



Newsletter

Oilfield Waste Water Recycling Technology

Bear Creek Services, LLC will be sponsoring our March presentation. The monthly meeting will be held Thursday, March 25th, at The Faulkner County Natural Resource Center, 110 S. Amity Road, Conway, at 11:30 a.m. The topic we will discuss is the technology that goes into the



Pit water before (left) & after (right) Bear Creek Services' process of FO water reclamation.

making of high quality frac water out of oilfield waste. The following is an SPE abstract white paper, provided by Bear Creek Services, LLC, on this topic:

Fresh water and affordable energy are two of the most valuable resources on the planet for sustaining economic growth & development. As the demand for oil and gas increases, the consumption of fresh water by exploration and production activities is skyrocketing. Competition for fresh water is becoming an industry-limiting factor in some areas. To ensure that the fresh water needed by the oil and gas industry is available in the future, better water resource management practices must [be] implemented.

Currently, the drilling, completion, and stimulation of EACH horizontal shale well consumes up to 10 million gallons of fresh water, roughly equal to daily water usage of 144,000 people. Once this fresh water is used, it typically becomes oilfield waste and is disposed of into reservoirs below the fresh water table, permanently removing it from the fresh water cycle. Reusing the water is desirable but presents technical problems of water quality.

To address these problems, a forward osmosis (FO) water reclamation process has been adapted for the oil and gas industry. The first generation of the process reclaims drilling waste water by converting it into high quality base fluid for hydraulic fracturing. In contrast to other water treatment systems, like reverse osmosis and evaporation, FO is a unique nano-filtration technology that harnesses the chemical energy in water-based solution as the drive mechanism, thus making the technology extremely "green" and cost competitive. Unlike simple filtration to remove solids, this process removes

virtually all solids and solutes from the reclaimed water, thus yielding water that will not react adversely with fracturing chemicals or the reservoir.

The technology utilized in the process will be discussed. Results of laboratory testing, field trials, and early commercial jobs will be presented. Also discussed will be future generations of the process that are currently under development.

According to their website, Bear Creek Services has a patent pending on their "Green Machine" technology. With approximately two percent of the Earth's water labeled as "fresh" water, ideas and processes to use less in this industry certainly deserves our attention. Upstream and downstream issues and solutions associated with E&P will be discussed in detail. For more information on Bear Creek Services, and their water recycling program, visit their website at: www.bearcreekservices.net.

There is no cost to attend our March meeting so please join us for our discussion, and as always, your guests and co-workers are welcome as well. Send an RSVP, no later than March 23rd, to Michelle at MWhillock@CUDD.com with the number of people preparing to attend, so that we can ensure a seat and a plate for everyone.

Meet our March speaker: Dr. Nathan Hutchings

Dr. Nathan Hutchings, President and Chief Operating Officer of Bear Creek Services, LLC, will be our presenter for the March meeting. His background allows him to fit well into the energy industry. A firm chemistry foundation was laid early in his life while attending high school. Nate's passion for aquaporins and ions grew in college. He earned his B.S. in Biology and Chemistry from Eureka College, in Illinois. While working on his degree, he also received training in the Ronald Reagan Leadership Program.

He chose to attend the University of Iowa (Iowa City, Iowa) to work on his doctoral. Dr. Hutchings conducted Post-doctoral research in Cell & Structural Biology at the University of Illinois (Urbana-Champaign).

As his dedication to biology and chemistry continued, so did his desire to share his knowledge. His educational profession includes:

- Assistant Professor of Biology and Co-director of the Interdisciplinary Experimentation and Scholarship (IDEAS) Program at Northwestern State University (Natchitoches, Louisiana).
- Chair and Associate Professor of the Department of Biological Sciences at Louisiana State University in Shreveport.

Then the opportunity presented itself to apply his theoretical knowledge in the field. He joined Bear Creek Environmental Systems in December 2007 as part of their management team. In just a year and two months later he was named President and COO.



Dr. Nathan Hutchings, President & COO of Bear Creek Services, LLC.

Nate credits his success to mentors who played such an important role in all aspects of his life. He said mentors helped mold his decisions in high school, college, and career. Dr. Hutchings recalls fond memories in different phases of his professional and spiritual career, where many counselors and advisors helped him meet his goals.

