October, 2014

“Congratulations! The Gulf Coast Section has been selected to receive the 2014 President’s Award for Section Excellence. This prestigious award recognizes SPE sections with exceptional programs in technical knowledge dissemination, communication, membership development, student interaction, community and society outreach, innovation, and more... I appreciate your dedication to serving SPE and its members.”

- Jeff Spath, 2014 SPE President

The 2014 Kickoff Meeting went very well, and we signed up about 20 new volunteers to help with our Study Groups, Committees, and Community Service projects. While these new volunteers think they will be helping SPE, what they really will be doing is helping themselves:

• They will find out they are capable of things they never thought they would be able to do.
• They will meet new people they didn’t know they needed to meet.
• They will find out about new technology or new ideas they can implement at work that they never would have found out about while sitting at their desk.
• They will learn new interpersonal skills they would not have learned any other way.

That’s the cool thing about SPE: all the volunteers who are giving their time and talents to benefit other members are receiving the multiple benefits given by the other 124,000 members. Talk about leverage!

We all have our own gifts to share, but sometimes we don’t even know we have them. But by putting yourself out there, by taking the risk and responsibility, the experience you gain miraculously lifts the veil from your own eyes, enabling you to see yourself as you truly are: a valuable member of a global brotherhood seeking to make the world a better place through energy and economic development.

I’m reading an excellent book recommended by FOJ (Friend of Jeanne) Pradeep Anand. It’s titled The Culture Map: Breaking Through the Invisible Boundaries of Global Business, by Erin Meyer. I highly recommend it, especially for our International and Business Development Study Groups. The book explains how people from different countries vary in their styles of personal interaction, placing each country on a continuum for communication clarity, directness of negative feedback, and half a dozen other facets of doing business. Knowing where you are on the continuum and where another culture is in relation to you can help you calibrate your perspective and expectations, thereby avoiding misunderstandings and ruffled feathers.

One of the goals we have for our Section this year is to strengthen relations with our SPE Sister to the South, the Mexico Section. As you surely have heard, Mexico is opening up for business after revamping its energy legislation to allow foreign companies to participate. According to The Culture Map, Mexico’s culture differs from American culture in significant ways, so being aware of these aspects and conducting business accordingly will make it much easier to get things done.

According to Trey Shaffer, our HSSE-SR Study Group Chair, SPE is planning a two-day HSSE-SR event June 16-17 in Mexico City, piggybacking on the SPE International Board Meeting. Presentations and panel discussions are currently being planned in the hopes of demonstrating SPE’s important role in establishing safe operations and fostering sustainability.

I am very much looking forward to attending the SPE Annual Technical Conference & Exhibition (ATCE) in Amsterdam the last week of October. I think I have only missed two annual SPE meetings in my 33 years as a member. Not only are these the best and most smoothly organized meetings in our industry, but all my friends (the FOJs) are there! It’s a great time to catch up with former coworkers you haven’t seen in eons, take home some new approaches to apply to your current project, and make new contacts. It’s not too late to register, and we are still looking for a few more PetroBowl judges for Oct. 27.

And I’ve saved the best news for last: On behalf of all our Gulf Coast Section officers and volunteers, I will have the special privilege of accepting the President’s Award for Section Excellence at the President’s Luncheon on October 29. If you are going to ATCE in Amsterdam, please join me at that luncheon and hoot and holler like true Texans when our Section’s award is announced.

The greatest good you can do for another is not just to share your riches, but to reveal to him his own.”

- Benjamin Disraeli
STUDY GROUPS

9  Research & Development
   10.02.14
   Building the Oshman Engineering Design Kitchen

11  HSSE-SR
    10.07.2014
    A Chemical Risk Prioritization Scoring Process for the Exploration and Production Industry

13  Drilling
    10.08.2014
    Reducing the Risk of Lock-Up and Buckling in Long Horizontal Wells

14  General Meeting
    10.09.2014
    The Impact and Regulation of Texas Oil & Gas Production

15  Projects, Facilities & Construction
    Improving Business Decision Making to Improve Asset Development Economics

17  Northside
    Observation from an Underground Laboratory: An Integrated Approach to Unlocking Performance in the Niobrara

18  Petro-Tech
    Philosophies of Cashflows and Error Checking

19  Westside
    Hydraulic Fracture Modeling in Pilot Projects Using an Integrated Data Set

20  International
    10.15.2014
    Bringing New Technology to International Markets

21  Permian Basin
    10.15.2014
    Fracturing Fluids: How to Frac with Less or No Water

22  Completions & Production
    10.22.2014
    Erosion Analysis of Subsea and Surface Equipment Used in Hydraulic Fracturing and Production Systems

23  Reservoir
    10.23.2014
    The H2S Challenge in the Eagle Ford: From Reservoir to Facilities

25  Business Development
    10.29.2014
    Memorial Resource Development Corp.: Positioned for Continued Growth

COMMITTEES

26  Technology Transfer
    11.04.2014
    Sustaining the Trans-Alaska Pipeline – A Systems Engineering Perspective

27  Membership
    10.09.14
    Professional Networking Event

Annual Tennis Tournament
11.06.2014-11.07.2014

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    10.10.2014
    Continuing Education
    10.08.2014
    How to Write an SPE Technical Paper

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    10.13.2014
    YP October Professional Event - Finding Energy’s Rational Middle

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    Dick Murphy

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BOARD OF DIRECTORS MEETING
THURSDAY OCTOBER 16TH / 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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## SPE-GCS MEMBERSHIP REPORT
### August 2014

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NOW THEN
COLUMN BY BUDDY WOODROOF

OCTOBER
1964

The most automated LPG pipeline in the world will soon be put to the test. The 579-mile line from Empress, Alberta to Winnipeg, Manitoba will be flowing propane, butane and isobutane through unattended terminals and pump stations completely by remote control.

