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PETROLEUM ENGINEERING NEWSLETTER

THOUGHTS FROM RAMONA M. GRAVES

Dr. Ramona M. Graves

Fall semester 2009 begins in less than a week! Where did the summer "break" go? I decided it is time for me to visit our field sessions, so in May I attended the PEGN 315 Sophomore Field Session Alumni Party in Bakersfield. Good food, good fun, great to see alums in that part of the world. Lonnie Kerley is a great chef, but not so good at giving me directions. I was only a little lost. I look forward to visiting other groups next summer.

In June the real travel began. First I attended the EAGE in Amsterdam where I presented a paper on "Compressed Air Energy Storage".

PE STATISTICS FOR 08-09
New Research Contracts $2.5 MM

GRADUATES

PhD	1
MS/ME	19
BS	108
Placement as of May (%)	80

CURRENT ENROLLMENT

PhD	29
MS/ME	43
Seniors	100
Juniors	125

*Sophomore/Freshmen - do not declare until Spring Semester

One of my graduate students, Jessica Neumiller, now with Schlumberger, did a thesis on how using petroleum engineering technology we can store the energy generated by wind turbines and produce it when needed. See President/Professor Scoggins' article on CSM's energy focus and Dr. Bourgoyne's article on the new Energy Minor. The PE Department is making real strides in letting industry and the campus know how much of our technology can be used in renewable and alternative energy sources.

Next, after two days home, I was off to Arkansas to teach a week long integrated reservoir characterization class with Dr. Roger Slatt from the OU Geology Department. Some of you may remember him as the former Department Head of CSM's Geology and Geological Engineering Department. Roger is great to work with and teaching integration in the field setting is just the best! There is a quarry outside of Little Rock where we saw 7 different reservoir types. The focus of the class is going from different scales of data (core, logs, outcrop) – to a static model (Petrel) – to a dynamic flow model (Eclipse). What a fun class to teach!

The final summer journey which lasted into mid-July was to Kazakhstan. After one day at home Dr. John Humphrey, current CSM Geology and Geological Engineering Department Head and I, left for what turned out to be the adventure of my life. Recall from last year's newsletter that John and I were actively involved in Chevron's University Partnership Program (UPP). We agreed to work with Kazakhstan National Technical University in Almaty to help some of their departments become ABET accredited. We also wanted to show them how we teach integration at Mines. When we were in Almaty in May discussing how best to integrate, not only knowledge and disciplines, but also people, John said …. with gusto …. GEOLOGY FIELD TRIP! During that visit we were able to work out the details for a week long field trip on the steppes of Kazakhstan, gain Chevron's support


Dr. Graves attempting to play the Kazakhstan National Instrument-the Dombra.

(both monetary and logistics) and gain permission from the Kazak government to take 10 CSM students and us into the Kazakhstan outback. To cut to the end, it was one of the most amazing things I have ever done. We tent camped with 10 CSM students (5 GE, 3 PE, 2GP), 5 KazNTU professors, 13 KazNTU students (8 GE, 5 PE), 5 security people provided by Chevron, 1 doctor, and 5 camp cooks. Regarding the food, it would be ok with me if I never ate buckwheat or goat's head again. To put it into perspective, one of our PE students, Nikita Kazakov, who had just been TAing at Massadona, said "Massadona is Club Med!" Next year we plan on reciprocating with a field trip to show the geology of the west and various US oil and gas production operations.

Our showers in Kazakhstan. Mark-are they better than Massadona?

Two days after I got home we started PE SuperSchool which lasted until the end of July. So finally during the first three weeks of August I stayed close to home and had a relatively normal, uneventful schedule.

Oh - except on August 17th the new Provost, Dr. Steve Castillo, announced that I had been selected and that I had accepted the position of Petroleum Engineering Department Head. Most of you are not in academics so it is difficult to understand what a serious, onerous process it is to select a new DH. It may have taken two years but the great candidates made the process interesting. All of us candidates have our strengths and weaknesses, but I am confident the correct decision was made. With the continued support of the PE faculty and staff, the administration, and our alums, I know the department will continue to prosper. Thanks to the many of you who offered your support.

As you read the newsletter you will see what exciting opportunities the faculty are pursuing. However, there were a few honors and awards this year that some of them forgot to mention. In October, Jennifer was awarded the ConocoPhillips Outstanding Faculty Award. There were only 16 awarded worldwide but what makes it really special is that ConocoPhillips employees (former students) voted on the award.

Both Jennifer and Hossein were selected as finalists for SPE Distinguished Lecturers for 2010-11. They will be on tour lecturing about the exciting research we are doing in the department in stimulation and simulation (you decide which topic each will be talking about). According to Dr. Jim Crafton, Chair of the SPE Distinguished Lecture Series, we are the only PE department in the world to have two of our faculty selected. Thanks Jennifer and Hossein for being our ambassadors!! In June, both Erdal and I were selected as SPE Distinguished Members. What an honor! Distinguished Members are limited to 1% of the entire SPE membership. We are joining a truly distinguished group which already includes both Craig and Hossein.

Ramona Graves and John Humphrey very confident before the trip started.

I think I would be remiss if I didn't mention our finances. Thanks largely due to the continued support of you and your companies; the PE Department is in relatively good shape to start the next fiscal year. Keep the donations coming so we can continue all the great programs you will read about in this newsletter!

And finally, an update on the status of Marquez Hall. I would like to quote President Scoggins because that is the most current and factual information I have:

> "Thanks to your support for Colorado School of Mines' new petroleum engineering building, Marquez Hall, we have raised $24.5 million in commitments for the facility. I am encouraged that we continue to attract such strong support amid turbulent economic times. Mines remains a top philanthropic priority for both individuals and corporations because of the essential contributions our graduates and faculty make to the world's most critical industries and initiatives…… Pledges with multi-year payment schedules make up a sizeable portion of the financial commitments our partners have made toward Marquez Hall. Initially we had planned for

The International-Integrated-CSM-KAZNTU team.

the Colorado School of Mines Foundation to finance the unpaid portion of the project cost to allow construction to begin this summer, prior to fulfillment of all pledges. Considering the current economic uncertainty and the constraints that this downturn has placed on the CSM Foundation, we have decided to postpone groundbreaking until a greater portion of pledge payments have been made."

Marquez Hall continues to be a top priority and we in the PE department are looking forward to ground breaking on our new home.

I have now missed by own deadline to turn in our articles so I will stop. I am so looking forward to starting a new year as your Department Head. I encourage your comments, suggestion, or just an email update on your own adventures!

Jennifer's recognition also included a "big" check!

PETROLEUM ENGINEERING

RESEARCH PROFESSOR & CSM PRESIDENT, M.W. SCOGGINS


Dr. M.W. Scoggins

It has always seemed to me that the best organizations are the ones that are most responsive to change -- and I am very excited about the way in which we are positioning Mines and the Petroleum Engineering Department for the future during this era of tremendous change.

The current economic downturn and volatility in oil and gas prices have certainly presented many challenges for the oil and gas industry and for Colorado School of Mines. While our graduates are undoubtedly concerned about the potential impact on their careers, I believe they can look forward to strong career opportunities as the economy recovers. Given population growth and global economic development, we know that there will be increasing demand for energy, and that extractive resources will remain the major energy resource while technology breakthroughs are sought to spur growth in the renewables arena.

Mines, with its international stature and fundamental expertise in earth, energy and environmental disciplines, is perfectly positioned to develop transformative solutions to the challenges brought on by increasing demands on our natural resources. Interdisciplinary programs, such as the new Unconventional Natural Gas Institute (UNGI) hold great promise for addressing the need for new energy sources. The Institute, which will conduct upstream natural gas research, will be led by Dr. Jennifer Miskimins and includes faculty from petroleum engineering, geology, geophysics and petrophysics.

As we pursue these important interdisciplinary collaborations, the school envisions creating an Earth-Energy Institute to serve as an international convergence point -- attracting leading experts across a breadth of disciplines and drawing upon Mines' robust programs in resource exploration, extraction and processing; renewable energy production and distribution; power distribution systems; environmental impact, mitigation and remediation; and economic and policy analysis. The proposed Earth-Energy Institute will be located in the southeast quadrant of the campus, adjacent to the future Marquez Hall site and CTLM. Construction on Marquez Hall, which was originally planned for this fall, has been somewhat slowed by the economic downturn, We will keep you posted once we have a revised schedule. In the meantime, fundraising for the ambitious Earth-Energy Institute project has already begun.

Looking forward, I am confident that the Petroleum Engineering Department has the right people in place to provide leadership as we educate the next generation of professionals and seek the breakthrough ideas and promising technologies to address the challenges of the earth-energy nexus. In addition to a growing contingent of distinguished faculty, I look forward to working with Dr. Ramona Graves as Head of the Petroleum Engineering Department. I am confident there is an exciting and success-filled future for the department and the School.

LINDA A. BATTALORA


Linda A. Battalora

The 2008-2009 academic year was full of activity and changes in the Department. This year promises to be equally as busy, and we are excited to meet the challenges of educating and graduating top-quality petroleum engineers.

