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SPE

Please see below for updates and happenings in the Denver SPE Section for the month of November!

November 7, 2016

## GENERAL MEETING

### Stress Shadows: How and Why They Can Affect Hydraulic Fracturing in Both Conventional and Unconventional Plays

Neal B. Nagel, OilField Geomechanics, LLC

📍 Denver Athletic Club  
📅 November 16, 2016, 11:30 AM - 1:00 PM

#### Tickets:

|             |      |
|-------------|------|
| Members     | \$25 |
| Non-Members | \$35 |
| Walk-Ins    | \$45 |

[Register Now](#)

**Abstract:** Much is now made about “Stress Shadows” and their impact on hydraulic fracturing - particularly in multi-stage horizontal laterals commonly used in Unconventionals. Unfortunately, there is no standard definition of Stress Shadows and, as a result, there is much confusion over what they are and aren't, and, most importantly, why they can have a significant impact on hydraulic fracturing operations. The goal of this presentation will be to address this confusion and more fully explain Stress Shadows and their impact.

The creation of hydraulic fracture width during a stimulation generates a change in the stress field, which alters all three principal stresses as well as tip shear stresses. These stress changes are the Stress Shadows.

As hydraulic fracture propagation is often controlled by the stress field, Stress Shadows may change the propagation path for subsequent hydraulic fractures or, as seen in cluster fracturing, propagation may be impeded completely. The presence of natural fractures and weakness planes can also affect, and be affected by, Stress Shadows. At the hydraulic fracture tip, shear stresses are generated that offer the potential to shear and open closed natural fractures and weak planes – and if opened, it may be possible to stimulate them. Equally important, behind the hydraulic fracture tip Stress Shadows increase the magnitude of all three principal stresses, which tends to close weakness planes making them more difficult to stimulate. Because of these effects and others, understanding and designing for the impact of Stress Shadows is often critical for stimulation optimization.

**Biography:** Dr. Neal Nagel is currently Chief Engineer for OilField Geomechanics and has nearly 30 years of industry experience. He is a well-known expert in the geomechanics of Unconventionals and has given many invited SPE, AAPG, HGS, SEG, and SPWLA presentations. Nagel has also authored or coauthored more than 50 technical papers, with 20+ related to Unconventionals, including a keynote presentation at the 2014 SPE HFTC. He is a past SPE Distinguished Lecturer, was chief editor of the 2010 SPE Monograph on Solids Injection, has served on the SPE Drilling and Completions Committee, and also been a local SPE section officer.



## EDUCATION TRACK

### A Practical Introduction to RTA Analysis

Stan Kleinstieber, MHA Petroleum Consultants LLC

📍 Liberty Oilfield Services | 950 17th Street, Suite 2000 | Denver, CO 80202  
📅 December 1, 2016 | 2:00 PM - 5:00 PM

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**Tickets:**  
Members \$20

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**Abstract:** Rate Transient Analysis (RTA) has become one of the most commonly used techniques for analyzing well performance in unconventional reservoirs. This seminar is intended to give a brief overview of the theory behind RTA and to provide a workflow for assembling the necessary data and conducting an RTA evaluation. This seminar is primarily designed for engineers performing RTA analyses, though other technical professionals who use the results from an RTA analysis may benefit.

The seminar will cover the following topics:

- The similarities and differences between pressure transient and rate transient analysis
- What rate transient analysis can, and can't, tell you about your well and reservoir
- Why material balance time is used in rate transient analysis
- The limitations of RTA analysis in gas condensate and volatile oil fluids
- A recommended workflow for data collection and diagnostics prior to performing the RTA analysis
- Analyzing well and reservoir performance using both RTA type curves and analytical models

Example problems will be demonstrated with commercial RTA software. However, there will not be time in the seminar to provide attendees with actual hands-on software training. A full set of lecture notes will be available electronically prior to the seminar.



