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March 5, 2019

## GENERAL MEETING

### DJ Basin - Wattenberg Analytics

*Dane Gregoris, EIT, CFA, Senior Vice President, RSEG*

📍 Denver Athletic Club

📅 Wednesday, March 20, 2019, 11:30 AM - 1:00 PM

*Early-bird registration deadline: March 18 at 5:00 PM*

**Tickets:**

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

[Register Now](#)

**Outline:**

After eight years of horizontal development in the DJ basin, operators still remain differentiated in their completion design and well spacing. We examined the impact of various operational and geological variables on well performance and economics to understand the key drivers of success in the basin. This presentation will illustrate the results of our analysis and provide recommendations for optimal completion design and well spacing.



**Biography:**

Dane joined RSEG in 2014. His previous work experience includes positions at GLJ Petroleum Consultants and Encana. Dane leads the Rockies research team and deepens RSEG's group of technical and financial specialists by contributing to company valuations and play modeling. Dane graduated from Queen's University with a degree in geological engineering and is a Chartered Financial Analyst charterholder.

Financial Analyst charterholder.

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**Thanks to This Month's Newsletter Sponsor:**

## Denver Advanced Practices in Unconventional Basins



**DAPUB 2019**  
DENVER ADVANCED PRACTICES IN UNCONVENTIONAL BASINS

**HEAR FROM THE EXPERTS** ➤ DENVER, CO | APRIL 17-18

For more information & to register, visit [dapub.org](http://dapub.org)

PRESENTED BY  **NITEC LLC**



📍 Embassy Suites - Downtown Convention Center 1420 Stout St, Denver, CO 80202

📅 April 17-18, 2019

*Sponsorship opportunities available!*

## Register Now

The Society of Petroleum Engineers Denver Section is pleased to host the Advanced Practices in Unconventional Basins covering key topics and challenges in Unconventional Basins, geared towards professionals with experience in these types of basins.

Plan to attend to learn from the experts in Unconventional Basins and Technologies. The event will feature extended technical sessions and multiple networking opportunities.

Event details, registration, agenda and speakers, and sponsorship opportunities can be found on the event website: [www.dapub.org](http://www.dapub.org)

Registration includes admittance to the two day technical sessions, access to related presentations, daily keynote lunches, Colorado School of Mines Technology Expo and Paper Contest, and Thursday Networking Reception.

### Registration

SPE Member	\$650 USD
Non-Member	\$850 USD

## YOUNG PROFESSIONALS

### Lunch & Learn - Integrating Rock Properties and Fracture Treatment Data

*Joel Mazza, Technical Solutions Manager and Carrie Glaser, Chief Petrophysicist, Fracture ID*

📍 Liberty Oilfield Services 950 17th Street #24, Denver, CO 80202

📅 March 13, 2019, 11:30 AM - 1:00 PM

*Lunch will be provided*

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## Register Now

### Abstract:

A horizontal well landed in a single formation rarely encounters homogeneous rock from the heel to the toe of the wellbore. When analyzing treatment responses that occur during hydraulic fracturing, a decreasing trend in surface treating pressure in sequential stages is typically attributed to reduced friction within the casing or frac string. However, there are several variances in treating pressure that are not readily explained by examining the surface pressures and pipe friction in isolation. These variances are also apparent when looking at bottom hole injectivity. Combining surface data and geomechanical data quickly reveals the degree of variability in rock properties along a lateral and the impact that variability can have on a completion, leading to a more optimal design. This paper demonstrates how engineers can take advantage of their most detailed completions and geomechanical data by looking for trends arising from past detailed treatment analyses and applying that gained knowledge to future completions.

A brief analysis of past completions indicated virtually no correlation between gamma ray measurements along the stage and fracture treating conditions. However, when evaluating high-resolution mechanical rock properties along the lateral, a much more useful correlation exists between minimum horizontal stress variations (calculated from Poisson's Ratio) and eventual treating pressure and proppant placement difficulties. Calculated brittleness and bottomhole injectivity (which accounts for changes in slurry rate and pipe friction) also show a relationship, especially when cluster efficiency factors are included.

This paper proposes a process to improve completion efficiency while demonstrating the value of information contained in high-resolution and high-frequency datasets. Historically underutilized, these datasets are playing an increasingly prevalent role in advanced analytics due to improved and novel technologies for data management and interpretation.

### Abstracts:

Carrie Glaser – Manager, Petrophysics at Fracture ID

Carrie Glaser has over 11 years in oil and gas. She was recruited by ExxonMobil in 2007 from the University of Washington where she received an M.S. in geology. At ExxonMobil she benefited from outstanding mentorship for two years in geology & geophysics and an additional four years in petrophysics. Carrie went to work for Anadarko in Denver in 2013. While her experience at ExxonMobil had been primarily in international exploratory basins and offshore producing fields, her assets at Anadarko were onshore in the U.S. Rocky Mountain region. Carrie remained at Anadarko for four years before leaving to pursue a burgeoning field of study – geomechanics-focused petrophysical evaluation (petromechanics) - with Fracture ID.

