards of production companies (Zeeland, Burgas, ISAB, Odessa refineries), and trading organizations (LITASCO). Prior to Lukoil, he worked as a CFO of a holding company and a portfolio manager in commercial and investment banking. Mikhail holds an MBA degree from London Business School and a Master’s Degree from the International University in Moscow.

Event Info

SPEAKER
Mikhail Antonov
President & Managing Director
Gazprom Marketing & Trading USA (GM&T USA)

LOCATION
Petroleum Club
800 Bell Street, 43rd floor
Houston, TX 77002

EVENT CONTACT
Barry Faulkner
281-627-8790
barryfaulkner@earthlink.net

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Private Equity: Current and Future Perspectives in the E&P Sector

Join us at the Four Seasons Hotel as we discuss the recent evolution of the O&G Private Equity model. Do PE companies have appetite left after these last active years? Have the investment return requirements changed? Are they targeting the same company profile? Do PE companies still have the same investment horizons and similar fund sizes?

We will also talk about exit strategies, given that IPOs have been used more often in the last few years. Are they here to stay or will private sales come back to be the exclusive exit process? The BD group is working towards adding a fourth member to this panel of Sponsors and PE-backed companies in several stages of maturity to discuss these questions and more.

Please join us for this informative discussion. The popular format of a Business & Social Networking hour, with complimentary hors d’oeuvres and a cash bar, followed by an hour and a half long program, including a Q&A session, will begin at 5:00 PM in the Mezzanine.

V. Frank Pottow

Mr. Pottow has over 25 years of private equity investment experience and currently serves as the Managing Director and Co-Founder of GCP Capital Partners, and the director of several private E&P companies. Previously, he was a Co-Founder and Managing Director of Societe Generale Capital Partners, and an analyst at Morgan Stanley. Mr. Pottow is a graduate of The University of Pennsylvania and Harvard Business School.

Michael Magilton

Mr. Magilton leads the corporate finance and treasury functions of Quantum Resources where, he manages the Partnership’s banking relationships, and plays a central role in M&A transactions and capital markets activities. Previously, he served as a Vice President at Aurora Capital Group and was an Associate at First Reserve Corporation. Mr. Magilton is a graduate of Creighton University and Harvard Business School.

Matt McCarroll

Mr. McCarroll is the founder, President and CEO of Fieldwood Energy LLC, a portfolio company of Riverstone Holdings LLC. Fieldwood has completed two material acquisitions in the Gulf of Mexico over the past 6 months, and is the largest operator and leaseholder in the shallow water Gulf of Mexico. Mr. McCarroll was founder, President and CEO of Dynamic Offshore Resources, President of Maritech Resources, and a Senior VP of Plains Resources. He has a BBA in Finance from LSU, and serves on numerous industry associations.
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Thinking Constructively about the Reuse of Produced Water in Hydraulic Fracturing

In their mission to efficiently and responsibly produce an asset, today’s completions engineers must balance several competing factors regarding mixwater. Freshwater costs, disposal costs for accumulated produced water, and logistical elements of the pad location need to be considered in light of the effects of water quality on completion quality, particularly when highly saline water is considered. Historically, optimum costs have been difficult to model because decisions made on one of the interrelated factors affect several other factors simultaneously and in different ways. This talk presents an overview of a reservoir-centric model that helps with decision-making, including logistics, frac fluid quality, and impact on the producing reservoir. A preliminary case study demonstrating successful fracturing operations in a horizontal well using a robust gelled fluid based on standard underivatized guar in ~300,000 ppm TDS mixwater of variable quality will be presented. This may represent a critical step in delivering the best completion engineering at reasonable cost.

Dr. Bruce MacKay

Dr. MacKay has been with Schlumberger for seven years, as a Product Developer and Research Scientist, and most recently as Principal Chemist and Client Support Laboratory Manager for the North American business unit of Schlumberger Well Services. Prior to joining SLB, he was a Visiting Scientist at the California Institute of Technology after completing a Ph.D. in inorganic chemistry at the University of British Columbia. His area of expertise, broadly stated, is the application of chemical knowledge to problems in stimulation fluids.
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Understanding the Potential of Case-Based Reasoning in the Oil Industry