This fall, I will again teach our graduate and undergraduate petroleum engineering seminars as well as a new course in our graduate program, Environmental, Energy & Natural Resources Law. I continue to serve as the Faculty Advisor to the Student Chapter of SPE and as a Board Member of the Denver Section. Our SPE Student Chapter had another great year. We received over $25,000 in undergraduate and graduate scholarships from SPE International and the SPE Denver Section. As the host school for ATCE 2008 in Denver, over 200 of our PE Department undergraduate and graduate students volunteered to assist in the Arrangements, Registration and High School Tours Committees. Additionally, President Scoggins gave the keynote address at the ATCE Student Session to a packed audience. The annual Joint Session Meeting with the Denver Section was a tremendous success. The students hosted a panel discussion regarding the future of the industry based on the current economic situation. Various leaders from industry and government agencies participated on the panel, and we had a very large turn out from the SPE Denver Section as well as from the CSM campus. This Fall, the student chapter will hold a golf tournament in an effort to raise funds for ATCE 2009 in New Orleans and hopefully, ATCE 2010 in Italy!

Selected as the SPE Rocky Mountain Region recipient of the 2008 Faculty Travel Award, I attended the International Petroleum Technology Conference (IPTC) in Kuala Lumpur, Malaysia in December. In addition to experiencing the conference and the Malaysian culture, it was great to see many of our former CSM students at the technical paper sessions and social events.

Last Spring Dr. Mark Miller and I co-taught PEGN 439 Multidisciplinary Engineering along with our colleagues from the Geology and Geophysics Departments. In addition to teaching another section of undergraduate petroleum engineering seminar, I also taught a section of graduate petroleum engineering seminar. Planning for the PEGN 315 California Field Session began in late November. Lab coordinator Al Sami and I traveled with 40 students on the annual petroleum field session in Southern California. With the assistance of Terri Snyder, PE Department Administrative Assistant, Dr. Dwayne Bourgoyne, two of our graduate students, Sirichai Kaewseekhao and Than Nguyen, and our Southern California and Bakersfield alums, the 2009 trip was another great success! (Read more on the PEGN 315 California Field Session in an additional article).

On a personal note, the newest addition to my family is "Rosebud." Now eight months old, she is 12.3 pounds of Boston Terrier brilliance. "Rosebud" has an entirely different personality than my beloved "Lilly" who passed away last July. She listens to me - most of the time - just like my students.

We look forward to seeing many of you at ATCE 2009 in New Orleans in October. We always enjoy seeing you on campus for alumni events and recruiting. Finally, thank you for your continuing support of the Petroleum Engineering Department and Mines!

DWAYNE A. BOURGOYNE


Dr. Dwayne A. Bourgoyne

Greetings, alumni, friends, and supporters of the department. It has now been a full year since I joined CSM as a new assistant professor. Though I am no longer on the front lines of industry, I remain a soldier on the same mission, now training recruits and developing new weapons for the arsenal. Wearing that new hat, I'd like to give a progress report on the crop of new hires being grown for you, update you on my work in the department, and suggest some ideas for keeping our talent pipeline up and running.

A preview of your next new hire

I am happy to report that the students are bright and enthusiastic (and as young) as ever. These motivated young engineers are full of questions and new ideas. "How is it done?" is followed closely by "Why not this way?" Eventually they manage to stump this novice professor, and promptly google the answer on a wireless laptop so they can provide it to me. It's a joy to teach them. They are eager participants in their education and are chomping at the 'bit' to join the industry.

Today's students are still petroleum engineers at heart, but many now think as much about the larger energy picture as they do about oil and gas concerns. They have embraced energy sustainability as a critical problem for their generation, and they want to be part of the solution. They have also observed the shift in the public emphasis from fossil fuels to alternative energy, and are less comfortable with a degree defined narrowly around oil and gas. While the department maintains its focus on the traditional PE skill set, we recognize that today's students need and want exposure to nontraditional applications. Unconventional fossil fuels are increasing in importance and petroleum engineering is being applied to new challenges in alternative energy, such as geothermal drilling and CO2 sequestration.

Tuning the curriculum to the energy mission

The department is responding to this need and is playing a leading role in CSM's mission of 'Earth, Energy and Environment'. Over the last year I was privileged to represent the PE department in the effort to revamp the CSM Energy Minor, and the new program will debut in the spring of next year. The 18-credit Energy Minor addresses the scientific and technical aspects of energy production and use, as well as its broader environmental, economic and social impacts. In the form of the minor most relevant to PE students, they can learn the key technical aspects of fossil, renewable, and nuclear energy sources and compare their environmental, social, and economic costs and benefits. The minor concludes with a capstone course which integrates all of these factors in an exploration of energy policy. PE graduates with this minor will help the industry in assessing and executing alternative energy projects, setting alternative energy corporate strategy, and engaging in the national energy policy debate. Consistent with the dominant role of oil and gas in the world energy portfolio, the PE faculty is providing leadership in the development of the minor, and will be teaching the fossil-related course material.

Capturing new research opportunities

On the research front, the PE department is launching new initiatives in geothermal energy, led by me, and in CO2 capture and sequestration, led by Dr. Xialong Yin (see his article in this newsletter). Among the areas of energy sustainability receiving increased attention and government funding, these two fields overlap the most with the PE skill set. My current emphasis is in geothermal drilling and completions where the challenge is to construct deep directional wells (~20,000 ft TVD) in hard rock at temperatures too high for existing downhole tools and hardware (~300 °C). This is no small challenge, but even if it cannot be achieved, geothermal drilling research will find useful application in the oil and gas sector. The available funding is significant, so I recommend you keep an eye out for opportunities that complement your own work (see grants.gov for announcements) and welcome your ideas for collaboration.

Come visit us when you can

I am happy to trade lecture time for a speaker from industry with exciting work to show and examples of course material applied in the real world. The students want to know what's happening out there and take notice of the companies that visit. Bring your sexiest slides, present the big concepts (I'll bore them with the details), sneak in a little Colorado recreation, and charge the trip to your recruiting budget. I hope you agree that it's time well spent for you and us.

Animation is worth a million words

Particularly in drilling and completions, I find that many students struggle with visualizing the downhole equipment and procedures. In addition to the occasional field trip, I have found that quality computer animations are an extremely effective solution. If a picture is worth a thousand words, then a 30 second animation (at 30 fps) must be worth about a million. I strongly believe that animation is an underutilized tool in long-distance learning; it's far superior to video of a lecturer at a chalk board. Animations can even be prepared with multiple subtitles or audio tracks to overcome the language barriers we commonly encounter in our industry.

If petroleum engineering animations would be of great benefit to both academia and industry, why not collaborate in

BOURGOYNE CONT.

their production? I propose we create a new petroleum engineering animation consortium and online library. Modest membership dues could pay for an animation and video studio housed in our department and directed by consortium members in productions of common interest. Members could also donate existing material. Vendors and service companies might be willing participants since wide dissemination of their product information serves their business interest. The studio could be also privately employed by individual members to work on their own proprietary productions, perhaps combining consortium-owned and proprietary material. PE undergraduate students would provide the labor and would learn both communication skills and the topics of the animations they create. I am currently soliciting for interest in this concept and invite interested parties to give me a call.

Tailoring skill supply to skill demand

While with ExxonMobil I applied some of my time in support of engineering recruiting and employee skill development. One of the skill gaps that I worked to fill was in subsea engineering, which entails the design and operation of production equipment sited at the ocean floor as opposed to the ocean surface. The use of subsea equipment is steadily increasing, and this trend will accelerate as developments go to increasingly deeper water and to arctic regions where floating ice threatens surface installations. Subsea engineers are presently in high demand and short supply, partly because no single degree program sufficiently fits the specialty. Companies must hire mechanical, electrical, civil, or petroleum engineers and send them to additional training during their first few years. Students who graduate with both an engineering degree and additional subsea-related training enjoy an advantage landing these jobs.

To address this disconnect in the talent pipeline, I have been working on a new program concept called 'FasTrac,' short for 'Focused Academics, Summer Training and Research for Accelerated Competency.' FasTrac would be a collaborative effort between the industry, faculty, and students at the undergraduate and graduate level. The program would identify key skill gaps in today's petroleum industry, recruit students with strong interest in those areas, and accelerate the progress of those students from initial hire to technical proficiency. FasTrac would accomplish this by coordinating for each student a combination of course electives, summer job assignments, industry training, and research opportunities that together teach skills normally acquired in the first year on the job. FasTrac would not require additional classes or credits beyond the normal degree plan, nor would it make the curriculum more specialized. It instead would focus the existing free electives, research, training, and summer employment opportunities on a specific technical area. Though the program concept was inspired by the subsea skill gap, FasTrac can be applied to any skill area in current industry demand.

Industry participants in FasTrac would connect with recruits well in advance of graduation and make progress closing critical skill gaps in their workforce. A survey of over 300 CSM engineering students indicated significant interest in this concept. The strongest interest in the subsea version of FasTrac came from the petroleum engineering students of which 15% indicated high interest in the program and another 47% where somewhat interested. Of the 15% highly interested, 80% were willing to take 3 or more classes beyond their BS degree requirement as part of the program, and 50% were willing to work 3 or more summer jobs with the same industry participant. These responses indicated a strong student interest in targeted skill development and willingness to invest well before graduation in an employer seeking those skills. I welcome your comments on the FasTrac concept as well as other ideas that would better coordinate the PE curriculum with industry skill demand.

ALFRED W. EUSTES

Dr. Alfred W. Eustes

These newsletters are for you, especially the department alumni, to keep in contact with us, the faculty. I often get phone calls, emails, and even a visit or two during the year from various alumni. This gives me a chance to see how you are doing. This newsletter is a way for me to let you know what I am doing!

