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February 4, 2020

GENERAL MEETING

Enhanced Oil Recovery (EOR) for Unconventional Reservoirs: The Next Big Thing?

B. Todd Hoffman, Montana Tech.

Denver Athletic Club | 1325 Glenarm Pl., Denver, CO
 Wednesday, February 19, 2020 | 11:30 AM - 1:00 PM

Tickets:*

Members	\$30
Non-Members	\$35
Walk-Ins	\$45

*Meal options are now available at registration!

[Register Now](#)

Abstract: Unconventional reservoirs have had tremendous success over the last decade due to technological advances including long horizontal wells and multi-stage hydraulic fracturing; however, their potential may be even higher. There are trillions of barrels of oil in these resources, and while wells start out at high rates, they decline quickly and primary recovery factors are low, often in the single digits. This clearly indicates a need for some form of enhanced oil recovery (EOR) for these types of reservoirs.



In this presentation, the efforts to implement EOR in unconventional reservoirs will be examined in full detail. A number of different injection fluids have been proposed including miscible gas, water, and surfactants. Early work focused on modeling and lab studies, and this provided a base of knowledge that was leveraged to carry out pilot field studies. Pilots have been implemented in at least four basins, and the Bakken and Eagle Ford have both had multiple field trials. The huff-n-puff natural gas injection has been shown to be very successful in the Eagle Ford, and today, large-scale field development is occurring there.

Because most of the field trials have been completed in North America, the examples presented are mainly from there; however, as these techniques are reproduced in other basins, the worldwide

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potential is enormous, and that potential also is discussed in the presentation.

While much has been achieved over the last decade in unconventional reservoirs, implementing EOR in these types of reservoirs will likely bring about even greater success.



Biography: Todd Hoffman is an Associate Professor in the Petroleum Engineering Department at Montana Tech. He teaches classes on Reservoir Simulation, Enhanced Oil Recovery, and Unconventional Reservoirs. Prior to that, he was a reservoir engineering consultant to the oil and gas industry. Todd has worked on reservoir models for more than 30 fields on six continents and has published over 50 technical papers. His research involves improved recovery for conventional and unconventional reservoirs, fractured reservoir modeling and history matching. Todd received his B.S. in

petroleum engineering from Montana Tech and his M.S. and Ph.D. in petroleum engineering from Stanford University.

YOUNG PROFESSIONALS

Production Effects from Frac-Driven Interactions in the Southeastern Midland Basin, Reagan County, Texas.

Bryan McDowell, Discovery Natural Resources, Technical Advisor.

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

📅 Wednesday, February 12, 2020 | 11:30 AM - 1:00 PM

[Register Now](#)

Abstract: Frac-driven interactions (FDIs), more commonly known as frac hits, are becoming increasingly common as operators develop acreage near existing wells. These FDIs are commonly observed in an area of infill drilling in eastern Reagan County, Texas. To better understand their effects, a study was undertaken to document all FDIs observed during five years of field development in a fifteen-square-mile area. FDI frequency and intensity was found to be a function of (a) the parent well's wellbore geometry, (b) offset direction between the parent and child well, (c) the presence or absence of a horizontal "buffer" well, and (d) distance between the parent and child wells. Horizontal parent wells received FDIs with greater frequency and intensity than vertical parent wells. Similarly, vertically stacked or directly offset parent wells received FDIs with greater frequency and intensity than indirectly offset or horizontally in-line parent wells. Horizontal parent wells commonly attenuate (or "buffer") FDI frequency and intensity for other parent wells behind them (relative to the frac job). Distance between the parent and child well was found

to have a strong negative correlation with FDI frequency and intensity but is more pronounced for vertical parent wells than horizontal parent wells. The majority of parent wells were found to receive either small FDIs or no FDI at all; thus, FDIs do not appear to pose a major risk to reserves within the study area contrary to many other unconventional plays. Although simple, the methodology was found to be a useful tool for understanding complex relationships between parent and child wells and may be applied to other development areas.

Biography: Bryan McDowell is a technical advisor for asset development at Discovery Natural Resources in Barnhart, Texas, and a doctoral candidate in geology at Colorado School of Mines. His current projects include frac hits, well interference, and hydraulic fracture simulation in the Permian Basin; and Upper Cretaceous chronostratigraphic frameworks in western Colorado. Bryan received his Bachelor of Science degree in geology from Texas A&M University and his Master of Science degree in petroleum engineering from Colorado School of Mines.

Lunch will be provided!