One would think that the successful doctor has accomplished many of the aspirations he set out to do. While this maybe true, his new leadership role at Bear Creek has given him new direction and more goals to set. Global positioning is Bear Creeks' new target under Nate's management.

The COO does have a life outside of the oil patch. His wife of fourteen years and children are his grounding mechanisms. His other hobbies include hunting, fishing, golfing and boating around the lake with his family.

Featured SPE Study Group Member: Jim Briscoe

SPE Central Arkansas Study Group member Jim Briscoe is a great example of the unique American value, which with hard work, dedication, and perseverance; success will surely follow.



**Jim Briscoe, CESI Chemical
Sales Account Manager**

As a veteran of the petroleum industry, a member of SPE for 29 years and the American Chemical Society for 45 years, Jim not only finds professional fulfillment as the Arkansas Sales Account Manager for CESI Chemical, but he enjoys meeting new faces as well as renewing old friendships.

"Its interesting how to see how the industry has changed and where people end up after moving from one company to another. In my early days, people just found a good company and stayed with it for many years or an entire career," said Jim. When asked what he enjoys about his work, Mr. Briscoe said he enjoys finding out what operators and service companies need in the way of chemicals and working with them and CESI personnel to provide better, more environmentally acceptable solutions to a rapidly changing market. Jim continued that a more "green" solution sometimes costs slightly more at first but it can be a more cost effective solution overall because of the cost savings in other areas.

"Many times chemical incompatibility issues are responsible for less than optimum results and these issues can be resolved with more knowledgeable selections," said the experienced chemical industry manager. Jim said much of his career has been focused on compatibility and incompatibility issues for petroleum industry chemical applications.

With his son's family located in the Oklahoma City area and his daughter and her family located in the St. Louis area, Jim and his wife are perfectly situated with a home in northwestern Arkansas on Beaver Lake. Of his children and grandchildren, Jim quickly said, "They are the best."

Beaver Lake not only puts the Jim and his wife equal distant between their children and six grand children, but it put Jim closes to one of his favorites past times . . . fishing. However, Jim's past times don't stop with fishing; he also enjoys photography and music. When it comes to music, Jim plays trombone in a six-member jazz band. "We play Dixieland, swing, and big band music for fun and for free. You get what you pay for on that!" said Jim.

As a young man pursuing a bachelor's degree in chemistry with math and physics at Central State University near Oklahoma City, Jim hoped to work for DuPont Chemical. However, upon graduation, Jim joined the US Air Force and became a project manager at a USAF Research Center. Following the Air Force, Jim finally went to work for DuPont.

From there, Jim began a 25 year stint with Halliburton as a research chemist. While in R&D, he worked on fracturing chemicals including surfactants, gels, friction reducers, biocides, foamers, breakers, emulsifiers, emulsion preventers, carbon dioxide and other petroleum industry chemicals. It was during this time that Jim learned a lot about cementing, acidizing, well stimulations, and other chemical based services. From research chemist, Jim moved to positions in sales, marketing, planning, pricing, and new product commercialization before entering consulting and his current career with CESI Chemical.

Like many of us in the petroleum industry, Jim owes much of his success in his career to mentors who helped him along the way. "One (mentor) that stands out is my physical chemistry professor, who recommended the oil field services company that I joined. I was looking at a career with IBM or another major chemical company when he took an interest in me and made a call on my behalf to the VP of R&D at that company. That definitely influenced my career," said Jim. He continued as a chemist in a sea of engineers, he had to learn about engineering on the job. However, Jim said that it was "fun being the chemical guy."

Concerning the future, Jim said, "I would like to continue what I am doing for another 5 to 10 years or as long as my health permits. I enjoy the challenges and the time with my customers."

If you would like to contact Jim, he can be reached at jbriscoe@cesichem.com.

Meet SPE Student Member: Glen Henke

Glen is presently on a much needed Spring Break this week. This is his last semester. He graduates in May from the University of Arkansas Community College at Morrilton with an Associate of Applied Science Degree in Petroleum Technology. But this will not be his first degree. Mr. Henke obtained his B.S. from Arkansas Tech University in Russellville, where he double-majored in Chemistry AND Biology.