First, it has been a year since radiation treatments for prostate cancer. I am pleased to let you know that I am doing very well. Since I appear to be over this hurdle, I have plunged into the department and school programs with a renewed sense of enthusiasm. Since I didn't travel much in the last two years, this must be the year I make it up. I have been traveling extensively. These trips include some unique places such as Saudi Arabia (with an overnight in Manhattan) for a meeting with King Fahd University and Saudi Aramco; two weeks with the McBride International Program in Austria, Hungary, Romania, Slovakia, and the Czech Republic; and one week in Tripoli, Libya for a CSM short course. I still have more trips planned for the ATCE in New Orleans (see you there), the University of Wyoming a couple of times (my daughter starts there the last week of August), and two more trips to Tripoli this year.

EUSTES CONT.

These trips have been opportunities to increase the reputation of CSM. My trip to Saudi Arabia was my first to that country. Saudi Arabia is a nice place (except it was hot) with friendly people. It is looking more and more like we will be working with KFUPM and the Mining University in Leoben, Austria on a research project. My work in Tripoli was part of the SPACE program on campus to expand our education beyond Golden. Tripoli was another friendly place. My class room had a grand view of the Mediterranean shore.

I continue to teach the drilling courses; but, starting last year, I have been sharing those classes with our newer faculty member, Dwayne Bourgoyne. Last year, I had 130 in the 311 class but 90 in the 361 class. There were a lot of ME's and graduates in the 311 class. I have also been working with a number of drilling foremen from the Waha Oil Company in Libya. I took them out to a Noble/Ensign rig last year. Nobody in Libya believes them when they say that that rig can drill an 8,000 foot well in three days!

I do need to especially thank Truman Beran of the Mining Department up at the Edgar Mine, David Hobbs and Tim Anderson at Noble Energy, and Scott Tannehill of Anadarko for graciously donating their time and efforts for giving the 311 class a number of tours! We had six groups go out over the semester. I also want to thank Dennis Heagney and Steve Newman of Transocean for coming on campus to give a "state-of-the-art" talk, as they have done every year, on the "Introduction to Offshore Drilling". I also want to acknowledge the efforts of the Denver Chapter of the AADE. Besides scholarships, they have donated many pieces of equipment such as scanners, video projectors, and this year, a methylene blue mud kit. I will be incorporating that test into the 311 mud labs.

Overall, I have been blessed. I work for the best petroleum department in the world. I work with an excellent faculty and staff. The students are the best. The alumni are wonderful. I am traveling and seeing unique places. I have some really cool opportunities. My health appears to be improving all the time. I have a fantastic wife and two wonderful children. Even my dog and two cats are great. Well maybe one of the cats isn't so great. I suspect I will continue to build frequent flier miles this coming year. I would like to think some of them will be generated visiting you, maybe on field session or a conference or wherever our paths my cross.

Until then, stay safe.

WILL FLECKENSTEIN

Dr. Will Fleckenstein

This academic year was another interesting one for the industry and the Petroleum Department. I taught several graduate classes, including classes in Drilling, Interdisciplinary Exploration and Development and a Workover Design and Operations class. The Drilling and Workover Design classes were taught in the evening to facilitate attendance by industry participants and continue to incorporate case studies from an offshore oil project in California and natural gas projects in the Gulf Coast to add realism to the assignments. The Drilling and Workover classes culminated in a term project using incomplete data sets to encourage the teams of students to determine what ranges of solutions were robust enough to present to the class as a whole, and respond to the class's constructive criticism. Then they incorporated the class suggestions in the final recommendations. Many times, the teams' initial and final proposals were radically different, and hopefully lessons were learned on the dangers of anchoring to a specific viewpoint, and the value of having diverse inputs into all portions of the proposed projects.

On the research side, I have been working on filling in the details between research and patentable intellectual property. J. P. Getty once said, "the meek shall inherent the earth, but not the mineral rights," but I'm sure Mr. Getty would also add IP rights to his statement.

Finally, on the service side, I became the Chairman of the Board of the Credit Union of Colorado, which all alumni of the Colorado School of Mines are eligible to join. Consequently, I had a front row seat to the financial meltdown that just roiled our economy, and realized once again the value of a Mines education, which in this case helped analyze and avoid the risks that much of the financial industry fell prey to.

I hope everyone has had a great year and look forward to seeing many of you at the CSM Alumni Reception at the SPE ATCE this fall in New Orleans.

HOSSEIN KAZEMI


Dr. Hossein Kazemi

The 2008 fall semester was an extremely busy time period for me because of many academic responsibilities which included teaching two graduate courses, trying to meet the demand of our existing research sponsors, and supervising as many as ten PhD graduate students. In addition, I was busy with negotiations and paper work to obtain funding for new research projects. I was also busy writing or revising technical papers. Fortunately, funding support for four research programs were finalized by our sponsors by the years end. As a result, beginning with the 2009 spring semester, we were able to allocate funds to several deserving PhD graduate students. In addition to this graduate program funding, two of our PhD students are supported by the Reservoir Characterization Project (RCP) in the Geophysics Department under Dr. Tom Davis. The collaboration with Dr. Davis is flourishing and we are grateful to the industry sponsors of these projects.

In late October 2008, I was invited by Kuwait Institute for Scientific Research (KISR) to participate in a conference on oil and gas production from fractured carbonate reservoirs as a keynote speaker and a member of the post-conference discussion panel. The participation in this conference was very exciting because of its technical content and the post-conference dialog.

In 2009 spring semester I taught a course on enhanced oil recovery (EOR) and simulation with an emphasis on developing computer code for simulation of thermal processes. As for the professional activities, I gave a talk at the Denver Section SPE luncheon on issues related to naturally fractured reservoirs, a talk at the CSM Academy Lecture Series on prospects for future oil reserves and the need for improving energy gain efficiency in oil and gas production, and finally a talk on the state of the conventional EOR and the need for a paradigm change in the way we produce oil and gas at the SPE Forum on Maximizing Oil Recovery in the 21st Century.

Two of our past graduate students, Dr. Mohammed Al-Matrouk (2007) of Kuwait Institute for Scientific Research (KISR) and Dr. Hassan Al-Kandari (2002) of Kuwait University, visited CSM in the latter part of the spring semester and spent time with me to discuss technology and research collaborations.

In late July I took a week of vacation to travel by car from Denver to Missoula, Montana and back to Denver. It was a very enjoyable trip because of the beautiful countryside in Colorado, Wyoming and Montana. Obviously, for me, travelling through the Denver-Julesburg (DJ), the Powder River, and the Big Horn basins was exciting because I could see the oil wells pumping harmoniously in the middle of beautiful ranches surrounded by the beautiful Rocky Mountains. In Montana, I enjoyed boating on fresh water lakes with my grand children and family, and canoeing on a beautiful river and a lake.

As for the summer break, I have allocated time every day for jogging in the neighborhood hills. In the meantime, I continue working with several graduate students who are working on their research projects this summer.

I look forward to a great 2009-2010 year because I have a greater appreciation for the gift of life and the beauty of our state and our country. I also look forward to working with our students and faculty.

MARK G. MILLER


Dr. Mark G. Miller

What do the Rangely Recreation Center, the Dinosaur National Monument Visitor Center, and the showers at the Massadona Field Camp all have in common? They are all built on unstable shales and slowly sinking into the ground. Of course the first two were closed this year for multi-million dollar refurbishment. The third required a lot of digging, but some concrete was eventually found under about 6 inches of dirt. Over the past several years the Massadona showers have fallen into disuse. Of course, when you consider that field session used to be held at the end of summer when temperatures were blazing hot, and now it is at the beginning of the summer, when it is cold and possibly snowy, this makes some sense. This year, for a change, I got to help out with the Massadona field session. Because of the recreation center closure, I decided to see if the showers were usable. The answer is maybe. 1) You have to not mind some very cold water, especially if the wind is blowing. 2) If you drop your soap, it will remain dirt encrusted until the end of time. 3) The dirt between the cabins and the shower will still (as it did almost 25 years ago for me) collect on any damp skin, negating the reason to brave the cold and exposed conditions. Overall, it was nice to be a part of the Massadona field session this year. Jennifer Miskimins has done an excellent job putting together

MILLER CONT.

exercises that draw together geology, geophysics, and petroleum engineering.

I wish to thank the individuals and companies who helped out with the Petroleum Department's Superschool field trip this summer. This is our intensive three-week summer short course that allows students to get an overview of many aspects of petroleum engineering. Our first stop was with Anadarko. Greg McIntosh showed us a SWD well and gathering facilities. Denver has grown in all directions, encroaching on field operations. Greg talked about wells being directionally drilled under subdivisions, pollution control, and other aspects of working in the Denver Basin. Next, Tim Anderson, of Noble Energy, led a drilling rig tour. For most of the students, this was the first time they had been on a drilling rig. In less than a week, a well can be drilled to 8000', cased, and another well well on its way. Our last stop was with Maverick Stimulation. Matthew Hoffman first fed us chicken, pork chops, and plenty of fixing's. After playing with some gel, we went out to the yard and saw the equipment needed to fracture a well. Matthew showed us pumps, blenders, coiled tubing, and other equipment. It was a nice finish to the day.

JENNIFER L. MISKIMINS

Dr. Jennifer L. Miskimins

Hello, and greetings to all of you! I hope this newsletter finds you and yours happy and healthy. It's about mid-July as I write this, and it's been a good summer here so far. For those of you who have experienced some of the drought weather that can occur in the Denver area, that's not the case this year. Several days it would have been easier for me to canoe than drive into work!

This past year has been a busy one. Somebody once told me that you get to relax after you get tenured – they lied!! If anything, I find myself busier than ever before, just without that shadow hanging over my head. The FAST (Fracturing, Acidizing, Stimulation Technology) research consortium continues to be strong. If everything goes according to plan, we will have two PhD and four MS students graduate from that program in the next few months. Needless to say, I'll be (am) doing a lot of proofreading. In addition to FAST, Donna Anderson (some of you will remember Donna from the Massadona field session) and I just received a large grant to study hydraulic fracturing in stacked fluvial systems based on some outcrop work from the Massadona area. Between these two research ventures, I'll have plenty to keep me out of trouble (ok, maybe not).

