



Petroleum Engineering

Newsletter

Vol. 11, No. 1 September 2007

Colorado School of Mines

Thoughts from Ramona M. Graves



Dr. Ramona M. Graves

In the last five months I have thought of the ancient Chinese curse often - "May you live in interesting times." On Friday, May 11, 5:00 pm Craig stepped aside as the Colorado School of Mines Petroleum Engineering Department Head and a great vacuum was formed. On Friday, May 11, 5:01 pm I was sucked into the vacuum and became INTERIM Department Head. Our newest Research Faculty member, Dr. Bill Scoggins (also CSM President), wonders why I always capitalize INTERIM. I agreed to this position only for the time it takes to organize a search party/committee and find a new leader who can move the

department into the next generation. We are advertising but we need your help. I know the right person is out there and one of you knows who it is. If you have any suggestions on who you think the right person would be, please let me know - rgraves@mines.edu. You all know industry is changing, the students are changing, research into frontier areas is more important than ever, and retention of faculty is becoming more of an issue, so I strongly believe we need a new leader who can bring new creative ideas on how to move the department forward.

These are interesting times! Undergraduate enrollment is ~450 (the largest since the late 70's, early 80's), graduate student enrollment is ~90 (largest ever), our research volume per year is approximately \$2MM and rising (largest ever), and our faculty number of 10 has been about constant for the last 20 years. This year we have made one great hire, Dr. Manika Prasad, and we presently have two offers out for new professors. We are concurrently searching for an additional three faculty members. This is academia so the hiring process is quite onerous, and although there are many qualified applicants, the worldwide demand for faculty is far outpacing the supply. Again, I ask for you help in suggesting persons you think might be a good fit for our faculty team.

Even with our high enrollments we are continuing our tradition of having outstanding field sessions for our students. Last summer we divided our sophomore field session, PEGN 315, into three trips with about 40 students in each group. This meant coordinating 4 faculty, 2 administrative assistants, 1 lab coordinator and 8 graduate students. Bill Eustes took one group to tour the Rocky Mountain, Erdal Ozkan went to the Gulf Coast, and Mark Miller did a California tour. A good, safe experience was had by all, thanks in large part due to the support of you alumni and your companies.

Jennifer Miskimins took 90 seniors to Massadona, PEGN 316. Her team included Donna Anderson, Research Professor in Geology, Linda Battalora, 6 PE TA's and 2 GE TA's. Due in large part to Jennifer's outstanding organizational skills, a good, safe experience was also had by all. Next year, since

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our camp at Massadona cannot house 130 students, we will be having two, two-week sessions back-to-back.

Our new petroleum engineering building, Marquez Hall (Thanks, Tim, for the fantastic gift to kick off this project!), is going to be a truly magnificent facility for both teaching and conducting research. The design incorporates visualization capabilities, new undergraduate teaching labs, space for additional 40 computer stations, new "wet" research labs, along with space for our ever growing research centers. And on top of it all, it will be a green building. Working with the architects has been fun and challenging. For those of you who have designed and built a house, imaging designing and building a 57,000 square foot house with input from 10 spouses and 20 in-laws.

On a personal note, I'm doing ok. This summer I went on an 18 day safari in Zimbabwe, Botswana, and South Africa. My safari partners included Geri Thompson, Bob Thompson's wife, and Katy, his daughter. I do still miss him! We really had a unique experience in that we "tent-camped" through the bush. I am so glad I did it, but I will never camp through Africa again!

My son, Jacob, was staying at my house watching dogs, plants, and mail while I was in Africa. On my return, he was cleaning my gutters and fell off the roof. He will fully recover but it will be a long process. He broke his back and crushed his hip. He was forced (by me the mom) to move back home because he was in a body cast for 4 months. He has just been given the ok to start walking and building up his strength. The doctors haven't ruled out a hip replacement, but that should be in the future. Daughter Lacey has moved to New York to attend grad school. Last I heard she will be studying archeology!



Elephant Safari in Zimbabwe

Finally, please join us at the SPE ATCE alumni reception on Tuesday evening in Anaheim. This year the focus will be recognition of Craig and his service to CSM and the Petroleum Engineering Department. I am sure everyone reading this newsletter has been impacted by Craig's 27+ years of leadership of the department. Dr. Bill Scoggins, CSM President and PE Research Faculty, will be there to help us celebrate. Everyone has a "Van Kirk story" so come and share them. You do not have to attend ATCE for you and your spouse to join in the celebration since the event will be held at the Anaheim Hilton (see inside for details). The CSM Foundation is hosting the event. I am so thankful for the support and commitment of the faculty, staff, industry, alumni, and my kids. The continued success of the Petroleum Engineering Department is the ultimate example of team work at its finest.

