

SOCIETY OF PETROLEUM ENGINEERS

Wyoming Petroleum Section
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Section Website For Latest News:
<http://wyoming.spe.org/>

2017-2018 Wyoming Petroleum Section				
Section Chairman	Dave Chase	BLM	261-7685	dchase@blm.gov
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UPCOMING AREA MEETINGS

WYOMING GEOLOGICAL ASSOCIATION – All meetings at the Black Gold Grille (see Calendar Page). Lunch Buffet served from 11:15 to 12:00 at a cost of \$13.00. Contact the WGA office at 237-0027 for more information or to make reservations.

April 7, 2017 : Quin Miller – University of Wyoming – Exploring pore network evolution with neutron scattering

April 14, 2017 : NO MEETING – GOOD FRIDAY

April 21, 2017: Cynthia Blankenship – BP (retired) – Deepwater Horizon – An insider's perspective on a deadly \$60 Billion tragedy

April 27, 2017: Randi Martinsen (SPE) – University of Wyoming – Petroleum is first found... the path to the economic development of U.S. shale gas and tight reservoirs

UPCOMING MONTHLY PRESENTATIONS FOR THE SPE WYOMING PETROLEUM SECTION

April 27, 2017: Randi Martinsen – University of Wyoming

May 19, 2017: Wyatt Adams – Devon Energy





Society of Petroleum Engineers



Wyoming Petroleum Section April 2017 Newsletter <http://wyoming.spe.org/>



When: Thursday, April 27, 2017
Where: Black Gold Grille
Time: 11:15 AM (\$13.00 for buffet lunch)

Please notify Dave Chase at 261-7685 by noon on Wednesday, April 26, 2017 if you plan to attend. Please utilize this service so that we can give the Black Gold Grill an accurate headcount.

Event: Randi Martinsen, University of Wyoming – Petroleum is first found...the path to the economic development of U.S. shale gas and tight oil resources



Biography:

Randi Martinsen is a certified petroleum geologist with 40+ years experience (domestic and international) working in industry, consulting and teaching. She started her career as an exploration and production geologist with Cities Service Company, Denver, CO. In 1979 she became a consultant and moved to Laramie, Wyoming and shortly after joined the faculty of Geology and Geophysics at the University of Wyoming (UW) where for 33 years she has taught courses in petroleum geology and engineering, clastic depositional systems, sequence stratigraphy, reservoir characterization and physical geology and conducted research. Her research at UW focused on developing and improving geologic models useful for exploration and production from stratigraphic traps, and she has numerous publications in this area.

Throughout her academic career, she continued to consult with industry by providing professional training, basin analysis and reservoir characterization studies, and expert witness testimony. Recently, she formed Hydrocarbon InSight, LLC, to better manage her consulting activities as she transitions to retiring from UW and back to more full-time consulting and converting her years of research at UW into developing oil and gas prospects. She is a Past-President of the American Association of Petroleum Geologists (AAPG), the world's largest international geological professional association and a recipient of WGA's Frank A. Morgan award.



Abstract:

Once George Mitchell cracked the problem of economically extracting gas from the Barnett shale the news traveled fast and almost overnight the shale gas revolution was born. However, the path leading up to that achievement was long and tortuous.

Natural gas was first extracted from shale in 1821 in Fredonia N.Y. Hydraulic fracturing was first used to extract gas from limestone in 1947. In the early 1970's the U.S. government initiated the Eastern Gas Shale Gas Project to better assess gas resources. It also funded developing drilling and completion technologies in the areas of horizontal drilling, massive hydraulic fracturing and micro-seismic. Mitchell took advantage of tax incentives and these developing drilling and completion technologies as he pursued economically extracting gas from the Barnett. It took him 17 years however to officially drill and economic well. Over the course of those 17 years Mitchell Energy collected log and core data by deepening existing shallow productive wells. They developed data driven models that went against conventional wisdoms regarding producing gas from shale such as all shales were water sensitive and shale needed to be naturally fractured to produce.

There is no resource play magic. Resource plays like conventional plays, require a mature source, a reservoir with porosity and at least some permeability a seal and a trap. HC viscosity plays an important role. However there is much geoscience that needs to be done to better understand the pore systems of shales and their vertical and lateral variability. Geology is essential to drilling economically successful wells.

Quickly after Mitchell Energy made their breakthrough operators started applying similar technologies to drilling and completing oil wells in shales and very low permeability siltstones and sandstones. One of the most successful was the unlocking of the Bakken. However, like the Barnett, it did not happen overnight as operators had been drilling and completing wells in the Bakken since the 1950's. The most prolific Bakken fields have strong geologic controls.

As long as we have new ideas and as long as there is an explorationist who believes there is an oil or gas well that should be drilled we will develop the technology to do it.