The industry faces staggering salvage and rebuilding problems as a result of Hurricane Hilda’s foray across offshore Louisiana. Nine production platforms were sunk, two drilling platforms had their drilling rigs sheared off, along with numerous jackups and submersible barges that were left listing. Conservative estimates put the offshore damage at approximately $50 million, not counting the subsurface damage that has not yet been fully assessed.

Operators continue to sniff out North Dakota oil prospects, but most ignore that skinny little Bakken zone. (Where was horizontal drilling and hydraulic fracturing when they needed them?)

Oryx Energy, soon to acquire a large portfolio of foreign oil and gas properties from BP, agrees to sell interests in 107 oil and gas fields in 12 states to American Exploration. (If the antelope had a do-over...) Surging worldwide demand for unleaded gasoline spurs major refinery projects at home and abroad.

Unocal claims a record for extended reach drilling in the U.S. West with a 12,739-feet Monterey development well drilled from Platform Irene in the Point Pedernales oil field off California.

India’s ONGC appears to be the next national oil entity with plans to broaden its portfolio of prospects by pursuing joint ventures in developing nations.

Reports of unchecked OPEC overproduction continue to shave worldwide crude oil prices.

WTI crude oil - $20.46/bbl; U.S. active rig count – 981

East Texas crude oil - $3.10/bbl; U.S. active rig count – 1,506

OCTOBER
1989

With 89 FPSO’s (Floating Production, Storage, and Offloading vessels) in operation worldwide, the FPSO has become the world’s most popular floating production system.

The DOE agrees to short-term loans of crude oil from the Strategic Petroleum Reserve to help relieve hurricane-related shortages (i.e., Hurricane Ivan) for Shell Trading U.S. and Placid Refining.

In light of Brazil’s reluctance to participate in Hugo Chavez’s proposed Latin American energy alliance, Venezuela reports plans to team with Argentina to form a dual nation energy alliance called Petrosur.

Under-the-radar independent operator Tradestar Corp, headquartered in Hot Springs, Arkansas (of all places), acquires Barnett Shale drilling prospects from United Production and Exploration in Houston. (Word has it that the agreement was consummated while the respective CEOs were indulging in mineral baths in Hot Springs.)

Light sweet crude oil - $49.76/bbl; Natural gas - $6.29/MMbtu; U.S. active rig count – 1,243

OCTOBER
2004

Harry Bennett, Ford’s bodyguard turned middle manager, became especially handy during elderly Henry’s bitter war with the United Auto Workers. The New Deal in the 1930’s legalized labor organizing, but Ford loathed unionism with every fiber of his being. Edsel wanted to cut a deal with the UAW and move on, but Henry forbade it, and Ford Motor Company, like the rest of the auto industry, dug in its heels. Henry allowed Harry Bennett to assemble an army of what they called “servicemen” to intimidate and beat up union officials and sympathizers, and also gave him permission to spy on workers with a vast network of informants and dozens of hidden microphones. “The fear in the plant was indescribable,” wrote historians of that time.

As Bennett accumulated more and more power in the 1930’s, he spread his bullying ways through the corridors, and stole company money. Meanwhile, Henry hamstrung innovation, putting excessive roadblocks in the way of a new six-cylinder engine that Edsel wanted and the company desperately needed. A noticeable pall of decline and corruption fell over the company. By the late 30’s and early 40’s, the once-mighty Ford Motor Company was third in industry sales behind General Motors and Chrysler, and there was serious question as to
The world's first trunk oil pipeline was completed in 1874 and ran from what was known as the “Oil Region” of western Pennsylvania and adjacent New York, Ohio, and West Virginia to Pittsburgh. For the first year of its operation, what industry provided the greatest hindrance to its success?

**ANSWER TO SEPTEMBER’S QUIZ**

*The gas mixture subsea divers were breathing circa 1964 in order to be able to perform operations in 450-ft water depths was oxygen-helium.*

**SEPTEMBER’S WINNER**

No winner this month.

---

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

---

Marathon Oil increases productivity in Eagle Ford Shale well by 21%.

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**THEN & NOW OCTOBER QUIZ**

The world’s first trunk oil pipeline was completed in 1874 and ran from what was known as the “Oil Region” of western Pennsylvania and adjacent New York, Ohio, and West Virginia to Pittsburgh. For the first year of its operation, what industry provided the greatest hindrance to its success?
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Building the Oshman Engineering Design Kitchen

In this presentation, Dr. Maria Oden will present the short 5-year history of the Oshman Engineering Design Kitchen at Rice University where students are exposed to unique hands-on design experiences and opportunities to test and carry ideas to their intended point of application. An overview of the facility itself and how it fosters design, prototyping and technology evaluation will be provided. This presentation will also provide a review of the goals and longer-term impact of the program. The OEDK has truly shifted the culture of engineering design at Rice, bringing together students with various perspectives to collaborate on multidisciplinary teams. Undergraduates using the OEDK represent the eight different engineering disciplines, as well as architecture, natural sciences, social sciences and humanities. Since its inception in 2009, use of OEDK has increased from about 250 to over 950 undergraduate students annually. Examples of real-world design challenges and their solutions, from the energy industry to medical technologies, will be presented. Data demonstrating the growth and impact of this new education paradigm will also be shared.

DR. MARIA ODEN

Maria Oden is a Professor in the Practice, Department of Bioengineering and Director of the Oshman Engineering Design Kitchen at Rice University. As director of Rice’s Oshman Engineering Design Kitchen, Oden orchestrates engineering education initiatives that provide students with unique hands-on design experience and opportunities to test and carry ideas to their intended point of application. In addition to her professional and teaching responsibilities at Rice, Oden collaborates with colleagues around the nation to foster growth in undergraduate design education. Dr. Oden collaborates with Rice faculty members to develop and execute capstone engineering design programs for undergraduate students in all engineering disciplines and in the Beyond Traditional Borders (BTB) global health technology program. In 2012, the BTB program was chosen as a model program by Science and awarded the Science Prize for Inquiry-Based Instruction. She is a recipient of the 2012 Fred Merryfield Design Award by the American Society for Engineering Education, the 2012 George R. Brown Prize for Superior Teaching from Rice University, and with her colleague Dr. Rebecca Richards-Kortum, the 2013 $100,000 Lemelson-MIT Award for Global Innovation.