Research Professor, M.W. Scoggins



Dr. M.W. Scoggins

Just a brief note to let you know how much I am enjoying my appointment as a Research Professor in the Department of Petroleum Engineering. After thirty five years in the global oil and gas industry, it is truly an honor being affiliated with one of the world's premier academic programs dedicated to educating the next generation of industry innovators and leaders. I envision an exciting future for the

Department with the construction of Marquez Hall, which will provide state-of-the-art facilities for both teaching and research.

I look forward to working together with the faculty, our alumni and industry partners to continue Mines' legacy of excellence in petroleum engineering.

Best regards,
M. W. Scoggins
President

Research Professor of Petroleum Engineering

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Linda A. Battalora



Linda A. Battalora J.D.

My first year as a Faculty member in the Petroleum Engineering Department was very interesting and enjoyable! This year promises to be equally as satisfying. With Dr. Graves at the helm as Interim Department Head, we look forward to adding new faculty members to accommodate the significant growth in enrollment. Meanwhile, we are excited to meet the challenges of educating

and graduating top-quality petroleum engineers, most of whom will join your ranks in industry.

Again this Fall I will be teaching PEGN 310, Reservoir Fluid Properties, along with two sections of PEGN 481, Petroleum Engineering Seminar. I continue to serve as the Faculty Sponsor to the Student Chapter of SPE. It is rewarding to watch the students develop a commitment to the goals of the Society as they experience the numerous opportunities provided to them by our industry sponsors. Additionally,

this year I have taken on the role of CSM 101 Mentor. It is a pleasure to work with first year students assigned to my section as they navigate through their first semester at Mines. Several of them have already declared petroleum engineering as their major!

In Spring 2008, I plan to teach two more sections of PEGN 481 Seminar to accommodate our enrollment of seniors. Similar to last Spring, I plan to teach PEGN 598A Graduate Petroleum Engineering Seminar as well as co-teach PEGN 439 Multidisciplinary Engineering along with Dr. Miller and our colleagues from the Geology and Geophysics Departments. Dr. Miller and I are looking forward to taking a group of students to California for PEGN 315 field session. I would be remiss if I didn't mention the two weeks this May in Massadona where I joined Drs. Miskimins and Anderson and our incredible Teaching Assistants in hosting 90 students! The camp has undergone significant improvements since my field session in 1986. The "technological advancements" including port-o-potties are impressive!

We look forward to seeing many of you at ATCE 2007 in Anaheim in November. Of course, we always enjoy seeing you on campus for alumni events and recruiting. Thank you for your continued support of Mines and the Petroleum Engineering Department!

Alfred W. Eustes



Dr. Alfred W. Eustes

Iwas honored this last year to be the chair of the Petroleum Division (PD) of the International Petroleum Technology Institute of the American Society of Mechanical Engineers. The division continues to grow and coordinate its activities with the sister divisions, the Pipeline Systems (PSD) and Ocean, Offshore and Arctic Engineering (OOAE). The PD had

two petroleum related sessions in the Offshore Mechanics and Arctic Engineers (OMAE) conference in San Diego this summer. Next year, this conference will be in Portugal. If you are interested in presenting a paper, contact me and I will get you to the right people. If you have any other questions regarding the Petroleum Division, by all means contact me. I would be pleased to talk with you about the division. The school continues to be active in the ice business. In September, Will

Fleckenstein and I coauthored a paper on a potential method for accessing sub-glacial lakes in Antarctica. Lake Vostok is an Ontario size lake under the Russian Vostok station in East Antarctica. The lake is 3,300 meters under the ice and runs about 200 to 800 meters in depth. It is thought to be water that hasn't changed in one million years! Of course, one of the goals of access is to not contaminate the lake. The method we proposed relies heavily on the technologies you have helped develop in the course of petroleum activities. It remains to be seen how the sub-glacial lake community accepts the idea.

On a final note, at the beginning of this summer I received bad news from my urologist. I have prostate cancer. My wife and I investigated and discussed the many options for my return to health and decided that surgical intervention was the best option. By the time you read this, I will have undergone the surgery and will be recovering at home. I plan to return to school in a limited capacity in October and be full speed by November. So, I should be around for many more years. I hope to see you at the Anaheim ATCE in November!

Final Note from Ramona: Bill is back. It is now mid October and he is already at full speed!