Case-based reasoning (CBR) is a soft computing technology developed to deal with uncertainty, approximate reasoning, and exploit knowledge domain. Case-based reasoning, also known as computer reasoning by analogy, is a simple and practical technique that solves new problems by comparing them to ones that have already been solved in the past, thus saving time and money. This presentation provides a general framework of case-based reasoning along with a review of the four-step cycle that characterizes the technology (retrieve, reuse, revise and retain), followed by two specific applications where the technology was used in field operations. The proposed methodology extracts the relevant historical information, captures critical knowledge, utilizes a rule-based system to make adaptations, and then suggests the most appropriate solution for decision-making. These simple case studies demonstrate how case-based reasoning can be applied to improve the design, planning and execution of well operations, thus significantly increasing the job execution success while avoiding known pitfalls. In addition, the work demonstrates the value of captured “on-site” experience and shows the advantages of using intelligent systems in information and knowledge management.

Dr. Andrei Popa

Dr. Andrei Popa is a SPE Distinguished Lecturer for 2013-2014. He has over 14 years of experience applying Artificial Intelligence technologies to complex optimization problems in the energy industry. He has published more than two dozen papers on the subject, and most recently co-authored the book, Artificial Intelligence & Data Mining (AI&DM) Applications in the Exploration and Production Industry, which is part of SPE’s “Get Up To Speed” Series. Dr. Popa’s service within industry organizations has earned him several awards, including the 2011 SPEI “Management and Information Award”. He is a Technology Advisor for the Applied Reservoir Management team at Chevron’s San Joaquin Valley Business Unit. Since joining Chevron in 2002, he has had multiple assignments, including production and reservoir engineer, special projects lead engineer, subsurface team lead and i-field supervisor. Since 2009 he has served as an Adjunct Professor at University at Southern California where he has taught Applied Reservoir Engineering and Natural Gas Engineering. Additionally, he was invited as a guest lecturer for several courses within the “Smart Oilfield” program. Dr. Popa earned his PhD and MS degree in Petroleum and Natural Gas Engineering from the West Virginia University, and he holds a BS degree in Petroleum and Natural Gas Engineering from the University of Ploiesti.
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Cost-Effective Ultra-Large-Diameter PDC Bit Drilling in Deepwater Gulf of Mexico

Ultra-large-diameter Polycrystalline Diamond Compact (PDC) bit drilling is a fast-growing, cost-effective solution in high-tier deepwater drilling operations in the U.S. Gulf of Mexico (GOM) where salt is encountered in the shallow part of the wellbore. Conventional design called for roller cone (RC) (IADC Code 111-115) drill bits on positive displacement motors (PDM) in these ultra-large-diameter internals. Cost savings on drilling fluid alone, in the form of Rate of Penetration (ROP) gains through the salt interval, has the industry trending to drill these riserless sections with the use of PDC drill bits on Rotary Steerable System (RSS) drilling assemblies.

New robust high-torque-capacity top drives, stronger drill pipe connections, larger diameter RSS tools, and improved mud programs, have all largely contributed to this step change in drilling performance. Additionally, evolved bit and BHA design, efficient operating parameters, improved hydraulics, and vibration prediction modeling, have all aided in the success of these runs.

Although this emerging new trend reduces drilling times and associated cost, experience has shown there are multiple challenges that must be overcome to complete a successful run in a single trip. These challenges vary from well to well and include, but are not limited to: BHA steerability, rig equipment limitations, efficient operating parameters, identification of both sediment and salt formations, hole cleaning and hydraulics, salt creep, drilling fluid displacement, drillpipe torque limitations, stabilization placement, lateral/torsional BHA vibrations, and others.

Piero D’Ambrosio

Piero D’Ambrosio, SPE, is a Drilling Optimization Specialist at BP America. He has over 16 years of experience in drilling applications. He started his career as a field engineer, executing Measurements While Drilling, Logging While Drilling and Directional Drilling projects. He then held several positions within Europe, South East Asia and GoM, where he focused on Directional Drilling, Drilling Engineering and Drilling Optimization. He has a MSE degree in Mechanical Engineering from the Universidad Metropolitana in Caracas, Venezuela. He is also the author of a number of industry papers as well as technical magazine articles.
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Oil spill response strategies are designed to minimize environmental impacts to the extent possible. Each response option must be evaluated for operational limitations (e.g., sea state), potential effectiveness, environmental impacts of the response option itself, and applicability under various oil spill scenarios (e.g., size and location of the spill), in addition to health and safety of the responders. This presentation provides a review of the primary oil spill response options, a detailed discussion that addresses misperceptions and misunderstandings about dispersants and their use, and a description of dispersant use during the Deepwater Horizon incident.