Glen was the EHS Director and Purchasing Manager with a local company. Unfortunately, like so many other companies, they moved part of the business to Mexico. Glen lost his job.

With the natural gas industry growing in Arkansas, the newly



**Glen Henke, SPE Student Member,
2010 May Graduate**

unemployed father of two, decided to re-educate himself at UACCM. He states, "Since my gen ed classes transferred to UACCM, I was able to finish this Associates degree in one year (graduate this May) instead of two." With his Bachelor and the new Associate degree, Glen hopes to improve his petroleum job opportunities in the production side of the industry. "...but I am very open minded and will consider anything....even moving out of the state if a good opportunity arises", he declares.

When he is not studying for Mr. Walsmith's test, he is probably restoring old cars, or even old machinery. He tells us, "I have my own little machine shop at home and like to fix the parts needed myself or restore the old ones... if it's broken, I get satisfaction in making it work again. Of course, living in Arkansas, I love the outdoors...four wheeler riding, camping, that sort of stuff".

Born a native Arkansan from Russellville, he currently lives in Atkins with his children, Rylie and Josh.

Good luck, Glen, with your new degree. Have fun on Spring Break because final exams are just around the corner.

If you would like more information about Glen, (maybe to allow him to become an asset to your company), he can be reached at: gdhenke@gmail.com.

Meet SPE Student Member: Maegan Loveland

Maegan is also on a much needed Spring Break this week. However, when she is not in class (which would be rare because she is taking a whopping 17 credit hours), she is working hard at her job at a local store.



Maegan Loveland, SPE Student Member, 2010 May Graduate

Maegan was born and raised in Arkansas. Her interest in this specific field of study is not a coincidence. She has strong personal ties. She tells us, "I have several friends that work in the Petroleum Industry including my father who works for Southwestern Energy".

After graduating with her Associate of Applied Science degree in Petroleum Technology this May, Ms. Loveland plans to continue her education and seek her Bachelor of Applied Science degree at the University of Arkansas at Fort Smith beginning with this Fall semester. She would like to concentrate on the safety aspect in the petroleum field.

When she is not studying her mathematical calculations for her Artificial Lift class or Well Control class, she enjoys watching local bands perform and hanging out with her friends.

Congratulations, Maegan, upon your anticipated graduation in May, and good luck in the petroleum industry and continuing your education. For more information about Megan, feel free to contact her at Maegan.Loveland@uaccm.edu.

About our luncheon sponsor: Bear Creek Services, LLC



BEAR CREEK SERVICES, LLC

Your Trusted Advisors

www.bearcreekservices.net

Bear Creek Services, LLC is providing lunch for all members and guests which attend this month's meeting. It will be catered by the Due Amici Italian Restaurant in Conway. Bear Creek began operating in 2001 as *Bear Creek Environmental Systems, LLC* with a small fleet of vacuum trucks and an SWD facility in Bryceland, located in north-central Louisiana. It continued to grow by offering E&P companies excellent service, fair pricing, and a genuine concern for the outcome of their client's projects.

- In 2005, environmental consulting was added to their list of services.
- In 2006, Bear Creek Engineering became a new family member through a merger with McGinnis Industries. Professional Engineer, *Bob McGinnis*, unites with Bear Creek Environmental Systems, LLC. His current position is Executive Vice President of Engineering. *Mr. Wally Hay* accepts Bear Creek's offer to become their Safety & Compliance Manger, his current position is Safety & Loss Prevention Manager.
- In 2007, *Dr. Nathan Hutchings* joined Bear Creek as the Assistant Operations Manager.
- In 2008, they renamed their company *Bear Creek Services, LLC* to reflect the diversity of the new leadership structure that was created and the new services which came with the new leadership. These changes were deemed necessary to support the growing demands of oil and gas industry: *Dr Xingwen Chen* expertise in the field of GIS services was an invaluable addition to the company. Also, *Scott Wilhite* joined the Bear Creek family as an Environmental Specialist and Business Development Manger. He is currently Vice President in charge of Business Development. Last but not least, Bear Creek lured *Mr. Ronnie Humphrey* from the Westinghouse Corporation. He is Vice President of Fluid Management.
- In 2009, *Dr. Hutchings* became President and Chief Operating Officer.