Slider
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ON-BOTTOM TOOL FACE ORIENTATION
- INCREASED MOTOR LIFE
- INCREASED ROP & HORIZONTAL REACH CAPABILITY
- ELIMINATES ORIENTATION TIME LOSSES

MEMBERS
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NON-MEMBERS
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no longer flying under the radar
A Chemical Risk Prioritization Scoring Process for the Exploration and Production Industry

The oil and gas industry has been under increased scrutiny for its use of chemicals during exploration and production. Public perception is that hydraulic fracturing leads to chemical exposure and potential effects on human health and the environment. Some state agencies have adopted rules that call for the disclosure of chemicals intentionally added to hydraulic fracturing fluids.

Oil and natural gas industry service providers have started promoting the use of “green” chemicals for hydraulic fracturing by developing their own hazard scoring programs. As an E&P company, Noble Energy, Inc. has developed a chemical risk prioritization scoring process that identifies the chemicals which pose the highest risks to people and the environment. It considers both chemical hazards and exposure scenarios in the determination of the relative risk to human health and/or the environment related to company-specific activities throughout the E&P life cycle.

The chemical risk prioritization scoring process streamlines the identification of products with chemical constituents where no additional evaluation is warranted because relative risk is minimal. This allows a more detailed evaluation to occur for a smaller set of products identified as containing chemicals with higher potential risk. It also informs the company of products with chemical constituents for which little hazard information is available, aiding the industry in working with the chemical manufacturers to better characterize the potential hazard.

The presentation will illustrate Noble’s process and discuss the challenges that they faced in developing the program.

Kristin Koblis is the Global Manager of Environmental, Health and Safety (EHS) Strategic Planning for Noble Energy Inc. She has a Bachelor of Science in Toxicology from Northeastern University.

Her team conducts the EHS due diligence and strategic planning for new ventures and business development and oversees Noble’s chemical stewardship program.

During her 20+ career, she has established and implemented environmental programs/policies pertaining to the oil and gas industry. Ms. Koblis has performed human health risk assessments, reviewed toxicological studies and published papers related to human health risk assessments.

Ms. Koblis is on the Health, Safety, Social Responsibility and Environment Advisory Committee for the Society of Petroleum Engineers (SPE).
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Reducing the Risk of Lock-Up and Buckling in Long Horizontal Wells

When drilling long horizontal wells, buckling is a common issue that drilling engineers are facing during design and operations. The general perception is that when drill strings or casing strings exceed helical buckling, they cannot be operated safely in the hole, as the risk of failure or lock-up is too high. However, some experiences and field studies have shown that tubulars may be run in the hole even in a buckling state – within safe limits. Thus, a common dilemma that drilling engineers encounter is whether to allow buckling to occur or redesign the system to prevent it from happening.

The talk will present a case study of multiple liner failures in the Bakken field in early 2012. A torque and drag study was conducted to investigate if buckling has contributed to the liner failures. Field data was gathered, analyzed and used to run the conventional torque and drag model as well as performing post-buckling simulations in an advanced model. The author will present the findings and results from an operator perspective and also share some guidelines on torque/drag and buckling.

More information about this talk can be found in the SPE paper 163518 and also in the 2013 December issue of SPE Drilling and Completion.

**DR. DAVID CHEN**

Dr. David Chen currently is senior drilling advisor at Hess E&P Well Technology in Houston, Texas. His work has been focused on drilling optimization, directional drilling and drilling technology. Previously he was employed at Halliburton Sperry-Sun as chief technical scientist in Houston for 18 years, where he was awarded “Inventor of the Year” in 2005. David Chen has extensive experience in drilling unconventional and offshore/deep water and extended-reached wells. He has 24 years of experience in the drilling industry, and has published 45 technical papers and authored the chapter “Directional Drilling” in the SPE Petroleum Engineering Handbook (2006). He holds 19 U.S. patents. Dr. Chen is a member SPE/IADC drilling committee and a technical editor for the SPE Journal of Drilling and Completion. He also served as the vice-chairman of the 2009 SPE forum, “Overcoming Barriers to Deliver 15-km ERD and Beyond” held in Kota Kinabalu. He received a Bachelor’s degree from National Chiao-Tung University in Taiwan, and an MS and PhD from Rice University in Houston, TX.
**The Impact and Regulation of Texas Oil & Gas Production**

Commissioner Craddick will address the impact of the Texas oil and gas industry on the Texas and national economic stage. The role of the Texas Railroad Commission in regulating the oil & gas industry in Texas will also be discussed.

Texas is the number one oil and gas producer in the U.S. with a little over 256,000 active oil and gas wells at the end of June 2014. Texas has a stellar environmental and public safety record, while fostering a job-creating industry that is immensely important to the Texas and U.S. economies.

America’s competitiveness in the world’s oil market and independence from OPEC is led by Texas production and regulation of that production by the Texas Railroad Commission.

The vast amount of energy production occurring in Texas (and in the U.S.) can be part of a solution and an opportunity to address our struggling national economy. Texas specifically presents a strong case as an opportunity to use energy production as a solution for job growth, economic stimulus and long-term goals of energy security.

**CHRISTI CRADDICK**

Christi Craddick was elected statewide by the people of Texas in November 2012 to serve a six-year term as a Commissioner on the Texas Railroad Commission. A native of Midland, Christi is an attorney specializing in oil and gas, water, tax issues, electric deregulation and environmental policy.

Commissioner Craddick formerly served as president of a grassroots advocacy firm specializing in coalition building in the public policy arena and development and implementation of issue strategies.