Tim Nedwood, Ph.D., P.E.

Dr. Nedwed has a BS degree in Chemical Engineering and a MS and PhD in Environmental Engineering. He has worked for ExxonMobil in the Upstream Research Company for 15 years and leads the oil spill response research program. His primary research focus is on advancing dispersant and in-situ burning technology. He is currently an Upstream Senior Technical Professional (STP) Advisor – Oil Spill.
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A Decade Monitoring Shale Gas Plays Using Microseismicity: Advances in the Understanding of Hydraulic Fracturing

Over the past decade, microseismic monitoring has become the most widely used approach to gain an understanding of in-situ reservoir behavior during hydraulic fracture stimulations. From early monitoring performed in the Barnett Shale to current programs in the Horn River and Marcellus formations, we review the evolution of microseismic monitoring from the viewpoint of data collection (single versus multi-well array configurations, utilization of long lateral stimulation wells), data analysis, and the incorporation of microseismic parameters to constrain and validate reservoir models. We conclude with a look at multi-array microseismic results from hydraulic fracture stimulations of various North American shale plays to illustrate how microseismic analysis has aided in the understanding of reservoir characteristics and in turn, helped to plan more effective stimulation programs. We highlight case studies where microseismic monitoring was used to help assess fracture dimensions, stage spacing and well spacing. In addition, we look at how the use of advanced analysis techniques such as seismic moment tensor inversion (SMTI) has helped propel the industry forward and allowed operators to gain a better estimate of the stimulated reservoir volume, the discrete fracture network, and the effective fluid flow by understanding details on individual rupture mechanisms and how these mechanisms change depending on treatment program, local stresses and local geology.

Sheri Bowman

Sheri Bowman is the Manager of Analytics and Technical Sales at ESG Solutions. She holds dual bachelor’s degrees from Queen’s University in Kingston, Ontario in Applied Math & Mechanical Engineering and Geological Sciences. She joined ESG in 2007 as a geophysicist and has since held positions of Geophysical Analyst, Project Manager and Manager of Data Services before moving to her current role within ESG’s Global Energy Services division. She is a registered professional engineer (P.Eng.) and a member of the SPE and SEG. She is an author of eight publications and has presented papers at the CSPG CSEG CWLS Joint Annual Convention (2009), the EAGE Passive Seismic Workshop (2010), the SPE ATCE (2012), the HFTC (2013), among others.
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The Human Factor: Process Safety and Culture

The National Commission on the Deepwater Horizon Oil Spill and Offshore Drilling set out the need for sweeping reforms that would accomplish no less than a fundamental transformation of the oil and gas industry’s safety culture. In response to this tragic event, the Society of Petroleum Engineers organized a Summit in July 2012 to discuss the safety in the industry. Output from this Summit included the formation of a Technical Section. The Society also agreed to issue Technical Reports, the first of which is entitled, “The Human Factor: Process Safety and Culture”.

This presentation explains how the Technical Report was written, presents an overview of the topics covered in the TR, and explains how members can participate in promoting and evolving the concepts presented in the TR. While improvements in the Technical aspects of sensors, intelligent information processing, and alarms has been achieved, it is the human factor that is often the most difficult to change. How can we improve risk recognition and decision-making in safety-critical situations? How can we influence the individual to do the right thing when nobody is looking?

Kenneth E. Arnold

Kenneth E. Arnold has over 45 years of industry experience in facilities design, project management and offshore safety. He served 16 years at Shell Oil Company and founded Paragon Engineering Services in 1980. He is currently Senior Technical Advisor for Worley Parsons and an independent consultant. He was elected to the National Academy of Engineering in 2005.

Mr. Arnold has served on the Board of SPE as Vice President of Finance and as the first Director of Projects, Facilities and Construction. He is on the Editorial Board of “Oil & Gas Facilities” and recently chaired a National Research Council report on measuring the effectiveness of Offshore Safety and Environmental Management Systems.