Joel Mazza, PE – Technical Solutions Manager at Fracture ID

Over the past 13 years, Joel has worked in various technical engineering and management roles in the oil and gas industry. He started his career at Halliburton as a Production Enhancement engineer and later consulted both in the field and in-house for operators. Joel's primary expertise is in stimulation design, diagnostics, implementation and modeling but also has experience in reservoir and production engineering. Joel has worked in and around virtually every major unconventional play in the continental US. On the Fracture ID integration team, he provides guided solutions to operators

looking to understand how high resolution geomechanical properties affect their completion decisions and effectiveness.

## YP Happy Hour

📍 Range Restaurant, 918 17th St, Denver, CO

📅 March 13, 2019, 4:30 PM - 6:00 PM

Sponsored by [Basin Fluids](#)

Join us for a drink and appetizers to catch up and network with friends and colleagues.



## 2019 Denver SPE Golf Tournament

📍 The Ridge at Castle Pines North

📅 August 8-9, 2019

Registration begins March 18th for Sponsors.

All proceeds benefit the Denver SPE Scholarship Fund, with over \$35,000 donated in 2018!

Format: Four-person Scramble

Tournament Information: Each foursome will play one round with a Shotgun start time of either 7:30am or 1:00pm depending on your selected preference. Sponsors will receive first preference on Tee Times.

Tee times will be guaranteed ONE month prior to the tournament and not before!



Fees: \$800 per foursome – includes breakfast/lunch for morning tee times or lunch/dinner for afternoon tee times. Door and Skill prize drawings take place following each round.

Sponsorships: We offer four levels of sponsorship donation. Those companies generously donating \$1,500 or more will receive the ultimate recognition as a Platinum Sponsor. Likewise, companies donating \$1,000, \$500 or \$300 will be recognized as Gold, Silver, or Bronze sponsors. The sponsoring companies will be recognized at the tournament and in the SPE Newsletter.

Registration will only be open to sponsors until June 3rd. At that time registration will open to non-sponsors.

## COMPLETIONS STUDY GROUP - Using Well Heterogeneity as an Advantage to Designing Stage

## Specific Diverter Strategies

 Halliburton, 1125 17th St. Suite 1900  
 March 28, 2019 11:30AM-1:00PM  
Join us for this event!

**Speaker:** Kevin Wutherich, Chief Technology Officer, Drill2Frac

### Short Description:

When hydraulically fracturing a horizontal wellbore with multiple perforation clusters, the fluid being pumped into the reservoir will preferentially take the path of least resistance. Perforations that are located in the lowest stressed rocks will take a larger amount of fluid, and those perforations located in highest stressed rocks will receive less, or in some cases none. One of the ways that engineers are trying to overcome these differences is the use of diverters. A fluid diverter is typically inserted at some point within a hydraulic fracturing pump schedule to seal off dominant fractures, allowing fluid to flow into under-stimulated fractures.

The problem with this methodology is that without reservoir knowledge, operators rely on rules of thumb developed through trial and error to determine when and how much diverter to use. Data has shown how this methodology can be ineffective, leaving some clusters over stimulated and others under-stimulated. Anecdotal evidence also supports these concerns because equally sized diverter slugs do not always have equal pressure response. This talk will discuss a methodology that examines well heterogeneity, and designs the diversion strategy based on the rock properties within each fracturing stage. In addition to rock properties, the method proposed utilizes stress shadows, perforation design, and modified pump schedules to ensure equal cluster stimulation in diverter applications.

The result of this workflow is a tool that has been used to maximize the effectiveness of diverters which has shown, through several case studies that will be discussed, to result in better producing wells at lower completions cost.

Please note that the Study Group is a bring your own lunch event.

## COMMUNITY OUTREACH


Do you want to teach young students about energy, serve breakfast at the Denver Rescue Mission, or judge science fairs? Join other SPE members in giving back to our community!


If you want to learn more about SPE's outreach activities, please contact Community Outreach Chair, Ellen Scott. [ellen.scott@fractureid.com](mailto:ellen.scott@fractureid.com)

## CSM Student Chapter

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### 2019 Clayshoot Fundraiser

 Kiowa Creek Sporting Club - 46700 County Road 30, Bennett, CO 80102

 April 11, 2019

## Register Now

Kindly consider giving sometime to season the bright and future generation of the oil and gas industry.