Commissioner Craddick served as the chief political and legal advisor to the Speaker of the Texas House of Representatives, Tom Craddick from 2002-2011. In 1994-95, Craddick clerked at the law firm of Jackson Walker, L.L.P., formerly Small, Craig & Werkinthin, where she specialized in agricultural, electric deregulation, environmental, and tax issues.

In 1994, she worked in the legal department of the Railroad Commission of Texas and at the Third Court of Appeals. Commissioner Craddick also clerked at the law firms of Scott Douglas & McConnico in Austin and Cotton, Bledsoe, Tighe & Dawson in Midland in 1993. In 1991, she served on the staff of U.S. Congressman, Joe Barton.

She earned her Bachelor’s Degree and her Doctorate of Jurisprudence from The University of Texas at Austin. She is a member of the State Bar of Texas, resides in Austin with her daughter, Catherine, and is an active member of St. Austin’s Catholic Church.
Incredibly, the average E&P asset development over the past 15 years has had a generally dismal outcome and has delivered only 60% of the value (NPV) that it promised at sanction. Due to the increasing technical complexity and to some extent the demographics of the industry – both ours and our supply chain providers in EPC industry – we find ourselves unable to make consistent and robust profits on new field developments. The world of E&P developments is seriously challenged and if we do not change, things are likely to get much worse.

This presentation will look at recent records of delivering E&P asset developments and their performance. We will assess how we have chased volume over value. We will then investigate symptoms of the problem: chasing the wrong value levers and in turn destroying production and reserves recovery. We will discuss issues such as speed over value, portfolio management in today’s context and whether the state of our EPC supply chain helps or hurts our projects. However, we will focus our attention on what we believe to be the real root cause of our performance and the changes needed in our approach.

E&P asset delivery takes a great deal of cross-functional work and cooperation, and that is not being delivered. We will end the talk by discussing a possible solution: creating business accountability in the form of an Asset Development Manager, a Chief Integrator if you will, who is actually responsible for integrating this complex puzzle and delivering barrels.

NEERAJ NANDURDIKAR

Neeraj is Director of the Exploration and Production (E&P) practice at Independent Project Analysis, Inc. Neeraj provides strategic direction and oversees the global practice, including customer relations, intellectual property development, research, and project consulting services. Neeraj has spent the past 15 years in an advisory role working with the EVPs, VPs, heads of projects, and functional leaders of more than 30 different O&G operators and service providers around the world helping them design, build, and optimize their organizations and project delivery systems to adapt to the ever-changing project environment.

Neeraj has authored several papers published by Society of Petroleum Engineers (SPE), delivered keynote addresses, and served as a committee member for several SPE workshops and conferences. He currently serves as an Associate Editor for SPE’s Economics & Management journal.

Neeraj holds an M.S. in Petroleum Engineering from The University of Tulsa and an MBA from the Wharton Business School of the University of Pennsylvania.

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NORTHSIDE

Observation from an Underground Laboratory: An Integrated Approach to Unlocking Performance in the Niobrara

In 2012, Noble Energy designed and built an in-situ underground laboratory in Wells Ranch Section 25, Weld County, Colorado. The essence of the design includes nine horizontal wells demonstrating 660-ft and 330-ft well spacing with two different placement patterns, BBB and BCB. Thirteen independent surveillance technologies were overlaid in the section to directly observe as many G&G, reservoir, stimulation and production characteristics as possible for the Niobrara.

Observations obtained during the well stimulations are summarized, including the DTS waterfall plots, packer isolation failure statistics and causes, the number of fractures initiated per stage, real-time stimulation execution troubleshooting, samples of underground DAS sound files, RA tracer correlations as a function of vertical well placement azimuth, number of pressure events observed relative to Sh-min, examples of dynamically changing hydraulic well connectivity vs. time, microseismic elliptical analysis, microseismic events relative to observed pressure and temperature events and their lack of correlation, and DTS production logging with the associated statistics per stage on productivity.

DAVE KOSKELLA

Dave Koskella is the Exploration and Reservoir Systems Manager for Noble Energy in Denver. His current focus is on developing and implementing the next generation of unconventional resource play technologies in order to unlock and maximize the value of these plays. He has vast experience in reservoir, completions, production, facilities, business and finance. He has a BS in Mechanical Engineering from University of Colorado, Boulder and MBA in Finance & MIM degrees in Business, Finance, and International Management from the University of Denver. He has 23 years of experience with Amoco, BP, EnCana, and Rosetta Resources, among others.
You’ve properly formatted all the inputs, pressed all the right buttons and the Year End cashflow runs are complete. The summaries are published, management has signed off on the preliminary second version of the final run and the auditors are waiting for their export. Can you reproduce the correct results? If you can’t, why not? How do you know the correct results are really correct? If you don’t know, how does management know? These are the questions that separate a software expert from an engineering technician. They require judgment and an understanding of how a cashflow works, what it models and how it’s used. Unfortunately most of the training techs receive focuses on software and programming skills, necessary but insufficient to make the leap from software expert to a more rewarding and challenging key contributor role.

The engineering tech is at the intersection of engineering, geology, accounting, lease administration and land functions that impact not only reserves cashflows but asset performance. In this presentation, we will walk through a cashflow and discuss what each section models and how to verify that it’s correct. We’ll also discuss who you can approach, and how, to understand what you’re modelling and verify that it’s modeled correctly.

Kirby entered the oil and gas industry as an engineering technician and later transitioned into petroleum engineering. As a reservoir engineer, chief engineer, asset team manager and now acquisitions manager, he has managed professionals from many disciplines and projects on 5 continents. He’s had a grand time along the way exploring the ways engineering, geology, land, lease administration and accounting disciplines impact asset performance. Kirby holds a BS in Physics from Texas Tech University and an MS in Petroleum Engineering from the University of Houston.