Teaching continues to be a source of enjoyment for me. We seem to have reached a reasonable status quo on class sizes, which is nice. Even in this economic climate, our enrollment continues to be strong, and as you'll see in the PEGN 316 article, we continue to run two sessions out in the Massadona area – much to the Massadona Tavern's delight!

I took on one outside CSM assignment this year that some of you might have noticed - I am the Executive Editor for the SPE Production & Operations Journal. I took over the position, which is a three-year appointment, at ATCE 2008. Being the Executive Editor takes some time and work, but the benefits so far have been very rewarding both personally and professionally. It has allowed me to meet and work with many new people, as well as keep up-to-date on new developments. And, now the advertisement – the quality and success of SPE journals are based on the involvement of SPE members who donate their time and effort being Technical Editors (TE) for the various journals. If you've been involved in publishing SPE papers, you should also consider being involved with the editing of them. For more information about becoming a TE, please see the peer reviewer information on the SPE website.

So, the picture I've included this year is one of me in Yellowstone National Park in front of the Giant Geyser (near Old Faithful Geyser). You can probably tell from my coat and the geyser's steam that it was a chilly day. Notice the Mines' hat!

I hope to see you in New Orleans at the SPE meeting in October!

ERDAL OZKAN


Dr. Erdal Ozkan

Hello from Turkey! As I write this I am visiting family in Turkey for the entire summer. I usually spend 2 months here each summer, but this a very special time for my family and the entire summer was a welcomed change.

Life at the Colorado School of Mines has been very busy. Research activity in the (MCERS) continues to be strong with research and partners. The center is funding more graduate students every year. We have been able to bring funds close to 3.5 million dollars that helped us support our research and, most importantly, our graduate students. In the six years, fifteen students finished their graduate studies under the center. Please be sure to visit the MCERS website for more information about the center: http://www.mines.edu/academic/petroleum/research/mcers

I continued to teach my regular courses: undergraduate and graduate well testing, horizontal wells, and applied mathematics for fluid flow in porous media. I also chair the graduate application review committee, where there is a continuing increase of applicants to the program and we have been enjoying record high enrollment in our graduate program.

I lead one of three groups of PEGN 315 field session to South Texas and Louisiana. Dr. Wu assisted with this trip so he could "learn the ropes" and lead a field session of his own next year. I am always so appreciative of the oil and gas companies that host our CSM students. The undergrad students always express their interest in the field session and how much they have learned in seeing the different areas of operations, both on land and off shore. We are always thankful to all who accommodate our field sessions and allow us to tour your facilities.

Being on field session for two weeks, the weekend was free time. With our great group of 42 students, we were able to visit a southern plantation, tour the swamps, roam Bourbon Street, and experience Spindletop.

I attended several conferences, workshops and forms around the world last year. I may have seen you there…….

This coming academic year 2009-2010 I will be on sabbatical. I have a few thoughts on what I will be doing and hope to finalize them soon. I will be able to tell you about them when I see you at the SPE ATCE, in New Orleans.

Best regards,
Erdal Ozkan

MANIKA PRASAD


Dr. Prasad with former student, Merrick Johnston, now at Statoil, at the Sound of Geology Conference where she gave a keynote address (wer sorgen hat, hat Likoer)

There are many rewards of going on field camps. One is that I always get enough material to write about in the newsletter. The other more subtle reward is seeing some students come out of their shells! This year was no different. I participated in two field camps: PEGN315 to North Texas, Oklahoma and Northwest Louisiana, and PEGN316 to Massadona.

The first one, PEGN315 was a gentle introduction for sophomores into the world of Petroleum Engineering. We drove two weeks long in Texas – Oklahoma – Louisiana! It gave us a chance to bond with our vans – I can now predict precisely when the back row asks to turn up the air conditioning, when the front row starts freezing, and when the sleeping "shotgun" starts snoring. We visited many companies. It is amazing to find alumni everywhere and see how willing they are to help us teach! The biggest experience for me was our visit to the Frost Brothers. They have a small operation just outside of Dallas. They explained the whole process and even took us through a shut down procedure! None of the other companies were willing to repeat that demonstration that for us.

The second one, PEGN316 was, of course, Massadona. Note to self: next time, allow regeneration time between the two

PRASAD CONT.

field camps. The highlight this year was the raft trip down Split Mountain. Many of our students were afraid (though only a few would admit it).

My reward for the trip was to see one student, apprehensive of going rafting, standing in her raft with a bucket of water ready to throw it as us!

The water fight was fun – cold but fun. The raft shop had water-proof cameras. However, since they were old-fashioned film-roll ones, we managed to get only a few photographs.

My research with Mike Batzle(GP) is slowly growing. We signed on two Ph.D. and three M.S students bringing our total count to 9 in geophysics and petroleum engineering. The Ph.D. students are working on rock physics and compaction trends in shales and carbonates. The MS students are working on Bakken and other organic rich shales, characterizations of heavy oils, and understanding porosity-permeability-mechanical strengths in tight sands. We have had two faculty visitors: Dr. GuangQing Zhang from the Beijing Institute of Petroleum will stay with us for one year until January 2010. He is working with us on geomechanical properties and testing of rocks. GuangQing also came along for the Massadona field camp. It was really interesting for both sides to see how differently we operate, and get the same results! We spent many evenings discussing teaching methods and their effectiveness.

Massadona makes friends.

Dr. Jyotshna Prajapat visited us for four weeks from the Petroleum Institute in Abu Dhabi. She is a mathematician and we are working together on implementing the shell theory for carbonate compaction.

Dr. GuangQuing Zhang enjoying the luxuries at Massadona.

One of our MS students, Kenechukwu Mba took second place in the SPE Rocky Mountain Petroleum Technology Conference student paper contest held on Wednesday, April 15th! Also, Moutaz Saleh, visiting student from the Petroleum Institute in Abu Dhabi last summer, presented a poster at the Gulf Sub-Regional SPE Student Paper Contest in Doha on November 15th. He presented the research work that he did with us last summer and received 4th place in that competition. The poster was also awarded a prize by the ADCO Paper/Poster Evaluation Committee. We will have two papers at the ATCE this year. I hope to see a lot of you in New Orleans!

CRAIG W. VAN KIRK

"Craig and Gary B. at Leptis Magna east of Tripoli, Libya. Roman city more than 2,000 years old, after being started by the Phoenicians more than 3,000 years ago".

Greetings to you and yours, and I hope you are healthy and happy. My family and I are in good health and plenty happy. My wife Denice and I have 7 grandchildren from our two children, and we enjoy one another very much. In fact, we just got back a few days ago from several days at a "guest ranch" in Wyoming. It was great fun herding cattle on horseback, and especially successful since no one got bucked off and there were no broken bones.

You might recall that I stepped down from PE's Department Head position at the end of the spring 2007 semester, after 27.5 years, but I have not yet retired and don't have any immediate plans to. During the past school year I taught PE 423, Reservoir Engineering I, to 125 seniors; PE 102, the Intro course to PE and our industry, to 85 freshpeople; and two separate graduate-level courses on reservoir engineering and simulation. In addition I taught two separate groups of young Libyan professionals during both semesters and part of the summer on reservoir management topics. That was a busy teaching load and was most enjoyable and very satisfying.

Last fall semester on the final day of PE 423 in early December the senior class surprised me with a group "mock up" of me. Most of the students dressed up like me with suit and tie (with 45-degree stripes) and white CSM hat, with a can of Coca-Cola in one hand. A couple of the guys even went so far to try to earn extra credit by getting their haircuts in the same fashion which I have been practicing for some years. It was great fun and truly surprised me when I walked into the classroom without any hints of what was in store.

During this coming school year I plan to teach PE 102 and PE 423 again, as usual, and probably one graduate-level course each semester. The teaching part is so fun and satisfying, and we don't know yet for sure who will be teaching what, but I'll probably have 2 or 3 courses per semester.

In addition to teaching these regular on-campus PE courses, I continue to be very busy with CSM's Outreach Program (SPACE), providing training to petroleum professionals on campus and in their own countries. These kinds of professional training programs have been, for many years, among the several significant activities which CSM provides both domestically and internationally which contribute to CSM's expanding global reputation and impact.

Recently SPACE's Director Gary Baughman and I spent the first two weeks in June in Libya expanding CSM's global partnerships. We met with the new U.S. ambassador to Libya, Gene Cretz, and his staff to discuss the new, more open relationship between our two countries. Also, we met with many Libyan corporate and government representatives, and IOC's, to discuss their expanding needs for education, training, and research. The final 5 days there I spent teaching a course on reservoir management practices. Among the many very satisfying experiences I enjoyed during these days in Libya were meeting with some of the young Libyans I had recently trained at CSM, and meeting with some of our CSM Libyan alumni who graduated from our PE program as much as 31 and 25 years ago, during my first few years on campus.

As I shared with you a year ago, I have been engaged with Iraq representatives who want our assistance in starting a brand new PE program in Basra, Iraq. After a couple years of preliminary groundwork, we (SPACE and I) are now engaged on the first part of the project providing our advice and assistance in setting up the new Basra Petroleum College. We now have a formal agreement under which we are helping them establish both undergraduate and graduate-level curricula, facilities, procedures, best practices in teaching and research, et al. This project should lead to a long and healthy partnership with this new campus in Basra.