YP Happy Hour

📍 Stout Street Social | 1400 Stout St, Denver, CO 80202

📅 Wednesday, February 12, 2020 | 4:30 PM

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

SPE Denver Mentoring & Business Leadership Survey

We want to help you reach your career goals and navigate this tough time facing the industry. We would like your input on a mentoring event. Why should you spend 2-5 minutes on this survey [HERE](#)? The more input we get, the better tailored the event will be for you!

DATA ANALYTICS STUDY GROUP

TELLING A GOOD STORY WITH DATA.

Jim Crompton

📍 Encana, 40th Floor, Long's Peak | 370 17th St. 1700, Denver, CO

📅 Thursday, February 27, 2020 | 11:30 AM - 1:00 PM

BYOL Event.

[Register Now](#)

Abstract: Two things are certain these days. We have more data to work within the digital oilfield and we have less time to share our results and techniques with ever more busy executives. Advances in data visualization methods are giving analysts new tools, but questions about AI 'explain-ability and transparency' cast doubt on modeling results that identify new insights beyond what physics-based models have shown in the past.

So, how can we take a complex subject, with data-driven models, built from massive and varied data sets, using advanced analytics techniques with some very foreign-sounding terminology, and convince a busy executive who gives you only a few minutes or a few slides to change their decisions or investment plans?

We often get carried away with new technology or a new analytical technique we just learned but does your audience care? Focus on the impact of your analysis on the business problem and make sure the data set you have is not leading your model down the wrong road.

Jim will try to share some best practices in telling stories with data, not how to make better PowerPoint slides. He will also share some ways that analysts, usually inadvertently, can tell some pretty convincing lies with data.



Biography: Jim retired from Chevron in 2013 after almost 37 years with the major International Oil & Gas Company. After moving from Houston to Colorado Springs, Colorado, Jim established the Reflections Data Consulting LLC to continue his work in the area of data management and analytics for the Exploration and Production industry.

Jim was a Distinguished Lecturer for the Society of Petroleum Engineers in 2010-2011, speaking on the topic of "Putting the Focus on Data." He is a frequent speaker at SPE conferences on Digital/Intelligent Energy and the Data Foundation. His interests lie in the full spectrum of the information value chain from data capture, data management, data visualization, data access, modeling and analytics, simulations and serious gaming. While only a digital immigrant, Jim has embraced social media (with the help of his daughter, Emily, a real Digital Native) and is a fervent blogger and has experimented with YouTube-like videos to help train and mentor the new generation of Digital Natives and Digital Engineers entering the oil and gas industry.

Jim graduated from the Colorado School of Mines (BS in Geophysical Engineering in 1974 and MS in Geophysics in 1976) before joining Chevron in Denver, Colorado. He later earned an MBA degree (1996) from Our Lady of the Lake University (San Antonio, Texas).

Details: The 40th floor can be accessed by going downstairs to the lower elevator bays. This 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!

Upcoming Events:



SPE Serves Breakfast at the Denver Rescue Mission

Date: February 13th, 2020

Time: 6:30 am -8:30am

Location: Lawrence Street Community Center | 2222 Lawrence Street, Denver, CO 80205

Limit: 15 volunteers
Free

Description:

Please join SPE Denver in their support of the Denver Rescue Mission, a nonprofit organization helping the poor and homeless populations of the Denver area. More than 85% of the services of the Denver Rescue Mission are operated by volunteers, serving people experiencing homelessness and poverty in our community since 1892. Please come and bring friends or family.

Please Contact Community Outreach Chair, Davis Scott, for more details! daviswsd@gmail.com

Register Now



**February
22nd, 2020**

SPE Supports Special Olympics at Copper Mountain

Date: February 22nd, 2020

Time: 7:30 am -4:00am

Location: Meeting Location TBD | Copper Mountain Resort, Frisco, CO 80443

Limit: No Limit
Free

Description:

Special Olympics of Colorado will be hosting an Alpine Ski Event for intellectually disabled residents of Colorado on February 22nd

(and February 23rd). Come volunteer for Special Olympics with your SPE peers on February 22nd. Last year, volunteers received a complimentary 1-day lift-pass for Copper Mountain (e.g. an additional free day of skiing). Volunteers will also know that their time was spent to make a valued contribution to the community. As an added benefit, this will help SPE build bridges between our industry our Colorado communities, at large. Register with SPE using the link below. We will then register SPE volunteers with Special Olympics as a group.