Mr. Arnold is co-author of two textbooks and over 50 technical articles, and has three times been chosen as an SPE distinguished lecturer. He was named 2003 Houston Engineer of the Year by the Texas Society of Professional Engineers, and received the 2013 Individual Distinguished Achievement Award of the Offshore Technology Conference. Mr. Arnold has taught facilities engineering at the University of Houston and is a recipient of the SPE Public Service Award, the SPE DeGoyler Medal and the SPE Production Engineering Award.
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Everybody loves a good mystery, and most of us would like to take a try at being Sherlock Holmes. But what’s it like to have to put together the facts after the “crash” to determine what exact part failed and why? Ron Richter will tell you how to read the facts, and what you should do to make sure your testing and evidence is solid as a rock. Find out who is telling the truth, what you should look for, and how you should document for a court of law.

Ron Richter

Ron Richter has over 43 years of laboratory experience in both Nondestructive and Metallurgical/Mechanical testing. For the past 20 years he has owned and operated Houston Metallurgical Laboratory in Houston, Texas.

Prior to Houston Metallurgical Laboratory, Ron has also held several other positions, including:
2. Laboratory Supervisor/Q. A. Manager of an independent testing laboratory, which he helped establish and develop into a full service metals testing facility. Responsibilities there included pricing, scheduling, marketing, and the development of Q. A. Manuals and in-house procedures to qualify under ASME Section III, SPPE OSC-1, ANSI, N45.21, and other applicable regulatory body specifications.
3. Development of training programs for employees and clients.

Mr. Richter has served on Executive and Education Committees. He occasionally holds instructional seminars and classes in association with Rice University, North Harris County College, The American Society of Metals, and The American Welding Society. Currently, Richter serves on the Advisory Board at Lone Star College. He is an active member in The American Society of Metals-Houston Chapter and The American Society of Welding.

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Fracture Modeling, Microseismic Measurements and Production Evaluation: What’s the Role of SRV?

The concept of stimulated reservoir volume (SRV) was developed to provide some quantitative measure of stimulation effectiveness in the Barnett shale based on the size of the microseismic “cloud.” SRV is now ubiquitous when discussing well performance and stimulation effectiveness in unconventional reservoirs. However, SRV and similar techniques provide little insight into two critical parameters: hydraulic fracture area and conductivity. Each of these can vary significantly based on geologic conditions and fracture treatment design. The concept of SRV has spawned numerous reservoir engineering models to approximate the production mechanisms associated with complex hydraulic fractures and to facilitate well performance evaluations. However, these reservoir engineering models are often divorced from the fracture mechanics that created the fracture network, a significant limitation when evaluating completion effectiveness. Additionally, the interpretation of the microseismic data and the calculation of SRV are poorly linked to the actual hydraulic fracture geometry and distribution of fracture conductivity. This presentation examines the limitations and potential misapplications of the SRV concept. This work also suggests that simplifying assumptions in many SRV-based rate transient models may lead to estimates of hydraulic fracture length and reservoir permeability that are not well suited for completion optimization. Two case histories are presented that illustrate the limitations of SRV-based well performance evaluations, while detailing the value of a more holistic approach to production evaluation and completion optimization that includes integrated hydraulic fracture modeling and reservoir simulation.

Craig L. Cipolla

As a Senior Completions Engineering Advisor, Craig Cipolla provides hydraulic fracturing and completions support to HESS business units worldwide. His current focus is the development of unconventional resources. Prior to joining HESS, Craig was Chief Engineering Advisor for Schlumberger-Hydraulic Fracture Monitoring and Optimization, focusing on the application of microseismic fracture mapping, complex hydraulic fracture models, and reservoir simulation to improve stimulation designs and field development in unconventional reservoirs. Before joining Schlumberger in 2009, Cipolla’s most recent positions were VP of Stimulation Technology for Carbo Ceramics (2008-2009) and VP of Engineering for Pinnacle Technologies (1996-2008). He also held positions with Union Pacific Resources, CER Corporation, and Dresser Titan. Cipolla has co-authored over 65 technical papers and was an SPE Distinguished Lecturer on hydraulic fracturing in 2005-2006. Mr. Cipolla was the recipient of the prestigious SPE International Completions Optimization and Technology Award in 2013. Cipolla holds undergraduate degrees in Engineering and Chemistry from the University of Nevada-Las Vegas and a Master’s Degree in Petroleum Engineering from the University of Houston.
Better Modeling of Hydraulically Fractured Horizontal Wells in Unconventional Reservoirs

The use of horizontal wells and hydraulic fracture completion practices has become the norm today, particularly in unconventional reservoirs. These wells and their completions present unique challenges to engineers’ efforts to optimize and reliably forecast well performance. Where to drill wells is generally not the issue. The primary decisions are orientation of the lateral(s), length of the lateral(s), vertical placement of the lateral(s) in the formation, number and size of the hydraulic fracture treatments and well spacing. All of these operational decisions revolve around the stimulated rock volume (SRV) created by the hydraulic fracture treatment. Proper understanding of the SRV creation and its interaction with the reservoir matrix and natural fracture systems is paramount. The geometry as well as the extent and complexity of fractures within the SRV impact the fracture surface area available for interaction with the matrix.