Since my first visit to Iraq during the mid-1970's, a few years before I joined CSM, I have maintained contact with many Iraqi's inside and outside the country. These many Iraqi friends and associates provide me with significant personal and professional satisfaction, especially after so many years

Van Kirk look alikes.

VAN KIRK CONT.

now seeing our efforts leading to a new campus in Basra with close ties to CSM's PE program.

In March I attended an annual international conference in London addressing the global PE needs of our industry and the education, training, and research offerings of a few of us internationally recognized university PE programs. Naturally, our CSM PE Program was among a very few such programs represented at the conference, and we received a lot of attention and invitations to join in new partnerships with universities, international oil companies, and national oil companies.

Other current projects of similar nature to those in Iraq and Libya are:

The new Siberian Federal University in Russia wants our CSM PE partnership to establish our standards and practices.

We are being asked to provide our advice and assistance for training in Kuwait, Egypt, China, and a few other places.

My long-standing ties to Saudi Aramco and ADNOC (and the Abu Dhabi Petroleum Institute campus) remain strong and active. Among my research activities are serving on graduate committees of a number of our Masters and Ph.D. students. During the past school year, two Aramco Ph.D. students on campus successfully completed their programs creating global supply and demand models for oil and gas, very interesting and timely projects. I really enjoy representing PE on these kinds of research committees, and iterating with our domestic and international partners on these and other similar matters.

It continues to be my great pleasure to participate in so many of the worthwhile activities of CSM's PE Program, from teaching through research and service. Frequent visits from alumni and emails and cards provide me with abundant satisfaction. Also, frequent visits from the news media, K-12 students and teachers, dignitaries, and many others provide a constant source of entertainment and satisfaction. It is better to contact me beforehand to make sure I am available for a visit, but even the daily surprise "drive by" is welcome.

It has been my pleasure to serve CSM since 1978 in these many ways, and I look forward to at least several more years. Please do keep in touch.

Yours truly,
Craig Van Kirk

YU-SHU WU


Dr. Yu-Shu Wu

My first year as a faculty member of the Petroleum Engineering Department has been one of the most rewarding and exciting years in my life. The time has gone so fast, I can't believe I am starting on my second year. I learn something new every day, and more importantly I enjoy the opportunity to work and interact with our bright students, outstanding faculty, and staff members of the PE Department. It was quite an experience for me to teach my first class, Reservoir Engineering II of PEGN 424, with 122 seniors. I also worked on and submitted several research proposals in the areas of unconventional oil/gas, CO2, and geothermal projects. My research projects on CO2-EOR and fractured reservoir modeling are slowly getting started. Overall, I feel that I gradually fit myself into the CSM system culturally and academically.

One of the the highlights of my first year at CSM was joining the MCERS research center and participated in one EOR research project, funded by the PEMEX. I authored or co-authored 5 SPE papers. I also had the opportunity to go on three site visits of CO2-EOR fields of Salt Creek CO2 Project of Anadarko in March 2009; Denbury CO2, Lochart Crossing Field, in May 2009 as part of PE 315 Field Session; and Jilin Oilfield of PetroChina, in the north of China, in June 2009.

I have to mention that the most positive experience of mine at CSM over the last year has been our alumni support to the Department. Several senior petroleum engineers and managers from PetroChina, an international oil company, requested a visit to see U.S. Co2 field sites, however, when they contacted the DOE six months in advance, they were not able to arrange a site visit. Once here, it took only a couple of days notice for one of our own graduates, Chase

WU CONT.

Downs, a production engineer at Anadarko, to arrange for the visit of the Salt Creek CO2 operation site in Wyoming. Chase, his supervisor and colleagues spent the day showing our guest, Dr Yin, and myself around at the CO2-EOR site, sharing their experiences and technical expertise. Our PetroChina guests were so impressed with the visit and technical exchanges that they talked about possible future collaboration on a CO2 project with Anadarko.

In the coming year, I will continue to teach both undergraduate and graduate courses. I will become more involved in advising additional M.S. and Ph.D. students. Furthermore, I plan to work on research ideas and projects by collaborating with faculty members within and outside the PE CSM as well as with those from other universities, national labs, and petroleum companies. Also, I would welcome and look forward to more opportunities to interact with our alumni on campus and during field visits.

XIAOLONG YIN

Dr.Xiaolong Yin

Dear friends and alumni of Petroleum Engineering, Colorado School of Mines: I would like to use this opportunity to greet you and update you on the progress and activities of the last seven months. I started my Assistant Professor's appointment in January 2009. Having a solid non-PE background (B.S. in Theoretical and Applied Mechanics from Peking (Beijing) University; M.S. in Mechanical Engineering from Lehigh University; Ph.D. in Chemical Engineering from Cornell University; postdoctoral researcher in Chemical Engineering at Princeton University for 2½ years), Dr. Graves, as Department Head, "forced" me to sit and be baptized in Dr. Miskimins and Dr. Kazemi's classes last semester. That was a wonderful experience. I went to PEGN 315 Field Session with Dr. Eustes and Dr. Prasad and ~ 40 students. In two weeks, we visited Frost Brothers, Encana, EOG in Fort Worth, TX, Devon in Bridgeport, TX, Halliburton in Duncan, OK, and Fort Worth, TX, Questar near Bossier City, LA, and ExxonMobil near Nacogdoches, TX. I want to thank the kind support of our friends and alumni for making the trip possible and memorable.

My primary research direction is on detailed simulations of multiphase flow in porous media. Traditionally, engineers conduct experiments to characterize properties such as relative permeability and capillary pressure; nowadays, with the state-of-art computational methods and computing power, one can use simulations to model such processes. These numerical methods give a means to "visualize" the efficiency of fluid displacement in porous media of various microstructures that is critical for many enhanced oil recovery practices. In addition, they allow us to characterize flows in very tight formations easily and rapidly; in contrast, experiments on tight rocks are often difficult and time-consuming to perform. Being part of the MCERS center, I am privileged to work with Dr. Kazemi, Dr. Ozkan, and Dr. Wu, and of course, the many talented students. My research group size is small as of now but is growing steadily. We are also looking into emerging research areas such as CO2 sequestration (including CO2-EOR) and modeling of heat transfer in enhanced geothermal systems.

The other research direction of mine is on the multiphase flow of suspensions that is ubiquitous in drilling and production operations – they take place in the wellbore (cutting transport), in ground facilities (separator), and in pipelines (flow assurance). Such flows are very complex and accurate models used for reliable predictions require a fundamental understanding of the various physical and chemical processes involved. I have worked with suspensions for many years, and this is a field where fascinating results are appearing every day.

Ramona Graves, M.W. Scoggins, Dwayne Bourgoyne, Bill Eustes, Will Fleckenstein, Xiaoling Yin, Mark Miller, Manika Prasad, Yu-Shu Wu, DeAnn Craig, Jennifer Miskimins, Linda Battalora, Craig Van Kirk, Al Sami, Hossein Kazemi

AL SAMI

Al Sami

During my last 315 field session to California I observed a major change in the petroleum industry and that was the extensive presence of the female professionals in the high positions. I was pleased to see the industry recognizing the women who are paragons in their respective field.

The women who made the opportunity for themselves to share the experience and wisdom they have gained while pursuing their life's work in the oil and gas industry. I was very delighted to see the women who have established and distinguished themselves in the industry, reaching out to young professionals about to inherit their legacy and share their long-established expertise from a mentoring perspective.

Fortunately, the presence of the distinguished women is not limited to the oil industry. Not to go too far, in our own PE Department we are fortunate to have distinguished women in different positions and responsibilities. Starting from the department's leadership, to directing the complicated and very demanding research for industry.

My own two daughters are among those extremely successful young professionals who have squeezed themselves through several loops. One, as a pediatrician, and the other as a PhD Candidate for International Political Economy of Energy and International Law at Georgetown University.

Also, I would like to take this opportunity and share one of my recent accomplishments with everyone. I have redesigned the rotational part of the centrifuge allowing all the assumed and neglected side forces and correction factors to be implemented automatically. I am not worried at this time about the inaccuracy of the data and measurements. The claim for this new design is being prepared by the Office of Technology Transfer to be filed in the USPTO. This Intellectual Property has already been reduced to practice.

The paper about the new design is being developed and will be published upon obtaining the permission from the Office of Technology Transfer for Public disclosure.

I look forward to seeing my former students this year in New Orleans at the ATCE.

PE FACULTY 2009

PE OFFICE STAFF 2009

L to R Terri Snyder, Patti Hassen, Denise Winn-Bower

Hello, from the Administrative staff. This year we were fortunate to have the opportunity to attend the ATCE, since it was held in Denver. It was quite the experience to walk down the exhibit aisles and visit with our previous students that are now working in the industry. What a joy to see how successful our PE students have become. Another highlight was attending the Alumni reception. We always hear from the PE faculty how nice the event was, this time we were able to see for ourselves. The School of Mines has impacted our lives as much as our students.

STUDENT ORGANIZATIONS

SOCIETY OF PETROLEUM ENGINEERS

David Schnabel

Welcome Back! I am David Schnabel, your Colorado School of Mines Society of Petroleum Engineers chapter President. Recently one of our generous supporters, Marathon Oil asked me to summarize the mission of our chapter. I thought about and digested this question for a night or three before I was satisfied I had an answer that addressed the question. This is the mission statement I realized.

"Our Mission is to promote knowledge of petroleum engineering, in theory and practice, and to further the professional development of our student members and ensure their integration into the petroleum industry."

I think you will agree that this is the mission that we have and will continue to adhere to. Shall it remain static? I think not and encourage the membership and future student leadership to constantly evaluate and refine the mission of the chapter.