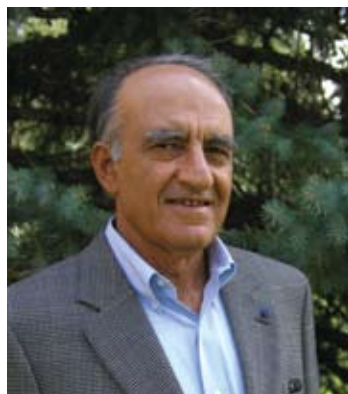
Dr. Will Fleckenstein

This past year was very busy as the number of students interested in Petroleum Engineering swells in step with the price of oil. The current academic year promises to be very busy also. This semester I'm teaching three classes; an undergraduate drilling class I share with Dr. Eustes, and two graduate classes. The graduate classes are an inter-disciplinary class taught with Stephen Sonnenberg from Geology and Tom Davis from geophysics, and a class focusing on Workover Design and Operations. The inter-disciplinary class is focused on valley fill reservoir systems, but the real value is the broadening of the students' perspectives by working together on projects, with input from all three disciplines, to solve development problems. The Workover class is focused on all operations after the initial completion to final abandonment, and is taught in the evening to facilitate industry participation. The Workover class originally had 15 students, but grew to 32 students, including 9 students with fulltime industry day jobs.

Will Fleckenstein

I presented a paper at the 10th International Symposium of Antarctic Earth Sciences on a methodology to access points under the ice for scientific exploration. This symposium is held every four years, and is the first time in 30 years that the symposium was held in the U.S.A. The symposium opening gala was held on the bluffs above the Santa Barbara Channel on the UCSB campus, with a beautiful sunset view of the platforms in the channel, including the aforementioned Platform Houchin. Naturally, my observation on the spectacular view of the platforms provoked a discussion of the compatibility of offshore drilling in general with environmental stewardship, and it was apparent that many in the environmental community don't understand where energy comes from, or what is involved with offshore drilling. I also continued to help with the ICE CUBE project in which hot water is used to drill 8,500 foot boreholes in Antarctic glacial ice for deployment of a muon and neutrino detection array. This project is very ambitious in scope, in terms of the science and logistics, but is predicated on drilling 80-90 boreholes at the South Pole.

I hope everyone has had a great year and look forward to see many of you at the CSM Alumni Reception at the SPE ATCE.



Dr. Hossein Kazemi

The Fall 2006-Spring 2007 academic year was a successful year for me. At Marathon Center of Excellence for Reservoir Studies (MCERS) our accomplishments were both significant and rewarding. Dr. Erdal Ozkan and I were closely associated with several innovative research areas which include: (1) reservoir characterization by pressure and productivity index analysis, (2) multi-scale physics of flow in porous media, (3) simulation of single- and multi-phase flow in naturally fractured reservoirs, and (4) geomechanics in improving oil and gas production from low-permeability sands and shales. Our goal is to find ways to improve oil and gas production from petroleum reservoirs. The multi-scale physics and computation is an integral part of our efforts because we

Hossein Kazemi

believe the small-scale features generally play a major role in multi-phase flow—especially in fractured reservoirs.

I also kept my eyes on research findings in another research area headed by Dr. Jennifer Miskimins on fracturing, acidizing and stimulation technology (FAST). In fact, Jennifer, Erdal and I were co-investigators on a research project on a fractured shale project. Finally, one of our graduate students and I have become involved with the Reservoir Characterization Project (RCP) headed by Dr. Tom Davis. The goal is enhancing integration of reservoir engineering into the RCP's overall project goals. I believe this is an excellent example of an opportunity for the PE department to become closer with other notable CSM research activities.

Erdal and I helped formulate several collaborative research projects for the Abu Dhabi Petroleum Institute (PI). The project will include participation from the majority of the PE faculty, and students from both CSM and PI. Potentially, we will become involved in other significant research projects in the coming year.

Kazemi continued

In January 2007, I visited the Saudi Aramco Special Core Analysis Conference and gave a talk. Erdal and I presented two papers at the Middle East Oil Show and Conference in Bahrain in early March and visited the PI afterwards. Several of our graduate students, Erdal and I prepared four papers for presentations in the 2007 SPE Annual Technical

Conference and Exhibition.

I have taught four courses on Reservoir Simulation, Naturally Fractured Reservoirs, and Simulation of IOR and EOR processes. These courses are designed to help students with their research projects.