Reservoir simulation, if properly employed, is the best tool available for addressing these issues. This presentation will discuss a new approach to evaluating hydraulically fractured horizontal wells. This approach utilizes assisted history matching software and a commercial, dual porosity reservoir simulator with special geomechanical modifications. Many operational decisions cannot be properly addressed with statistical methods or “conventional” modeling approaches. This new modeling approach provides knowledge about the flow behavior of the hydraulic fracturing process and the reservoir’s natural fracture/matrix system for the well(s) being studied. Unlike the conventional approaches, this information can then be used to investigate operational decisions for future wells planned in the same reservoir.

Examples of actual wells studied in the Bakken, Three Forks, Eagle Ford and Wolfcamp reservoirs will be shown.

Bill Savage

Bill Savage is Director of NITEC LLC., a Denver-based reservoir engineering consultancy and developer of reservoir simulation-based technologies for the industry. Prior to joining NITEC in 2003, he held various senior management positions with Scientific Software-Intercomp and Scientific Software Corp. in the U.S. and overseas. Bill has been conducting and managing domestic and international reservoir engineering and simulation studies for over 45 years. He holds a BS in Petroleum Engineering from the University of Tulsa.
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Completion Diagnostic Trends in the Marcellus Shale

This presentation will focus on completion diagnostic trends in the Marcellus Shale. Data visualizations and completion statistics will provide insights into the key questions in the optimization process specifically related to wellbore trajectory, near-wellbore proppant placement and fracture stage spacing. Lessons learned from hydrocarbon tracing in the Appalachian Basin will also be discussed.

Jeff Pechiney

Jeff Pechiney has spent the past seven years working in the oil and gas industry. He has focused on hydraulic fracturing design and execution as a field engineer for Schlumberger in the Rockies, Williston Basin and the Appalachian Basin. He has been with ProTechnics for the past two years as an account manager and currently as a region engineering advisor working to optimize completion designs. Pechiney has a BS degree in mechanical engineering from Purdue and is currently working on an MBA at Carnegie Mellon.

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Hugh Connett

Hugh Connett is President of Chevron Global Power Company (CGP) and a Vice President of Chevron Gas and Midstream. He is responsible for managing Chevron’s existing portfolio of commercial power plants and projects in the U.S., Asia, Middle East and Europe, as well as identifying new growth opportunities for power worldwide. The CGP portfolio currently includes nine highly efficient gas-fired cogeneration and combined cycle power facilities and Chevron’s first wholly owned wind farm on the site of a former refinery in Wyoming. CGP provides commercial, engineering and operational support to Chevron’s worldwide power operations. CGP headquarters are in Houston, Texas.

Prior to being named to his current role in 2011, Connett served as Vice President of Strategy, Technology and Commercial Integration Center of Excellence & Business Services with Chevron Downstream & Chemicals. In this capacity, he was responsible for the oversight of the processes and associated business systems architecture for the Value Chain Optimization and Trading and Risk Management functions across Global Downstream operations. Connett joined Texaco in 1996, managing the company’s gas supply and midstream assets with the Texaco Star Center, and has served in various commercial and project management roles with Global Supply and Trading, Bridgeline Joint Venture, Global Gas and Downstream Organizations. He previously served as a Reservoir Engineer with Mitchell Energy. Connett graduated from Pennsylvania State University with degrees in Petroleum Engineering and Liberal Arts in 1982.
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Our Global Operations Manager for Surface Logging Systems, Tim, is all smiles these days. That’s because he and his team recently designed a new state-of-the-art mudlogging cabin. The spacious interior makes room for more laboratory services at the wellsite. Now exploration companies have access to more data in real time, so they can make better decisions faster. It’s one more way Weatherford Mudlogging is committed to Excellence from the Ground Up.

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**CALENDAR**

**March 2014**

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