We concluded the spring 2009 semester on a high note and I aim to keep the momentum throughout this coming year. Our annual spring Joint Session, where we organize and host the Denver SPE chapter and feature distinguished speakers, was by my estimation a success. We had nearly 170 attendees, students and professionals alike, at this year's event. The event featured a five-person panel that shared their outlook of the industry in light of the current misfit of commodity prices and production costs and rumored regulations in the pipeline, no pun intended. An evening such as this, where numerous students were afforded the opportunity to engage professionals was consistent with the theme set forth in the preceding paragraph.

Looking forward, we are excited to be hosting the second annual Colorado School of Mines SPE Golf Tournament on September 13, 2009, at the beautiful Arrowhead Golf Club. This event will be our marquee fundraising event of the year and we are working hard to make this event as successful as the first tournament.

Last fall we were fortunate enough to be the student host chapter for the ATCE. This October we will be traveling to New Orleans for the ATCE. With a membership of almost 300, all of us may not be able to attend, but thanks to the generous support of Chevron, and various alumni, many of us will be going to The Big Easy.

The chapter will also continue our weekly Lunch & Learn meetings hosting industry representatives that present interesting and unique topics. These meetings are an exciting opportunity to learn about specific companies and the technologies they employ in the field. The Lunch & Learn meetings are held most Wednesdays throughout the semester excepting the third Wednesday of the month, where the Denver SPE chapter allows our members to join and attend their general meetings.

SOCIETY OF PETROLEUM ENGINEERS CONT.

We are one of the most active professional societies on campus but we cannot become complacent with that fact. It has taken vision and consistent effort to get the chapter to the status it enjoys today. Our chapter has grown to almost 300 members and we need to continue to remind all of the students in the department of the importance of joining and maintaining their membership. I also admonish you to encourage your friends that are not petroleum engineering majors but are considering entering the industry, to join. Not being one to repeat catch phrases, but SPE is not only for petroleum engineers. There are plenty of mechanical, chemical, and other engineering students whom enter the industry and in effect become petroleum engineers. We also must remember to graciously thank the Denver SPE chapter for their continued support and thank our industry sponsors for their support. Finally, I want to extend a sincere thank you to our department faculty and staff. Without their encouragement and support, much of what we have accomplished would not be possible.

Here's to a successful year going forward. I hope you will join the chapter to make this year a profitable one for all. If you have any questions or are interested in joining the chapter, contact me at Dschnabe@mines.edu.

Regard,
David R. Schnabel

PI EPSILON TAU


Indar Singh

Hello, my name is Indar Singh, chapter president for 2008/2009 of Pi Epsilon Tau, Tau chapter at Colorado School of Mines. I am originally from the island nation of Trinidad and Tobago and represent just a sprinkle of the vibrant diversity that exists within the Petroleum Engineering Department. At the time this was written, I am a Master of Science student under the stewardship of Dr. Jennifer Miskimins.

The Tau chapter of Pi Epsilon Tau was founded at Colorado School of Mines in 1983. This honor society accepts Petroleum Engineering students of high scholastic achievements, strong personality traits and service oriented individuals. The roles and responsibilities thrust upon new initiates and members include: assisting with the RACE FOR THE CURE, donating gifts and toys to local schools, and service projects throughout the school. Also, Pi Epsilon Tau members are responsible for conducting tours of the Petroleum Engineering Department as part of the Admission's department PREVIEW and DISCOVER programs. Student members are also encouraged to assist sophomores and juniors in their petroleum engineering classes.

On Wednesday March 25th, 2009, the Tau chapter initiated the largest group in our history at our spring 2009 initiation ceremony. The ceremony included four honary members; Dr. Manika Prasad, Dr. Dwayne Bourgoyne, Dr. Yu Shu-Wu and Dr. Xiaolong Yin, together with 43 student members. It was a great initiation ceremony which had enough pomp and celebration, as well as each student's two minutes of fame. Dr. Ramona Graves, our advisor, was very pleased with the ceremony and it was evident that she enjoyed every minute of it.

This year's intiation ceremony was organized by the 2008-2009 Pi Epsilon Tau team.

This included:

Indar Singh-MS student-President;
Islin Moy-Senior-Vice President;
Zatil Mustapha-Senior-Secretary,
Jason Lautenschleger-Senior-Treasurer,
Irina Hardesty-Senior-Initiation Chair,
Akmal Khallis Mohammad Nooh-Senior-Fundraising Officer;
Zulhilmi Drus-Senior-Activities Officer.


New initiates reading the Pi Epsilon Tau Constitution and by-laws. Location: Outside Berthoud Hall North.

PI EPSILON TAU CONT.

These officers did a remarkable job and deserve our congratulations.

The new offices of the Tau chapter were elected on 24th April 2009.
They are:
President:
Ing Keith Cheong
Vice President:
Kinzie Beavers
Secretary:
Jonathon Harrelson
Treasurer:
Estevan Bunker
Initiation Chair:
Amanda Bell
Social Chair: Graham Patton
Activities Officer: Laura Yanowich

Back row: Indar Singh, Dr. Ramona Graves, Irina Hardesty Middle row: Zatil Mustpha and Islin Moy Front row: Zulhilmi Drus and Akmal Khallis Mohammad Nooh Missing: Jason Lautenschleger

I wish the new team of officers all the best and hope that the motto of Pi Epsilon Tau , "Success is the product of knowledge and effort," is embodied and reinforced to all members and students of the Colorado School of Mines Petroleum Engineering Department.

Regards – Indar Singh-President-MS Student- 2008/2009.

Back row: Amanda Bell, Dr. Ramona Graves, Laura Yanowich and Kinzie Beavers. Front row: Ing Keith Cheong, Estevan Bunker, Jonathon Harrelson and Patton Graham.

RACE FOR THE CURE – Awareness for Breast Cancer

This is a service project that all three PE student organizations (AADE, SPE, & PET) have taken on as a great cause to be involved in for the past couple of years. In October 2008, the students did a major push in signing up fellow students, friends and family to walk the 5k race in downtown Denver. They were able to raise over $2400 that went to the Susan G. Komen Foundation for breast cancer research. Most of the students took the option to "Sleep In For the Cure", but there were a few brave souls out on the race course at 6:30 am with 64,000 walkers.

The Student Organizations were able to persuade President Scoggins to make October 3rd "Pink Friday" on the CSM campus, encouraging everyone to wear pink that day. Even "Buster" and "Blaster" were in the spirit of Pink. Dr. Ramona Graves and MS graduate student Indar Singh were the top two fund-raiser in signing up students, alumni, friends and family to either "walk, run or sleep-in, each winning bragging right for one year.

ALUMNI: Should you like to donate to this cause through the PE Department, you can mail your donation to Dr. Ramona Graves. This will allow her to be the top-fundraiser for signing up contributors for another year!!

PEGN315 FIELD SESSION IN CALIFORNIA

by: Linda Battalora, Photos compliments of Thanh Nguyen

Thanks to the generosity and enthusiasm of our many alumni and friends, the 2009 PEGN 315 Field Session to Southern California and Bakersfield was a great success. Starting from LAX on May 11, 2009, we traveled to Ventura which became our base for the next five days. Our first full day was spent with **DCOR**. Many thanks to Andrew Prestridge(BS'85 ,MS'91, PhD'96) and Kris Khircher('01) for planning an educational day at the Rincon Offshore Separation Facility including a tour, a geology field trip, a barbecue, and a visit to **Weatherford's** facility in the afternoon. On Wednesday,

DCOR-Alumni Andrew Prestridge(BS '85, MS'91, PhD '96) and Khris Kircher('01), listening to their colleague's safety briefing at the Rincon Onshore Separation Facility.

we visited **Venoco's Platform Gail.** Matt Ott('08) lead our tour of the platform and supervised our safe arrival and departure. The remaining days in Ventura included a scenic geology field trip on the beach in Arroyo Burro Park led by **Aera Energy** geologist, Jon Schwalbach and accompanied by **Aera Energy** engineer Dave Mayer('80); a visit to **Vintage's** San Miguelito Oil Field including a great perspective of the Ventura anticline led by **Vintage** geologist, Don Miller; a tour of the **SoCalGas** storage facility; a visit to the California Oil Museum; a road side geology field trip to see (and touch) the Highway 150 oil seeps; and a trek to the 1928 St. Francis Dam failure site led by **California State Lands Commission** Geologist, Stephen Mulqueen. We stayed very busy during

DCOR-tour with students

the days in the Ventura area and in the evening, the students enjoyed the beach.

On Sunday, May 17, 2009, we drove to Bakersfield for a tour of the Kern County Museum, the CSM Alumni Picnic and three more action-packed days. Once again, we arrived in

PE students being transported to Venoco's Platform Gail via Billy Pugh.

Bakersfield in time for record-breaking heat but the students forgot all about the temperature as they enjoyed the good food and meeting CSM alumni and families at the picnic. We would like to thank Tiffany Brewster, Peter Ashton, Lonnie Kerley, Dave and Billie Mayer, Joe and Beth Nahama and many others who worked behind the scenes to organize this wonderful social event.

Matt Ott('08) giving a tour of Venoco Platform Gail.

One of the many highlights of our trip to Bakersfield was the visit by Dr. Ramona Graves at the museum tour and Alumni picnic. We wish she could have visited with us longer, but professional commitments precluded her from attending

CALIFORNIA CONTINUED

Surprise visitor, Dr. Ramona Graves with Professor Linda Battalora at the Kern County Museum.