**PETRO-TECH**

**Philosophies of Cashflows and Error Checking**

You’ve properly formatted all the inputs, pressed all the right buttons and the Year End cashflow runs are complete. The summaries are published, management has signed off on the preliminary second version of the final run and the auditors are waiting for their export. Can you reproduce the correct results? If you can’t, why not? How do you know the correct results are really correct? If you don’t know, how does management know? These are the questions that separate a software expert from an engineering technician. They require judgment and an understanding of how a cashflow works, what it models and how it’s used. Unfortunately most of the training techs receive focuses on software and programming skills, necessary but insufficient to make the leap from software expert to a more rewarding and challenging key contributor role.

The engineering tech is at the intersection of engineering, geology, accounting, lease administration and land functions that impact not only reserves cashflows but asset performance. In this presentation, we will walk through a cashflow and discuss what each section models and how to verify that it’s correct. We’ll also discuss who you can approach, and how, to understand what you’re modelling and verify that it’s modeled correctly.

**KIRBY WELLS**

Kirby entered the oil and gas industry as an engineering technician and later transitioned into petroleum engineering. As a reservoir engineer, chief engineer, asset team manager and now acquisitions manager, he has managed professionals from many disciplines and projects on 5 continents. He’s had a grand time along the way exploring the ways engineering, geology, land, lease administration and accounting disciplines impact asset performance. Kirby holds a BS in Physics from Texas Tech University and an MS in Petroleum Engineering from the University of Houston.
Hydraulic Fracture Modeling in Pilot Projects Using an Integrated Data Set

Fracture geometry is one of the key variables when completing multiple pay targets, such as the Middle Bakken and Three Forks members, from a single lateral, as is the case in the Williston Basin in North Dakota. In order to provide better insights into the fracture growth characteristics, ConocoPhillips embarked on two projects with varying diagnostic methods in each to evaluate these critical parameters. The goal was to end up with a calibrated fracture growth model for the area under consideration. The presentation will focus on the methodology, observations, and results obtained and will discuss ongoing operations for these projects.

BHARATH RAJAPPA

Bharath Rajappa is a staff completions engineer with the Global Completion Engineering group in ConocoPhillips. He received an M.S. degree in petroleum engineering from the Colorado School of Mines in 2000. Prior to joining ConocoPhillips in 2011, he worked with Baker Hughes for 11 years in the Rockies focusing on pressure pumping aspects of well completions. His focus has been on the design, execution and analysis of hydraulic fracturing treatments in both conventional and unconventional plays.
Bringing New Technology to International Markets

The International Study Group is honored to host Denise Patrick, Managing Director of Energy Markets Access. During this speaker luncheon, Denise will explore behaviors and processes that attendees can use to adapt and align their offerings to international markets. Attendees will discover:

• How to influence buyer behavior
• The keys to establishing credibility
• How to take advantage of their competitive strengths

DENISE PATRICK

Denise Patrick, Managing Director for Energy Markets Access, has provided marketing and consulting services to over 2,500 firms since 1987. An expert in buyer behavior and behavioral economics, Denise works with clients to develop the right strategies to bring their products and services to market.

Clients have included: INTSOK, Denham Capital, Energy Ventures, Cubility, OTM Consulting, Detechtion, TD International, Halliburton, Shell Chemical Deer Park, Houston Technology Center, Merrick Systems and many entrepreneurial clients, including several Ernst and Young Entrepreneur of the year finalists.
PERMIAN BASIN

2014-15 SPE Distinguished Lecturer, Dr. D.V. Satya Gupta: Fracturing Fluids: How to Frac with Less or No Water.

The projected self sufficiency of energy in North America is due to the success of horizontal wells and multi-stage hydraulic fracturing. The US Environmental Protection Agency estimates that 140 billion gallons of water are needed annually for hydraulic fracturing operations in the United States alone. While that is just a fraction of the total US water usage, our industry is becoming a lightning rod in the water use debate. Add to that the growing concern about burgeoning truck traffic on local roads and the seismic activity often blamed on high-pressure wastewater injection into disposal wells, and you have an environment ripe for regulation proliferation. Additionally, the success of these technologies in North America is raising interest to develop unconventional resources in various parts of the world where fresh water resources are not readily available.

The presentation will describe technologies presently available for fracturing applications using lower-quality water (produced water, sea water, etc.), fluid systems that minimize or eliminate water (energized or foamed water-based fluids to reduce water usage by 30 to 85 percent), and systems based on non-aqueous liquids, or even no liquids at all. The takeaway from this talk will be opportunities to use hydraulic fracturing to develop energy resources with very little or no water.

DR. D.V. SATYA GUPTA

Dr. D.V. Satya Gupta is Business Development Director at Baker Hughes Pressure Pumping Technology. He has over 33 years of oil field chemical product development and applications experience. He is on the SPE editorial board and was on the editorial board of JCPT from 1995 to 2002. He has published over 60 papers and is listed as an inventor on over 130 international and US patents. He has a Doctor of Science in Chemical Engineering from Washington University. He was the recipient of the Baker Hughes Life Time Achievement Award in January 2013.

Deepwater Drilling Training

John Shaughnessy — SPE – Drilling Engr – presents learnings from 36 years of experience: equipment, procedures, potential problems. Classes -

- Deepwater Drilling: 5 days
- Accelerated Deepwater Drilling: 2 Days
- HTHP Drilling: 3 Days
- Basic Drilling: 1 Day

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EVENT INFO

Wednesday
10.15.14
11:30 AM TO 1:00 PM

SPEAKER

DR. D.V. Satya Gupta
Business Development Director
Baker Hughes Pressure Pumping Technology

LOCATION

Norris Westchase Center
9990 Richmond Ave., Suite 102
Houston, TX, 77042

EVENT CONTACT

Amy Timmons
713-836-656
Amy.Timmons@Weatherford.com

MEMBERS

$35/$40 Walk-Ins

NON-MEMBERS

$35/$45 Walk-Ins
Erosion Analysis of Subsea and Surface Equipment Used in Hydraulic Fracturing and Production Systems

Sand erosion has been long recognized as a potential problem in oil and gas production systems, sometimes causing equipment failures. There has always been a need to understand the erosion mechanism and if possible predict erosion rates to better manage erosion in surface and subsea systems. Computational predictions commonly employed in production systems (which typically deal with fluids with a low solid content) are less complex and better validated than those employed in fracking or well kill where the flow can contain up to 50% solid by volume. Special adjustments are needed to the existing erosion prediction methodology to better understand and emulate these extreme conditions.