Register Now

Denver Metro Regional Science and Engineering Fair

Date: February 28th, 2020

Time: 10:30 am – 4:30 pm (Judges)

Location: University of Colorado, Denver | 1201 Larimer Street, Denver, CO 80205

Limit: No Limit
Free

Description:

Please volunteer with SPE in their support of the CoorsTek Denver Metro Regional Science and Engineering Fair at the University of Colorado, Denver. This is an annual fair of which SPE is a sponsor. Please consider volunteering as a judge or in another capacity. The Denver region's best & brightest high school students will be presenting their science projects and competing to reach the state level. Some of these projects are amazing! Registration closes on February 14th to ensure sufficient time for required volunteer background checks & screening

Registration for Judges*:

<https://clas.ucdenver.edu/denversciencefair/judges>

Registration for Other Volunteer Positions*:

<https://clas.ucdenver.edu/denversciencefair/volunteers>

*Please state that you are with the “Society of Petroleum Engineers” on your registration.

SPE RACQUETBALL TOURNAMENT



SPE 40TH ANNUAL WINTER TOURNAMENT


When: FEBRUARY 21, 2020, 12:30 PM


Where: Denver Athletic Club

What: Racquetball / Handball

- All skill levels, prizes in each level
- Cost \$35 (\$20 students) *Includes banquet with drinks, food, awards, door prizes.*
- Sponsorships available
- Check out Denver SPE website for signup (<https://denverspe.org/>)

2020 Ski Fast Energy Bash brought to you by DAPL, SPE, and YPE!

 Keystone Resort, 100 Dercum Square, Keystone, CO 80435.

 March 6-8, 2020

Join us for this event!

[Register Now](#)

Welcome to the annual Energy Industry Ski Trip! This year, SPE, DAPL, AND YPE are partnering up to make a true Energy Industry Ski Bash! We're electrifying the slopes this year with a level of energy and enthusiasm that's more rigorous than a surface use agreement, hotter than 1,700 MMBTU clean, Colorado natural gas, and (you'd better believe it) much more exciting than watching solar panels track the sun on a single axis!

We'll have a ski bus traveling up on Friday, après ski party Friday, and other networking opportunities for the remainder of the weekend (including the now-famous shirtless closing run on Saturday - Snow or Shine).

Registration this year is a-la-carte. You can have a fun ski day on Friday OR stay for the entire weekend! If you plan to ski for all 3 days, make sure to buy 3 lift tickets. The over 30-year tradition of the après ski party on Friday will be hosted at the base of Keystone in Warren Station. Feel free to attend even if you don't ski!


If you don't take the bus up on Friday, then be sure to pick up your lift tickets prior to March 1 from Tabatha at the DAPL offices: 910 16th Street, Suite 223, Denver, Co 80202 (dapl@dapldenver.org).


We have plenty of opportunities to sponsor! Descriptions for each of these options is in the ticket section. If you would like to mail a check instead of registering online (to avoid fees), please email Mark (mark.hinaman@gmail.com; 970-629-0668) at SPE or Courtney Ahuja (courtneyahuja@gmail.com; 214-662-7696) at DAPL.

Registration closes on February 14, 2019 ... don't miss the window!

VOLUNTEER OPPORTUNITY

Rocky Mountain Regional Student Paper Contest. *SPE Needs Your Help!*

 Colorado School of Mines | 1500 Illinois Street, Golden, CO

 Saturday, April 18, 2020 | 8:00 AM - 5:00 PM

We are currently seeking volunteers to judge the Rocky Mountain Regional Student Paper Contest on April 18.

Competition Judge: [Apply Here](#)

Presentation Judges (Undergraduate, Masters and Ph.D. division)
Judges will need to be physically present at the Colorado School of

Mines, in Denver Colorado* on Saturday 18 April 2020 to listen to and judge the presentations by the finalists from the Abstract phase. The winner of each division will attend the International Competition at the 2020 ATCE in Denver Colorado.

We are currently seeking a minimum of nine judges (three in each division) to meet the minimum requirements needed to run the program. (Total number of judges required may change)

Competition Moderator: [Apply Here](#)

As the Moderator, you are in control of the room. The main duties of the moderator are to ensure that judges follow their instructions, competition runs on time, and that audience members are respectful.

The role of the Moderator is open to both Professional and Student Members of SPE.

We are currently looking to fill three (3) moderator roles for the Rocky Mountain North America Competition, which will be held on Saturday 18 April 2020, at the Colorado School of Mines, in Golden Colorado. (Total number of moderators required may change)

If you are interested in volunteering this year, please contact Blaine Horner at bhorner@spe.org

2020 DISTINGUISHED LECTURER SELECTION - MEMBER SURVEY!

It's time to select our Distinguished Lecturers (DL) for the next SPE season!