Chevron's Kern River facility tour the next day. We would like to thank **Chevron** and CSM alumni Lynn Ayers('82), Larry McDaris('07) and Geordie Chambers('08) for planning a field tour in the morning followed by a delicious lunch and a panel discussion. We finished the day with a tour of the Core Lab facility led by Linda Specht.

Chevron field tour with Alumni, Geordie Chambers('08), Larry McDaris('07), and Lynn Ayers('82).

On Tuesday, Lonnie Kerley('85), **PXP**, organized an office visit and a tour of the **PXP** leases in the Midway Sunset Field including Dome, Bremer and Reardon. Lonnie escorted our caravan of vehicles to **Halliburton** for a "lunch and learn" and a tour of its facility afterward. Our final day in Bakersfield was spent with **Aera Energy**. We had an exciting tour of the Belridge field in the morning led by Michael Dixon, Bob Slocum('08), David Wahl and Tiffany Brewster and enjoyed lunch with CEO Gaurdie Banister, Jr. in the Bakersfield HQ office in the afternoon. Thank you **Aera Energy** for your continuing support of the California Field Session.

We would like to thank Candra Janova('05), **THUMS/OXY** Long Beach, Inc., for organizing a full day of hospitality including presentations about **THUMS** and the Wilmington Field, packers and **ESP** tools, and a tour of Island White. The students enjoyed breakfast and lunch provided by **OXY,** and pizza and refreshments followed by beach volleyball

Lonnie Kerley giving a tour of PXP lease in Midway Sunset Field.

provided by the LA Society of Petroleum Engineers Young Professionals. We are very grateful to **OXY** and the **LA SPE YP** chapter for their hospitality once again this year.

This field session in Southern California and Bakersfield would not have been possible without the generosity of our alumni and friends in the area. The students, TAs(Sirichai Kaewseekhao, Thanh Nguyen, and Terri Snyder) and Faculty(Linda Battalora and Dwayne Bourgoyne) had a wonderful learning experience and an enjoyable visit to California. Thanks again! We hope to see you next year.

Group Photo during PXP tour.

THUMS/Oxy Long Beach, Inc.- Candra Janova ('05) leading a group tour on Island White.

EXCERPTS FROM STUDENT BY: Laura Yanowich

Spending twelve days in California to learn about the oil and gas industry was such an educational experience. I had no idea how much I would learn on this trip before I went, and now, I am ready to start my junior year in the department.

The highlight of being in Ventura was going on all the geology trips and going off shore with Veneco. We got to tour medium and small sized companies. I enjoyed seeing one of the oldest producing rigs in California. We learned a lot about faults and their importance to our industry. The best part was defiantly going offshore. We took a boat to a billy pue onto the platform. There was also a lot of sea wildlife on the way and on the platform. They even let out more hydrogen sulfide to make the flair bigger.

Area Energy Geology field trip with Alums, Dave Mayer('80) and Aera geologist, Jon Schwalbach.

Bakersfield was covered in pump jacks. We had a surprise visitor with us at to the Petroleum museum. Dr. Graves made her appearance in Bakersfield, and all the alumni at an alumni picnic were very excited to see her. When we visited Aera, it was very exciting to be able to talk to the CEO of the company. We learned a lot about cogen plants. Bakersfield doesn't have a trap, but it is layers upon layers. We toured a couple of large companies. The water that was being produced there was even used for the agriculture. Thank goodness it wasn't as hot as it could have been, but we had plenty of water.

When we went to Long Beach, we got to see the THUMS operation. Our initial presentation was right next to the Queen Mary. We had our last chance to ride in a boat. It was so cool to learn that the rigs were made to look like condos, and sometimes the locals ask why they move. It was very interesting to hear how the operation started with Texaco, Humble, Union, Mobile, and Shell.

Every time we had a chance, we went to the beach. Volleyball was super popular. We ended up buying one for the department, which Terri now has in the office that we all will sign. When swimming around in the waves, we would get hydrocarbons stuck on our feet from the oil seeps washing ashore. We could also see offshore platforms from wherever we swam. Those of us who didn't want to go into the water collected sea shells or studied for the quizzes. Sadly, we had the first and only hospital visit when there was a stingray that went rogue on one of the students. A lot of students didn't even know what a sting ray was. Thanks to many of the companies, we didn't go hungry on the trip. Thanh was always up for going to a unique place to eat.

SoCal Gas and Storage-Explaining the distribution valves for gas transport.

This was such a great experience, because I learned so much more about the industry. I truly know that this is the chosen profession for me and learned the difference between service and production companies and reservoir, drilling, and production engineers. I know that I made friends with everyone on the trip, and I'm glad to know the people that I'm going to be working with for the rest of my career. I am very excited to go to Massadona next year, even with the rumors I've heard from students that have been through it, to learn more about oil and gas fields.

Enjoying a leisurely game of volleyball –The favorite pastime for the students.

PEGN315 FIELD SESSION IN THE GULF COAST by: JUAN CARLOS AND DENISE

This year's field session for sophomores had to be divided into three groups due to high enrollment. One group headed to the west coast, the second to Dallas and the third to the Gulf Coast. Our trip started out flying a total of 46 students 2 faculty members, Dr. Erdal Ozkan and Dr. Xiaolong Yin and 3 teaching assistants (Juan Carlos Carratu, Peggy Brown and Denise Winn-Bower) to Houston. The scare of swine flu was in the air, but we are petroleum engineers, we don't know what disease is....! In two weeks we traveled 2200 miles, visiting oil, gas and service companies in South Texas and Louisiana.

Staying cool at Anadarko.

In Houston our first stop was **Baker Hughes** headquarters, it was a nice visit. We got to see **Baker Hughes Center for Technology Innovation**, built in 2008. This center is dedicated to the development of next-generation oil and gas exploration and production technologies. The next day the group headed to **Anadarko's** headquarters in the Woodlands. Students were able to see first hand how an operator works, talk to their production and reservoir engineers, and see how different approaches on stimulation helped increased production on marginal fields. Not only that, **Anadarko** also took us to see an HP drilling rig actually drilling a well. Students witnessed all drilling rig systems in real time!!!!. After that, a long drive to Lafayette, Louisiana was made, and after some GPS detours, we finally made it.

Thursday morning, we headed to **Devon's** headquarters and saw how **Devon** controlled and monitored all offshore equipment in real time, a very impressive system!!! Next stop was **Shell's** training facility in Roberts, LA. Students experienced how to handle a blowout from **Shell's** 30 year experienced teacher! All surface facilities were exposed to the students, not only sophomore students, but also the younger PE teaching assistants who got to experience everything!


Dr. Wu Ready for fun!

On Friday we headed towards Hammond, LA where we saw a CO2 injection facility. This was an invitation from **Denbury.** Their company showed us how the whole Enhanced Oil Recovery operation works; selecting the field, where to get the CO2, how to inject it, produce it and recover oil from depleted formations. High class tour or what!!??

By the weekend, we decided to let the students relax on their own. Not really! Students went to the Oak Alley Plantation near the Mississippi River in Louisiana, where we toured a


Denbury group Photo.

GULF COAST CONT.

plantation from the 1800's. Then off to experience original Cajun food (crawfish, alligator, etc). Think that was enough for the day.., no! The entire group headed to an air boat swamp tour to see the eco-system, see the wildlife, and hold a baby alligator. All these tours were made possible by a donation from **Devon** and the PE Department says a big THANKS for taking care of all of these LA tours. After all that, the team headed to New Orleans for a quick stop at the French Quarter. The students were able to expand their "networking" skills on Bourbon Street.


Spindle Top

Sunday, after a good nights sleep, we headed out to Spindle Top located in South Beaumont, Texas. This amazing museum is located where the great "Lucas Gucher" blowout occurred in 1901. This field started producing 100,000 barrels per day. The museum showed our students the history behind the great gusher at Spindle Top, the tools used with the original houses and stores restored. Plus a great GUSHER was seen, unfortunately not of oil; it was a simulated gusher using water... We hope the next gushers will be found by our PE students...

Monday found us back visiting **Marathon**. Safian Atan ('07) hosted us, with the assistance of Benjamin Ramariz, and Basak Kurtoglu ('08) in the morning, then off to **Shell's** offices. On both visits we were given an overview of the companies operations. We spent the next day out in **Marathon's** Mimms Creek field, and were able to see a working pumping well. They even allowed us to be on the site when they were perforating a well. Thanks to Brent Koran ('08), **SAIC/Chevron,** for being our liaison with the hotel where we stayed for the last three nights of our stay in Houston.

On Wednesday, **Marathon** sponsored us to tour the Houston Museum of Natural History, concentrating on the Oil Production History Exhibit in the morning. Then in the afternoon we went to the **Chevron Corporate Offices** in downtown Houston. We were presented with a panel of alumni, Christine Beiriger ('98), Larry Hartman ('03), Conor L. Carroll ('05), and Derek Nash ('08), who provided valuable information about working with and for **Chevron** and answered all questions from the CSM students. We were


Marathon, Tx.

shown the essence of their deepwater drilling research along with seeing the deepwater drilling communications between their headquarters and the rig.

The next day we spent the morning with **Helmerich & Payne International Drilling** Company where they build, test, and move rigs out to contracted sites. J.T. Dohm ('96), and his associates were gracious hosts. Our schedule had us going to one more company, **Transocean,** which provided us with a very enlightened presentation of how the oil industry has moved from drilling 5,000 offshore wells to drilling 14,000 ft offshore wells, with the improvements in technology, drilling ships, and cost. We didn't get to meet Steve Newman ('89), President and Chief Operating Officer of **Transocean,** but we were inspired by his career in the company as he climbed up with the company.