**Bio:** Mr. Stanley Kleinstreiber is a Managing Partner with MHA Petroleum Consultants LLC, a Denver based subsurface consulting firm. Mr. Kleinstreiber has over 38 years of petroleum engineering experience and has authored or co-authored papers dealing with production decline type curve analysis, CO<sub>2</sub> flooding and depletion of a rich gas condensate reservoir by nitrogen injection. Since joining MHA he has performed reservoir engineering studies in numerous US basins as well as Algeria, Australia, Canada, Hungary, Indonesia, Romania and Tunisia. Mr. Kleinstreiber has been an active reservoir engineering instructor for the PetroSkills alliance since 2002, conducting courses in 27 countries for over 2000 students.

Mr. Kleinstreiber began his engineering career with Amoco Production Company in 1978 after receiving a BS in petroleum engineering with highest honors from the University of Oklahoma. He has used rate transient analysis techniques to evaluate well performance in unconventional reservoirs since the development of the first Blasingame and Agarwal Gardner type curves in the 1990's.

*Registration closes November 28, 2016. Slides will be sent to all registrants on November 29th. Attendees will be required to bring their slides to the class either printed or on an electronic device.*

## CONTINUING EDUCATION

### Horizontal Well Completions

Dr. Jennifer L. Miskimins, P.E., Senior Consulting Engineer, Barree & Associates  
Location: Brown Palace Hotel and Spa, 321 Seventeenth Street, Denver, CO 80202, (303) 297-3111  
Registration Deadline: Friday, January 6, 2017  
Course Dates: Tuesday-Wednesday, January 31 - February 1, 2017  
Course Details: [ContinuingEducation\\_HorizontalWellCompletions.pdf](#)

### Reservoir Engineering Aspects and Forecasting Well Production in Unconventional Resources

Thomas A. Blasingame, Ph.D., P.E., Professor, Texas A&M University  
Dilhan Ilk, Ph.D., Vice President and Staff Engineer, DeGolyer and MacNaughton  
Location: Brown Palace Hotel and Spa, 321 Seventeenth Street, Denver, CO 80202, (303) 297-3111  
Registration Deadline: Friday, February 3, 2017  
Course Dates: Tuesday-Wednesday, February 21-22, 2017  
Course Details: [ContinuingEducation\\_ReservoirEngineeringAspects.pdf](#)



You can find a full list of 2016/2017 Continuing Education Courses here: [2016-2017 Denver Section SPE Training Courses.pdf](#)

For questions and further details, contact [Darren O'Brien](#).

## HSSE STUDY GROUP

## Lessons Learned from Mining for the Oil & Gas Sector: Engaging with Stakeholders

Chris Anderson, Principal, Yirri Global LLC

November 10, 2016 | 11:30 AM - 1:00 PM

Halliburton Offices | 19th Floor Training Room | 1125 17th Street, Denver, CO 80202



**Abstract:** Traditionally, extractive projects have relied on obtaining a 'green light' for development via regulatory frameworks and permitting. Increasingly, communities and other local bodies do not necessarily consider this as sufficient. They can and do cause projects to be delayed, to cost more and, in some cases, halted altogether. This study group will talk about the challenges and opportunities presented by this new 'paradigm'. Dr Anderson will present some cases from his long and diverse experience in mining on challenges and solutions around stakeholder and issue management and provide some suggestions for good practice and process that may assist oil & gas project development.

**Bio:** Dr. Chris Anderson is the principal of Yirri Global LLC, based in Denver, Colorado. Yirri works for clients in the global extractives sector, for governments, civil society, and communities, focusing on improving performance of companies in the sustainability and engagement space.

Anderson has worked as a field practitioner and senior executive in the mining industry for 17 years, with Rio Tinto, Newmont Mining, and Normandy Mining, specializing in communities and social performance in Australia, Indonesia, West Africa, Turkey, Peru, Canada, and the United States. He is a social anthropologist and has also worked for around 20 years with and for indigenous and local communities on a variety of issues including engagement, land access and claims, royal commissions, customary law, and more. In addition, he is a practicing academic, teacher, writer, and researcher on extractive engagement and communities and social performance.

Chris holds a Ph.D. in Anthropology, a B.A. with First Class Honors in Anthropology, and a diploma in Organizational Psychology from the University of Queensland in Brisbane, Australia. He is currently a research associate at the Colorado School of Mines and an adjunct professor in the Sustainable Minerals Institute at the University of Queensland.