The Distinguished Lecturer Program is one of SPE's most popular programs. Each season 30 to 35 experts from the oil and gas industry are selected to share their knowledge on the latest technologies and trends with SPE members.

The purpose of the program is to provide SPE sections with outstanding speakers for section meetings and to recognize the professional contributions of the selected Distinguished Lecturers. The program promotes SPE's mission to collect, disseminate, and exchange technical knowledge.

Please fill out the survey [HERE](#) to help us select who we'd like to host at our General Meetings next season.

SPE AWARD NOMINATIONS

SPE Awards recognize expertise and contributions to the upstream oil and gas industry with awards at the regional and international levels for:

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

Honor one or more of your colleagues in a category above, if they have been:

- Reliable (supportive in problem-solving)
- Inquiring (pertinent and challenging questions)
- Studious (researches for the Best Available Solution)
- Thorough (considers all aspects of the problem and solution)
- Open (open to new ideas and cutting-edge technology)
- Progressive (push the advancement of their own, and other's, knowledge, skill, technical ability)
- Admirable (worthy of honoring for any one or several of the traits above)

Nominate directly [HERE](#).

or email barbganong@gmail.com or Justin.Knappe@gmail.com with your nominee's Name, Employer, Department/Title, and award category

PARTNER EVENT — Colorado School of Mines SPE Student Chapter Events

Colorado School of Mines SPE student chapter has partnered with the SPE Denver Section for "SPE Joint Session"

Mr. Darcy Spady, 2018 SPE President.

📍 Friedhoff Hall, Green Center, Colorado School of Mines Campus.

📅 Tuesday, April 14, 2020 | 6:00 PM - 9:00 PM

[Register Now](#)

Biography: Darcy Spady, the 2018 SPE president, is the first Canadian to have been elected to this position. Spady, who is managing director at Carbon Connect International, has been an active SPE member since graduating from university. Most recently, he served on the SPE International Board as regional director for Canada. Spady has held officer positions in the Calgary, Illinois Basin, and Appalachian sections. In 2012, he won a Regional Service Award for his work in the Canada region. Spady has an extensive background in the natural gas, oil, and heavy oil segments of the industry, having worked a decade for Schlumberger across North America in its wireline and pressure pumping segments, as well as with Columbia Natural Resources/Triana Energy group in the Appalachians, and Atlantic Canada. He has also served as CEO of Calgary-based Contact Exploration and more recently as head of sales for Sanjel Corporation. He is an active independent director, serving as board chairman for Green Imaging Technologies, Crestwynd Exploration, and as a board member of MNP Petroleum. He previously served on the boards of Edge Resources, Contact Exploration, Guildhall Minerals, and Poplar Point Exploration. Spady holds a BS degree in petroleum engineering from the University of Alberta.

If you have any questions, please contact Deep Joshi at deepjoshi@mymail.mines.edu or Tugce Calisga at tcalisga@mymail.mines.edu



Colorado School of Mines
SPE Student Chapter

Thanks for your support!



CSM SPE ANNUAL CLAYSHOOT



Save the date!
Thursday, April 16th at Kiowa Creek Sporting Club
1:30-5:00
Lunch Provided
Bring your own gun and ammo, rentals available
Contact geroose@me.com for more information

Join the Colorado School of Mines SPE chapter in their annual clay shoots at Kiowa Creek Sporting Club in Bennett, CO on April 16th, 2020!

The main shooting event begins at 1:30 pm and ends at 5:00 pm. There are opportunities to play in student-industry hybrid groups to network and build industry connections.

For more information contact GE Roose at groose@mymail.mines.edu

PARTNER EVENT



URTEC is coming to Denver on April 16th, 2020 for a 1-day workshop event.

Find out more information at URTeC.org/workshops/denver2020

If you are interested in volunteering on the event please contact Susan Nash with AAPG snash@aapg.org

Society of Petroleum Engineers - Denver Section

Americas	Asia Pacific	Europe	Middle East
222 Palisades Creek Dr. Richardson, TX 75080-2040 USA	Level 35, Gardens South Tower Mid Valley City, Lingkaran Syed Putra 59200 Kuala Lumpur, Malaysia	1st Floor, Threeways House 40/44 Clipstone Street London W1W 5DW UK	Fortune Towers, 31st Floor Offices 3101/2, JLT Area P.O. Box 215959, Dubai, UAE

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