Overloaded with information, tired and a suitcase full of dirty clothes, we all headed back to Denver on Friday, with a smile on our faces and an eagerness to delve into the PE junior classes.

THANKS AGAIN TO ALL THE PERSONEL, ALUMNI AND COMPANIES THAT HOSTED OUR GROUP. IT WOULD NOT HAVE BEEN SUCG A GREAT FIELD SESSION WITHOUT YOU!


Chevron Alumni Panel.

PEGN315 FIELD SESSION IN NORTH TEXAS, OKLAHOMA, AND NORTHWEST LOUISIANA by: Alfred W. Eustes

This year, I was able to go on Field Session. Dr. Yin, Dr. Prasad, and I took a group of 42 students to North Texas, Oklahoma, and Northwest Louisiana. As usual, it was a grand trip with many opportunities to see and to do unique things that make our business so interesting. Plus as an added advantage to me, this was the area I spent the most time in as an ARCO drilling engineer and my side of the family lives in this area.

We started out by flying to DFW and going to my parent's home in Fort Worth for our traditional cookout. My parents, brother (who promised me not to share any brotherly secrets regarding my childhood with the students), and sister-in-law cooked up burgers and hot dogs with the traditional fixings. My sister-in-law baked and decorated a fantastic cake with the CSM logo frosted on top!

The next day, we met with Dr. Robert Frost of **Frost Brothers Resources**. You may remember him as a metallurgy professor emeritus at Mines. He and his brother own some land just southeast of downtown Fort Worth. He and his team explained the Barnett and how their urban operations work. Then, after a lunch of BBQ, he let the students shut down the field to demonstrate shutdown and startup procedures. This was definitely a unique experience for the students to actually put their hands on working valves and compressors and shut down/start up the processes. Many thanks to Robert, Quanah Gilmore, Edmund Frost, Trae Huish, and James Jackson.

The third day was spent just north of Fort Worth in **Devon** Country. Dan McCorkell('07) helped to coordinate a great day. It started out with a tour of the huge gas plant **Devon** has near Bridgeport. From there, we went to Decatur for a lunch and learn on **Devon's** operations in the Barnett Shale region. We visited an active frac job with perforating ongoing and an H&P flex rig. Our appreciation goes out to George Jackson, John Logemann('07), Brent Smith, James Bland('06), Dwyatt Jackson('07), Caitlyn Jackson, and Brandon Baker. In addition, Dick Leonard of Protechnics gave a presentation on tracers in frac jobs.

Shutting Down a Gas Field at Frost Brothers Resources.

The fourth day started at **EnCana's** operations near Benbrook Lake southwest of Fort Worth. Nancy Farrar and Vicki Leonard outfitted us with fire resistant "smurf suits" and took us on a round robin tour of their operations. We visited a rig, a compressor station, and a tank battery.

Later that day, we drove on to Duncan, Oklahoma to visit **Halliburton.** Back in 1981, ARCO sent me to **Halliburton's Energy Institute.** I remember that it was a nice place. Little did I know just how nice. Jerry Rendon hosted us in, what I can only describe as "Club Halliburton". They called it "Camp Oredigger". From the rooms, the meals and the recreational activities, it was all outstanding. Oh, we also spent time visiting and touring Halliburton's operations and

The Group at Devon's H&P 375 Flex Rig Site.

PEGN 315 FIELD SESSION CONT.

manufacturing. This was hosted by David Jones, Joe Sandy and literally 30 other engineers showing us all around the cementing and fracturing R&D labs and the pump and truck manufacturing facility. We finished it up on Saturday with a rainy tour of their camp in Duncan.

We headed down to Ardmore for a visit to the interesting geology of the Arbuckle Mountains. Of course, the most common comment was, "These are mountains?" We drove on to Bossier City, Louisiana.

Students Enjoying the Amenities at the Halliburton Energy Institute.

We traveled to **Questar's** operations in the Haynesville Shale. Steve Hall, formerly president of the Denver Chapter of the AADE, of **Questar** lead us on a merry tour of northwest Louisiana. We had a good tour of a Grey Wolf rig and, after a crawfish (aka "mud bugs") lunch, a tour of Jody Helbling's ('89) **Energy Drilling Company** rig. From the back woods, we traveled into Bossier City for a visit to **Baker Oil Tool's** yard with Randy Barmore.

On Tuesday, we headed west to the East Texas Oil Museum in Kilgore. I am a history buff so I always look for opportunities to visit oilfield museums. Actually, I had planned on just visiting the museum as a bunch of tourists, nothing special; but, Joe White, the museum's director would have nothing of that. Instead, he rolled out the red carpet for us. Thank you to him and his team at the museum. I recommend a visit!

A Crawfish Boil at Questar in Northwest Louisiana.

Later, we drove over to **Weatherford** in Kilgore. Who should be there was Rick Davis, our Denver contact. He came down to talk with us about wellheads, as he does in the 361 class. I thank him and Charles Modisette, their camp manager, and Joe McNeil for the tour.

The next morning, we headed down to **ExxonMobil's** Trawick field northwest of Nacogdoches, Texas. Thanks to Steven Duck, Bryan Wesley, Tommy Attaway, and Matthew McCowan, we were able to see an impressive conventional gas field. Right after a fish fry lunch with them, we took off for Fort Worth.

On Wednesday evening, Jerry Gilley, President of the DFW chapter of the AADE, invited all of us to sit in their monthly meeting in downtown Fort Worth. That was seriously generous because there was 47 of us! One of the speakers was Dr. Fred Ng of Wild Well Control, formerly of **ARCO** and one of the engineers there that I trained under. It is a small business, really. I thank the AADE chapter for sponsoring all of us for a good meal and a good talk.

An ExxonMobil trawick Field Wellhead.

The next day, we went downtown Fort Worth to **EOG Resources.** There, we had a morning of discussions on culture, safety, geology, and engineering from a number of people including Bill Thomas, Matt Garrison, Craig Young, Albert Billman, Tim Wenicke, Sam Noynaert, Brian Swanson, and David Grounds. That afternoon, we went on another tour of rigs (a super single), fracs, and a disposal facility. I need to thank Carrie Grin for organizing this as well as taking me and another student to DFW.

I left the group that Thursday evening. I had to get back to Denver for my daughter's high school graduation from Monarch High School in Louisiville. However, the group

PEGN 315 FIELD SESSION CONT.

had one more visit to **Halliburton's** Logging Facility in Fort Worth. I have heard it was a good visit . Our thanks go to Pat Hill for his help in getting this organized.

Everyone returned safely to Denver. This is thanks to the care and efforts you and the students make on these field sessions. I know that I have left some wonderful individuals out of the citations. For that, I have only my poor note taking to blame. If I have, please note that on behalf of the Colorado School of Mines, the Petroleum Engineering Department, and the faculty, especially this one, thank you one and all. See you next year!

A supersingle rig at EOG's Barnett Operations.

PEGN 316 FIELD SESSION - MASSADONA by: Jennifer Miskimins and Manika Prasad

Well, for the second year in a row, we successfully ran and survived two sessions of the Massadona, PEGN 316, Field Session II. This year we had 55 students attend the first session from May 10 – 21 and 42 students attend the second session from May 26 – June 6, for a total of 97 total students. Additionally, we had five faculty, seven teaching assistants (TA's) and one visiting scholar help out with the camp – needless to say, juggling the logistics and schedules is a little more complex than in previous years.

As in the past, exercises included both structural and stratigraphic geologic components and how they relate to petroleum engineering problems. For those of you who have attended this field session, you'll probably get an "only-those-that-have-been-there" smile out of the fact that it hailed during the Skull Creek mapping exercise. Yes, nature does have a sense of humor!

In addition to us (Jennifer and Manika), we need to thank Donna Anderson and Jennifer Aschoff from the Geology Department who helped co-instruct. Additionally, Mark Miller took a sabbatical from the PEGN 315 session and joined us during the first two weeks. Three TA's from the PE Department helped out – Linda Mohammad, Nikita Kazakov, and Ronnie Busaba. Linda and Nikita actually did all four weeks,

Day 14 of Massadona.

the diehards! TA's from the geology side of things came from all over including Raffaello Sacerdoti from **Encana**, Peter

Massadona group 1

PEGN 316 FIELD SESSION - MASSADONA

Bucknam from **Yates Petroleum**, Grace Ford from **Baytex Energy**, and Ria Brunhart-Lupo from CSM. Our department's currently visiting scholar, Guang Qing Zhang, from Beijing University, also joined us for the last two weeks.

Home Sweet Home.

Map This! Skull Creek.

I love Petroleum!

Once again, we need to profusely thank the following companies and their representatives, who didn't bat an eye about hosting us twice within four weeks including: **Questar** and Russ Griffin; **Chevron** and Andy Walla; and **Production Logging Services** and Craig Stratton.

We hope you enjoy the pictures that we've included with this article and that they bring back some fond memories of your time in Massadona Country!!

Massadona group 2

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Alumni Reception at SPE ATCE

To Our Alumni:

Your attendance is requested at the Colorado School of Mines, Petroleum Engineering Alumni Reception to be held during the SPE Annual Technical Conference and Exhibition in New Orleans, Louisiana
October 4th through 7th, 2009.

The Alumni Reception will be held on
Tuesday evening, October 6th at the Hilton New Orleans Riverside at Ernest N. Morial Convention Center
5:30 to 7:00 pm.

Cost $30
As always, there will be plenty of food with a cash bar.

All are welcome to attend this reception, regardless of attendance at ATCE.

RSVP (tsnyder@mines.edu) preferred but not required.