A case study will be presented which utilizes flow simulation software (CFD) to analyze where the fluid has a relatively high solid content, such as during a fracking operation. The case study will include results from a dynamic analysis which takes into account real time changes in equipment wall position due to erosion. Additionally, CFD predictions from production scenarios and some validation work conducted by Prospect will also be presented.

UDAY GODSE

Uday Godse is Senior Engineer at Prospect Flow Solutions, LLC, part of the Wild Well Control, Inc. family of companies. He earned his PhD in Thermal-Fluids systems from UT-Austin and has worked in oil and gas for 4 years with overall computer-aided engineering (CFD) experience of over 10 years. He has completed over 10 erosion predictions for various clients in a variety of scenarios.
The H₂S Challenge in the Eagle Ford: From Reservoir to Facilities

Early development of Eagle Ford Shale (EFS) indicated the reservoir was relatively sweet, typically producing H₂S in low concentrations (<1%). However in McMullen County, TX, wells with high concentration (>4%) are found. Mapping raw untreated H₂S gas concentration shows a direct correlation to salt domes and subsequent deep faulting. The enigma has been high H₂S wells offset by low H₂S wells, not associated with salt domes or faulting. Micro seismic and re-processed seismic data revealed that deep faults do intersect these wellbores. Mapping of these deep features allows for the prediction of areas with high H₂S.

An economic model was developed based on the expected H₂S concentration and production forecast that is capable of directing the long-term drilling and completions strategy as well as providing expectations for use in the construction of facilities and selection of H₂S treatment options. The drilling and completion strategy minimized the amount of H₂S that will be encountered, and the optimization of facilities reduces operating inefficiencies and OPEX and CAPEX outlays.

PATRICIA DUBOIS
Patricia DuBois holds a BA and BS from Washington University in St. Louis and an MS from the University of Texas, Dallas. Currently, she is working as a Staff Geologist at Murphy Exploration & Production on the Onshore US Eagle Ford Shale team as a geologist and on the special projects team.

DR. HUZEIFA ISMAIL
Dr. Ismail holds a BA/MS in Chemistry from Brandeis University and a Ph.D. in Physical Chemistry from MIT. His primary focus is data management solutions in the Eagle Ford Shale, where he has years of experience. He has authored over twenty technical articles, including a recent feature in Oil & Gas Facilities Magazine on using data visualization for improved chemical management. He currently works at Maxoil Process Solutions as a Production Chemistry and Process Modeling consultant.
The most efficient field frac network starts with predictable frac spacing and predictable frac volume.

Plug-and-perf cannot deliver predictable, consistent frac results, and neither can open-hole completions. With Multistage Unlimited single-point injection, fracs initiate right where you plan them and proppant volume in every frac is exactly what you want. The result: an efficient field frac network for maximum reservoir connectivity.

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BUSINESS DEVELOPMENT

Memorial Resource Development Corp.: Positioned for Continued Growth

Join us at the Four Seasons Hotel as Memorial’s John Weinzierl outlines the company’s history, extensive inventory of opportunities, and future direction.

Since its creation in 2011, Memorial Production Partners LP has closed approximately $2.4 billion in acquisitions. Its exponential growth took a new turn in 2014 with the formation and June IPO of Memorial Resource Development Corp. (MRD). MRD has a premier suite of assets concentrated in the prolific Cotton Valley trend. With a growing horizontal drilling program in Terryville Field in North Louisiana, MRD’s second quarter production totaled 222 MMcfe/d, up 32% from the first quarter of 2014.

How will Memorial continue to fuel their fast-paced growth? What are the financial foundations in place to secure the capital needed for expansion? What operational challenges have you overcome? How do you make sure that you are growing in the right direction and not too quickly? What future developments can we expect from Terryville Field? Where do you see yourself in 3 - 5 years?

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.

JOHN WEINZIERL

John Weinzierl has been the CEO since the company’s formation. Previously, he served as President and CEO of MRD LLC and President, CEO and Chairman of MEMP GP. Prior to the completion of MEMP’s public offering in December 2011, Mr. Weinzierl was a managing director and operating partner of NGP beginning in December 2010. From July 1999 to December 2010, Mr. Weinzierl worked in various positions at NGP, where he became a managing director in December 2004. He was appointed a venture partner of NGP from February 2012 to February 2013. Previously, he was a director of Eagle Rock Energy G&P, LLC from October 2006 to November 2011. Mr. Weinzierl is a registered professional engineer in Texas.

SPE-GCS BD Season Pass! – Don’t forget to lock in savings and be automatically pre-registered for all nine 2014-2015 events.
Sustaining the Trans-Alaska Pipeline – A Systems Engineering Perspective

Please join the Technology Transfer Committee for a luncheon and feature presentation. The presentation will examine the application of Systems Engineering principles to the current and future sustainment of the Trans-Alaska Pipeline System.

This luncheon presentation will discuss the current and future sustainment capability of the Trans-Alaska Pipeline System from a Systems Engineering (SE) perspective. The SE approach considers the Pipeline system from a broader perspective, taking into account the crude-oil pipeline, pump stations, feeder pipelines, maintenance systems, and the environment. The architecture of the pipeline system, its subsystem components and their relationships and dependencies are examined with the objective of facilitating understanding of the problems and solutions. End-of-life issues and transition to alternative uses of the pipeline are also addressed.