CALENDAR OF EVENTS and NEWS WYOMING PETROLEUM SECTION



Due to our excellent participation in past continuing education events, we will continue to offer these as they become available. Our new web address is <http://wyoming.spe.org>

Upcoming Meeting of SPEE, Tuesday, April 18th 2017 10:00 AM to 1:00 PM; Crawford Equation and Rectangular Drainage Calculations – if interested contact Rick Vine or Amy Sale at (307)234-3571 or Leo Giangiacommo at (307)224-5021



We appreciate your patience as we move meeting locations, which will now be held at the Black Gold Grill

**BLACK GOLD GRILLE
1650 ENGLISH AVENUE
CASPER**



Scholarship Applications have been mailed and are available on website



****Members - Please Phone in Reservations for Meetings ****

Dave Chase is taking phone reservations for meetings at 261-7685. Please take a little extra time and utilize this service so that an accurate headcount can be given to the venue for their meal preparation. This also helps us to get scheduled into a meeting room that is adequately sized for our meetings. Your help in this matter is greatly appreciated



Northern Rockies Chapter of SPEE – Meeting Announcement

PROGRAM: Mike Borah, P.E. – Borah-Borah Petroleum Engineering – Crawford Equation Utilization

Bonnie Percy, P.E. – Gene R. George & Associates – Rectangular Method Drainage Area Calculation

Date: Tuesday, April 18, 2017. 10:00 am to 1:00 pm. Two-hour Technical Presentation followed by lunch.

Registration: Registration will start at 9:30 am with coffee, beverages and light snacks.

Location: 777 Overland Trail, Suite 220, Casper, WY. This meeting will be video conferenced to select locations.

Cost: \$30.00/person including lunch. \$20.00/person for video conference w/o lunch. Pre-registration is required as seating is limited to 35 persons. Deadline for pre-registration is Tuesday, April 11, 2017 at 5:00 pm. Lunch will be catered by HQ BBQ and will include ribs, brisket, chicken and various sides. Membership in SPEE is not required to attend this meeting. The meeting is being held in conjunction with SPE and WGA.

Continuing Education Credit: 2.0 hours continuing education credit for attendees.

Contact: Rick Vine 307-234-3571 (office) or 307-752-0701 (cell) or rick@allenandcrouch.com

Leo Giangiacomo 307-224-5021 (office) or 307-259-1496 (cell) or leo@extremepetrotech.com.

Bio of Bonnie S. Percy, PE

Bonnie Percy is a graduate of Texas A&M University and has over 30 years' experience as a Reservoir Engineer. She is a Registered Professional Engineer in Texas and Wyoming and joined SPEE in 2015. She is currently with Gene R. George & Associates and has been employed by Sun Exploration and Production, Oryx, and Cameco Resources. Significant projects have included reservoir characterization, pressure transient analysis, decline analysis, reservoir simulation, feasibility, and economics for conventional and unconventional reservoirs. She has testified as an expert witness before oil and gas regulatory bodies in Wyoming, New Mexico, Colorado, Montana, North Dakota, and Michigan for cases involving drilling and spacing units, increased density, secondary units, commingling, and disposal wells.

Bio of Michael T. Borah, P.E.

Michael T. Borah is a registered PE in Wyoming with over 43 years of experience in the oil & gas industry. During the summers of college, he roughnecked in the hot panhandle of Texas for Baker & Taylor Drilling and the cold plains of Wyoming for Brinkerhoff Signal Drilling. He finally graduated from the Colorado School of Mines in 1975 and realized how fortunate he was to still have all of his fingers.

Mr. Borah took a job with Conoco in the Casper Division office as an Associate Engineer. He worked for Conoco for almost 20 years, reaching the ultimate position of Senior Staff Engineer. He worked various areas throughout the Rockies, including the Douglas Creek Arch of NW CO, the Uinta Basin of UT, the Powder River, Green River & Big Horn Basins of WY, and the Williston Basin of ND. Many projects were multi-well development programs with a few exploratory dry-holes thrown in for good measure. A number of these projects were accomplished with Mr. Borah as the Team Leader, which meant that many meetings were held where the minutes were kept but the hours were lost. Most of these assignments involved drilling & completion practices as Conoco developed numerous fields in these areas.

Fracture stimulation was a key component of most of his assignments. As a result, Mr. Borah was ultimately allowed to teach in-house schools on fracture stimulation, acidizing, perforating, cementing & other completion practices. Many of the schools were one-week sessions where he was part of a larger teaching staff based out of Conoco's main office in Houston TX. It was his great honor to know & work with these true industry experts.

Mr. Borah began his consulting career in 1994 when Conoco sold all of their Rockies properties & eliminated his job. The decision to consult was easy: stay in beautiful Wyoming & work as a consultant (another word for "unemployed"), or move with Conoco to Midland TX & be laid off there. Most of his work these days involves hearings before the WOGCC.

Mr. Borah will make a presentation on the use of the Crawford equation to calculate the effective propped frac length for stimulations on horizontal wells. He will begin with a few elements on "Frac 101", then explain the use of the Crawford equation, followed by a few observations made on his analyses of various horizontal wells with a focus on the Frontier, Sussex & Niobrara. He will provide hard copies of all materials, including pertinent spreadsheets & a few decline curves, to assist class participants in their future endeavors.