## YOUNG PROFESSIONALS

### November Lunch and Learn : Drilling Optimization and Thermal Spray Technology

Karma Slusarchuk, Project Manager, White Horse Technology

Wednesday, November 9, 2016

Liberty Oilfield Services | 950 17th Street, Suite 2000 | Denver, CO 80202

Karma specializes in thermal spray applications in the oil industry. She is constantly interacting with drilling engineers and superintendents in the field. Since White Horse Technology has a focus on out of the box technology, her interests are always focus on researching and promoting new technologies. Although she graduated with a Chemical Engineering Degree from the University of Tulsa she started her professional career as a Drilling Engineer with XOM, Shell, TransOcean and went on to do consulting for WearSox and Karma Consulting.

**RSVP:** [anne.becker@qepres.com](mailto:anne.becker@qepres.com) by Tuesday, November 8<sup>th</sup>, 2016 at 1:00 PM

Lunch will be provided

### November Happy Hour

Join friends, colleagues, and new contacts from 4:30 PM - 6:00 PM for fun and networking. The first drink and a few appetizers are on us!

Wednesday, November 9, 2016

Rock Bottom Brewery 16th Street Mall & Curtis Street

### YP December Sneak Peek

#### Lunch & Learn: Wednesday, December 14, 2016

Dr. Jennifer L. Miskimins, PhD, P.E., Senior Consulting Engineer with Barree & Associates will be speaking on horizontal well completions. If you've ever been to one of Dr. Miskimins' talks / classes, you know this will be a valuable session. See you there!

#### SPE – YP Holiday Party, Wednesday, December 14, 2016, Stout St Social, Denver

"Ugly Sweater Technical Symposium" – join friends, contacts, colleagues, and new connections to celebrate 2016. Wear your best ugly sweater and enjoy a couple drinks and appetizers with the group as we discuss technical innovation, industry future, and favorite holiday celebrations. Sponsorships are available – if interested, contact John Sanford ([john.sanford@tamintl.com](mailto:john.sanford@tamintl.com)).

## SPE AWARD NOMINATIONS

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### **Applaud excellence in the E&P industry by nominating a colleague for an annual award given by the Society of Petroleum Engineers.**

SPE Awards recognize expertise and contributions to the upstream oil and gas industry.

Awards will be presented at the regional and international levels for:

- Technical contributions
- Professional excellence
- Career achievement
- Service to colleagues
- Industry leadership
- Public service

On-line regional award nomination process only takes 15-20 minutes! PLEASE think of someone who deserves recognition for their outstanding work in the E&P industry and visit [www.spe.org/awards](http://www.spe.org/awards) today!

You will also see international awards listed at this link. Please consider nominating a colleague for an international award as well.

**Nominations will be accepted November 15, 2016 – February 15, 2017.**

## SPE HAPPENINGS

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### **SPE Evening Event Recap**

We had a great turnout with over 75 energized people attending the networking event at Wynkoop Brewing Company featuring the theme “Surviving, Thriving, and Striving Toward Better Days.”

All participated in the active and animated round table discussions on the theme and shared ideas ranging from improving team integration and communication, tapping into talents of experienced staff, focusing on highest priority work, taking time to dig deeper into high impact technical solutions to setting higher expectations of your Completions Manager!

A really special thanks to panel speakers Ward Polzin – CEO of Centennial Resource Development, Steve Enger – President of Edge Energy, and C. Mark Pearson – President of Liberty Resources. They generously shared their insights and experience gained in leading their respective companies through tough times. Their inspiring stories were much appreciated by both the very experienced of us along with the CSM SPE Student Chapter members in attendance.

Also thanks again to Team Oil Tools and Liberty Resources for sponsorship of the event!

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### **The Colorado School of Mines team placed fourth at the PetroBowl Championship in Dubai. Congratulations on a job well done!**



PetroBowl team members (L to R): Bryan McDowell, James Blaney, Zak Hartman, Joe Brandenburg, and Jason Cateora

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**SPE members educate young students about energy and put a face on the industry with Energy4Me. If you are interested in learning more about Energy4Me, please contact Ellen Scott [e.scott@sigmacubed.com](mailto:e.scott@sigmacubed.com).**





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