For registration and sponsorship opportunities, please click the 'Register Now' link above!

CSM SPE PRESENTS:



# 2019 Clayshoot Fundraiser

**Date & Time: April 11th from 12pm - 4pm**

**Location: Kiowa Creek Sporting Club 46700 County Rd 30,  
Bennett, CO 80102**

**To register go to <https://goo.gl/forms/I59DqwVZvpPuZSsG3>**



Scan QR code to register



## 2019 CSM SPE Clayshoot Fundraiser Sponsorship

*SPE student chapter will work with sponsors on advertising strategy and public image.*

- Name/Title Sponsorship** \_\_\_\_\_ **\$3,000**  
Includes logo placement on all advertisements CSM SPE will use on campus and within on campus clubs. Prominent logo placement on event registration table, volunteer sign up forms, and poster advertising.
- Score Sheet Sponsorship** \_\_\_\_\_ **\$2,000**  
The scorecard given to each shooter will feature the company logo.
- Lunch Sponsorship** \_\_\_\_\_ **\$1,750**  
Includes advertising at lunch location and recognition for sponsoring the lunch. Possibilities include branded napkins or placemats.
- Drink Sponsorship** \_\_\_\_\_ **\$1,500**  
Branded drink wristbands used to differentiate over/under 21 attendees. Posters or banners featuring the company logo. Branded coolers, cozies, or other beverage related items are possible.
- Snack Sponsorship** \_\_\_\_\_ **\$1,250**  
Company logo featured at snack table, sponsorship would pay for snacks and could include snack donations.
- Shooting Station Sponsorship** \_\_\_\_\_ **\$300**  
10 shooting stations are available to be branded
- Truck Photo Shoot Sponsorship** \_\_\_\_\_ **\$1,000**  
A truck bed photo shoot is available to be set up. Registration and payment booth would feature company logos
- VIP Carts (Seats 4)** \_\_\_\_\_ **\$2,000**  
Help the student chapter send students to Calgary, Alberta for 2019 ATCE! The VIP cart will be provided to groups of 4 to enjoy shooting on the go and special thanks will be given at the event. Limited quantity available.

Please Contact [nbourdon@mymail.mines.edu](mailto:nbourdon@mymail.mines.edu) for sponsorship details



## CSM SPE Fundraiser Golf Tournament

On behalf of CSM SPE Student Chapter, we would like to announce save the dates for the upcoming Clayshoot and Golf Tournament.



COLORADO SCHOOL OF MINES SPE  
STUDENT CHAPTER PRESENTS


# 2019 CSM SPE FUNDRAISER GOLF TOURNAMENT

**Fossil Trace Golf Course  
Golden, CO**

SEPTEMBER 20TH, 2019  
8:30 AM SHOTGUN START

Contact for more information:  
[nbourdon@mymail.mines.edu](mailto:nbourdon@mymail.mines.edu)





Colorado School of Mines SPE Chapter Presents:  
**September 20<sup>th</sup> 2019 Golf Tournament**  
Fossil Trace ○ Golden, CO

Name: \_\_\_\_\_

Company: \_\_\_\_\_

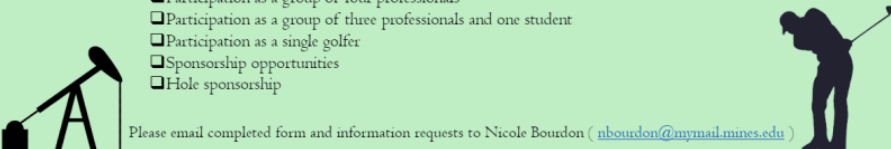
Email: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Interested in:

- Participation as a group of four professionals
- Participation as a group of three professionals and one student
- Participation as a single golfer
- Sponsorship opportunities
- Hole sponsorship

Please email completed form and information requests to Nicole Bourdon ([nbourdon@mymail.mines.edu](mailto:nbourdon@mymail.mines.edu))



## CSM 4th Annual Mudbug Masquerade

**CSM AADE, SPE AND AAPG PRESENT:**



# 4th Annual Mudbug Masquerade



**MARCH 21, 2019**

Time: 3pm - 6pm

Location: Jalili Plaza/Marquez Hall Pavilion at Colorado School of Mines

Student Ticket: \$15

Other Ticket: \$20

## Society of Petroleum Engineers - Denver Section

### Americas

222 Palisades Creek Dr.  
Richardson, TX 75080-2040 USA

### Asia Pacific

Level 35, Gardens South Tower  
Mid Valley City, Lingkaran Syed Putra  
59200 Kuala Lumpur, Malaysia

### Europe

1st Floor, Threeways House  
40/44 Clipstone Street  
London W1W 5DW UK

### Middle East

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