If you have the opportunity to attend the meeting, please express your gratitude to a Bear Creek representative for being our lunch sponsor.

About our meeting sponsor: Southwestern Energy

Southwestern Energy is a platinum sponsor of our SPE Study Group. Their success strategy is built on the formula: The *Right People* doing the *Right Things*, wisely investing in the cash flow from the underlying *Assets* will create *Value*.

$$\frac{R^2}{A} \rightarrow V^+$$

Their solid presence in Arkansas helps meet our nation's energy demands. The companies' future focus of improving performance in the Fayetteville Shale wells is by drilling longer laterals, slick-water completions and larger frac jobs. They project that 98% of the 2010 planned wells will have the benefit of 3-D seismic compared to 70% in 2008.

More information about Southwestern Energy's "Forward-Looking Statement" can be found on their website: www.swn.com/investors/LIP/latestinvestorpresentation.pdf. Their sponsorship for our venue is greatly appreciated.

SPE CENTRAL ARKANSAS STUDY GROUP OFFICERS LEND SUPPORT UACCM's APPLICATION FOR AN SPE STUDENT CHAPTER

SPE Central Arkansas Study Group Officers voted unanimously on Wednesday, March 17th to support the University of Arkansas Community College at Morrilton's (UACCM) application with the Society of Petroleum Engineers for an SPE student chapter. Petroleum studies at UACCM began in 2006 with establishment of an Associate of Applied Science Degree in Petroleum Technology. UACCM has had students who were members of SPE since 2008.

Today, UACCM has the largest associate degree program in Petroleum studies in the United States with nearly 200 students from across Arkansas as well as students who have relocated from other states including OK, TX, LA, AL, GA, and OH. The college offers studies in production, gas management, services operations, well control and drilling as well as safety and environment. Persons studying petroleum at UACCM include traditional students recently graduated from high school, non-traditional students ages 25 and older, male and female students, as well as persons from industry. Some UACCM petroleum students have previous bachelor degrees in engineering, chemistry, and management. UACCM petroleum graduates are employed by operation companies, services companies, and by consulting companies.

Announcements:

Election: Its' time for nominations, and the election, of new SPE Central Arkansas Study Group Officers for 2010-2011. If you are interested in becoming an officer, or you know someone who would make a great officer, submit the following information by April 30th, to our Chairperson, Ron Walsmith at Walsmith@uaccm.edu:

- Name.
- Desired position.
- How would you be an asset in your role as an officer to the group?

Meeting: Our April meeting will be held on Thursday, the 15th (tax day), at The Faulkner County Natural Resource Center, 110 S. Amity Rd, in Conway. The topic will be: *Practical Modeling of the Scaling Properties of Oil Field Brines*, presented by Robert J. Ferguson, President of French Creek Software.

News articles: If you have information of interest to share with our Study Group, send an e-mail to the Newsletter Editor with items of consideration at dgentry@awac-llc.com. Also, check out our website for additional news and updates at <http://www.arkansas-spe.org/central/index.html>.

Casting for a Cause: Attention Fishermen and Fisherwomen! The Fayetteville Shale Scholarship Fund is having a Bass tournament on April 23rd and 24th at Devil's Fork on Greer's Ferry Lake. They need teams and sponsors. The money raised goes toward scholarships available for petroleum students enrolled in the University of Arkansas Community College at Morrilton. Below is a copy of the Sponsorship/Donation Form. Attached with this newsletter is a copy of the brochure of the fishing tournament. Registration forms must be received no later than April 1, 2010. Thank you to all who donate/participate and good luck. Have fun!

SPONSORSHIP / DONATION FORM

Fayetteville Shale Scholarship Fund Fishing Tournament

My Contact Information

Name / Business _____

Mailing Address: _____

City _____ AR _____ Zip _____

Phone #'s: _____

Email Address: _____

Donation Information:

I will be a sponsor at the level indicated below.

Diamond Sponsor - \$1000

Platinum Sponsor - \$500

Gold Sponsor - \$300

Goods Donation - Please list what you would like to donate.

Please mail this form including sponsorship check payable to:

Fayetteville Shale Scholarship Fund

Fishing Tourn.

PO Box 11109

Conway AR 72034