This study addresses three components: 1) analysis of technologies needed to meet the lower flow requirements to maintain pipeline efficient operation, 2) development of a reference model and process for guiding the selection of cost effective technologies, and 3) development of a transition roadmap for alternative uses and re-uses of the Pipeline to address end-of-life decommissioning.

CLAUDIA ROSE is a Certified Enterprise Architect with over 20 years of industry experience. She participates in professional associations and in the field, serving on boards of directors including The Association of Enterprise Architects (chapter president), INCOSE San Diego (past president), NDIA small business forum, AUVSI and the La Jolla Cove Swim Club. She is the 2012 winner of the San Diego National Association of Women Business Owners Signature Award.
Membership Committee Professional Networking Event

Come join SPE-GCS and SWE-HA Section for an evening of membership growth, membership retention, and professional networking. The event theme is “Wear Something Pink” in honor of Breast Cancer Awareness Month. Food and beverage will include hors d’oeuvres and wine tasting.

LOCATIONS
The Downtown Club at Houston Center  
1100 Caroline St  
Houston, TX 77002

ORGANIZER
Xuan VandeBerg  
832-444-5143  
stem.fields@gmail.com

EVENT INFO
THURSDAY 10.09
6:00 PM TO 9:00 PM

Auxiliary

EVENT INFO
FRIDAY 10.10
11:00 AM

LOCATION
The Café  
at Brookwood Community  
1752 FM1489  
Brookshire, TX 77423

EVENT CONTACT
Evelyn Earlougher  
281-419-1328  
eearlougher@comcast.net

How to Write an SPE Technical Paper

Why Write SPE Technical Papers?

• The SPE Difference  
  • Rigor: SPE meetings vs. commercially organized meetings  
  • Prestige: SPE journals vs. commercial publications  
  • Exposure: SPE’s globally-accessible, online library OnePetro  
  • Over 35 SPE Technical Conferences worldwide annually

• Professional obligation!  
  • Help others learn from your experience  
  • Fulfill the SPE mission: to share and disseminate knowledge

TERRY PALISCH

Terry Palisch is the Global Engineering Advisor for CARBO Ceramics based out of Dallas, TX. He has worked for CARBO for 10 years. Terry earned a BS in Petroleum Engineering from the University of Missouri-Rolla in 1986. He began his career with ARCO Oil & Gas in Alaska and Algeria, serving in many petroleum engineering disciplines. Prior to joining CARBO Ceramics in 2004 as the Global Engineering Advisor, Terry taught math for four years at Wylie High School. He is a 30+ year active member of SPE and has served on several technical programs, steering and awards committees, and chaired the Dallas Section. He has co-authored 30+ SPE papers and was named the 2012 Mid-Con Region Completion Engineer of the Year.
Melted ice cream can ruin a day. You expected a frozen confection; instead you got a dripping mess. Extruded polymer components can ruin more than a day. You expected uninterrupted production; instead you got equipment failure and wasted time on costly repairs.

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Professional Networking
Event Finding Energy’s Rational Middle

Energy is all around us. And yet, as important as it is to our lives, extreme positions and polarizing debates make it difficult to get a balanced view of the energy landscape and how to achieve a sustainable energy future. The Rational Middle Energy Series, sponsored by Shell, explores the need and desire for a balanced discussion about today’s energy issues by inviting open discussion with the goal of creating a path towards a better energy future. Shell knows it’s going to take a whole new level of collaboration and leadership to develop workable policies and solutions to meet the energy challenge. The company welcomes, invites and even creates opportunities to work in partnership with anyone who can help do it better. And, they believe the Rational Middle Energy Series could drive conversation and build stronger relationships that will move us toward a cleaner energy future. Join Paul Goodfellow and Gregory Kallenberg in a conversation on Finding Energy’s Rational Middle.

PAUL GOODFELLOW

Paul joined Shell in Holland in 1991 after receiving a Bachelor’s Degree in Mining Engineering and a Ph.D. in Rock Mechanics. He worked in the mining industry in South Africa and Finland prior to joining Shell. He has worked in a variety of well-related roles throughout the Group. In 2000, Paul was assigned to Shell Exploration & Production Company (SEPCO) as the Operations Manager for Deepwater Drilling and Completions and in August of 2003 he took up the role of Wells Manager for the Americas Region. He was named Venture Manager for North America Onshore in July 2008. In September 2009, he moved into the role of Vice President Development, Onshore for Upstream Americas responsible for field development planning, capital investment and technical and technology functions. In January 2013, Paul was appointed to his current role as Vice President US & Canada Unconventionals for Upstream Americas. Paul is a Chartered Engineer and a member of the Institute of Mining and Metallurgy and SPE. He is married with three children.

GREGORY KALLENBERG

Gregory Kallenberg is the director and a producer of the Rational Middle Energy Series. He deeply believes that people can come together to find balanced and rational solutions to some of the world’s most pressing challenges, including utilizing viable sources of energy for the future. Before the Rational Middle Energy Series, Kallenberg directed and produced “Haynesville: A Nation’s Hunt for an Energy Future”, a documentary chronicling a large natural gas discovery in northwest Louisiana and its effect on three individuals’ lives.

Kallenberg has also spoken about the future of energy at engagements across the globe including TEDx, Bucknell University’s Environmental Symposium on Shale Gas and Rice University’s “Distinguished Speaker’s Series.” Kallenberg’s background includes writing and story editing for the award-winning production house Bluefield Productions. He has also written for Esquire Magazine, the New York Times, the Austin American Statesman, among other publications. Kallenberg graduated from the University of Texas where he received a degree in Film. He also attended the film program at the University of Southern California.

EVENT INFO

MONDAY 10.13
11:00 AM TO 1:00 PM

SPEAKERS
Paul Goodfellow
Vice President
Shell
Unconventionals

Gregory Kallenberg
Director/Producer
Rational Middle
Energy Series

CONTACT
Brittany Niles
281-782-8194
Brittany.niles@shell.com

MEMBERS
$20

NON-MEMBERS
$25

STUDENTS
$10

LOCATION
TBD

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Event Finding Energy’s Rational Middle

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<table>
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</table>

(1) Dose at 67+ percent drag reduction; (2) Instantaneous drag reduction 40% better than standard FR’s at one-third the dosage; (3) 100% for guar as reference value; (4) Including salts, acids, bases, crosslinker, shale stabilizers, etc.- excellent for coil; (5) Any breaker except sodium bromate.
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This seminar is the most popular SPE program. The course is designed as a non-technical audio-visual guided tour through the oil patch, illustrating the basic equipment and techniques used in the discovery, development and production of petroleum.

- Introduction/Outline of the Day
- The Economics & Future of the Petroleum Industry
- Theory of the Origins of Hydrocarbons
- Oil Patch Orientation: (e.g., Porosity and Permeability)
- Geology of Porosity and Permeability
- Drilling Basics
- Well Logging
- Well Completions
- Reservoir Drive Mechanisms
- Production Equipment (sub-surface & surface)
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SPE-GCS 31st Annual Tennis Tournament

The 31st Annual Society of Petroleum Engineers Gulf Coast Section Tennis Tournament will be held on Thursday, November 6th & Friday, November 7th at The Houston Racquet Club located at 10709 Memorial Drive in Houston, Texas. Proceeds from the tournament benefit the SPE-GCS Scholarship Fund. In combination with other section functions, there have been 33 new scholarships for incoming college freshman studying petroleum engineering, math and sciences, and 70 renewed scholarships which include sophomores, juniors and seniors for their continued education in petroleum engineering. More than $3 million dollars in scholarships have been awarded since 1963 to students through this program.

In 2013, we had a very successful tournament with over 115 players participating. Registrations and sponsorships raised $55,000 in revenue. After tournament expenses, net proceeds of over $39,600 dollars were contributed to the SPE-GCS Scholarship Fund.

Sponsors are a welcome and a essential part of making this event a success. All sponsors will be recognized in the tournament program and on the sponsorship billboard that is exhibited throughout the tournament. Please see the Sponsor Form for sponsorship levels. In-kind donations for ditty bags and door prizes are also accepted.

On behalf of the entire 2014 SPE-GCS Tennis Committee, we look forward to seeing everyone for two fun-filled days of tennis!

QUESTIONS
James Jackson
713-702-6795
James.Jackson@Halliburton.com

LOCATION
The Houston Racquet Club
10709 Memorial Drive
Houston, TX 77024
713-464-4811
houstonracquetclub.com

START TIMES
Mixed Doubles
Begins Thursday
November 6th - 6:00 PM

Tournament Doubles
Begins Friday
November 7th - 9:00 AM

DEADLINE
October 31, 2014
Participation is limited!
Entries accepted on a first-come, first-served basis.

EVENT INFORMATION
There will be two flighted round robin events:
Mixed Doubles - Thursday evening, November 6th
Tournament Doubles - Friday, November 7th

The tournament doubles event is open to men and women and is a combined bracket. Partners may be of the same gender or mixed.

The committee will assist players who do not have a partner for any event.

FLIGHTING
Championship – Advanced Players
A – Regular & Advanced Players
B – Intermediate Players
C – Non-regular Players & Beginners

The SPE-GCS Tennis Committee reserves the right to allocate players to a different flight if necessary. Please rank yourself on the honor system.

WHAT TO EXPECT
Lots of tennis, meeting old friends and making new ones.
Door prizes, T-shirts, awards, meals and beverages.

Thursday – Light dinner
Friday – Breakfast, lunch and snacks
Hit & Grab – Friday after lunch
Award presentations, door prizes & heavy appetizers – late Friday afternoon ~ 4PM

RULES OF ENTRY
The event is open to members, nonmembers, guests, and friends of SPE. The only restriction is that tennis professionals are not allowed.

REGISTRATION
Thursday, November 6th – 4:00 – 6:00 PM
Friday, November 7th – 8:30 – 9:00 AM

IMPORTANT NOTICE
All paid participants must wear their “Name Tags” during this event to have access to the food and drinks

ENTRY FEE INFORMATION
$125.00 Per person – Fee covers Tournament and Mixed Doubles for an individual player.
$50.00 for those only playing Mixed Doubles.
$25.00 – Spouse/Guest (Not Playing)
Fees are due with entry form.

FOR REGISTRATION
http://www.spegcs.org/events/2648/
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We want to thank the Business Development Study Group and the Young Professionals Committee for submitting their photos this month. If you would like your group to be recognized in the Connect with your wonderful photos, please send your photos by the 25th of every month to the Connect editor at editor@spegcs.org.

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2015-2016 SPE-GCS Scholarship

Available to students who maintain a GPA of 3.0 or higher and are majoring in petroleum engineering, geology, or related discipline. Note: non-petroleum engineer or geology majors who complete an internship with a company in the Oil & Gas industry are also eligible.

Requirements:
• Currently reside in Houston OR 29-county Gulf Coast area
• Enroll in an engineering or science program at a university in the Fall
• Currently be a high school senior
• Minimum SAT score of 1650
• Be a U. S. citizen
• Completely fill out the scholarship form and turn in by deadline
• High school transcripts
• Activities, awards and honors
• SAT and/or ACT score
• Professional Reference letters
• Financial need (if applicable, not required)
• Short essay (approx. 500 words)

Process:
• Scholarship committee reviews each application
• Selected applicants are interviewed in the second round (04.15)
• After the interviews, the scholarship committee meets and collectively decides the 2015-16 scholarship recipients (05.15)

Note:
Each 2015-16 first-time scholarship recipient may be eligible for a summer internship with an oil & gas company on availability.
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PHOTO SUBMISSIONS
We are looking for member photos to feature on the cover of upcoming issues! Photos must be at least 9” by 12” at 300 DPI. Email your high resolution picture submissions to: editor@spegcs.org

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