Mark G. Miller



Dr. Mark G. Miller

Besides teaching the normal production and programming classes, I was able to co-teach with Professor Linda Battalora an Energy Engineering class. Linda was able to schedule many guest lecturers from within and outside campus on a broad variety of energy topics. We had about 50% mechanical and electrical engineers, 30% petroleum

engineers and the remaining students from a wide spectrum across campus. It was interesting to hear all

of the talent on campus talking about energy. I also would like to take this opportunity to thank people who helped on this year's summer Petroleum SuperSchool. Anadarko helped significantly. Greg McIntosh showed the students injection and production facilities, while Phil Johnson showed us the largest coiled tubing drilling rig in the US. We then visited Maverick Stimulation where Matthew Hoffman showed us equipment and fluids. The students commented over and over again how much going out in the field helped them understand what was said in the classroom. We appreciate your help.

Jennifer L. Miskimins



Dr. Jennifer L. Miskimins

Greetings! As I sit here writing this article, I find myself asking the same question I always seem to be asking at this point in time—where did the summer go? I remember some 100° temperature days, I remember lots of airports, and I remember the halls of Alderson Hall getting waxed, but other than that, the entire summer seems to be a blur. I always look forward to the students

coming back—but the shock of school starting in the fall never ceases to amaze me.

As we all know, our industry is undergoing an interesting period, and it continues to affect us here in the department also. Classes continue to grow and research opportunities

continue to develop. I've seen more buildings on campus during the last couple of semesters than ever before because Alderson no longer has classrooms large enough for us. I like the opportunity to get outside—until of course that first snowstorm hits.

As always, I continue to teach both the undergraduate and graduate classes in stimulation, but I am adding one more class to my repertoire this year as I'll be teaching the Petroleum Economics course this fall. I have taught this course in the past, but it's been several years. As a trade-off for teaching the economics course, I'll be taking a hiatus from PEGN 439, the senior-level multidisciplinary course. I've taught this class since joining the faculty and will miss being involved in it, but it will be a good change for me and a better use of the department's resources. In addition to teaching here at school, I've also been active with teaching in the department's continued Egyptian initiatives, where by the end of this year, I will have taught three weeks of courses.

From a research standpoint, the Fracturing, Acidizing, Stimulation Technology (FAST) Consortium continues to

• • • Faculty Letters

grow and expand. We now have 27 member companies with several others that have expressed interest. If you're curious if your company is a member, you can check out the list of companies at www.mines.edu/fast. (Bear with us on the webpage—we're in the progress of updating.) The program has now graduated six M.S. students, two M.E.'s, and its first Ph.D. We have been and continue to work in the areas of hydraulic fracture height growth, non-Darcy flow mechanisms, hydraulic fracture reorientation, slickwater fracturing, and fracture face damage. We have also just voted in two new projects, which will start this summer/fall, in the areas of horizontal well fracturing and surface microseismic monitoring. Needless to say, all this keeps me rather busy and generally out of trouble.



FAST Consortium. Front row: Al Sami, Arvind A. Chittambakkam, Dr. Jennifer L. Miskimins and Henry's daughter, Dan Cordle. Back row: Amrut Athavale, James Page, Dan Benedict, Hector Willis, Craig Wieland, Henry Lopez, Rob Tomnsen

The FAST projects have generated several publications in SPE and elsewhere, and the results have been received very favorably. The support and interest in FAST seems to be due to a renewed interest in stimulation with all the unconventional reservoir development taking place around the world, along with the continued demand from traditional reservoirs. As I mentioned in last year's newsletter, I believe this will be an interesting and active area for several years to come with many associated challenges and opportunities, and I'm proud that the Colorado School of Mines is taking a lead in this area.

As always, please feel free to contact me anytime at (303) 384-2419 or jmiskimi@mines.edu or visit my web site at www.mines.edu/~jmiskimi/. I hope to see you at SPE in Anaheim!!



Dr. Manika Prasad sampling fluid

that his training finally paid off and that he has finally made me an engineer!

To give you some background about myself, I hold a B.Sc. (Honors) degree in Geology from Bombay University, an M.Sc. (Diplom) in Geology and Geophysics from Kiel University, and a Ph.D. in Geophysics from Kiel University. I am a member of SEG, AGU, AAPG, SPE and SPWLA. I joined the Petroleum Engineering Department in Fall 2007

Hello! I am a geophysicist wearing a Petroleum Engineer's hat. For a long time, I was a geophysicist doing petroleum-related research. I still have a hard time explaining to my niece and nephew what the difference is! So, I tell them that I switched my home department and my geek-engineer husband tells them

after spending a few years in the Geophysics Department at CSM and helping to setup a Geophysics Division at the Indian Institute of Technology in Bombay, India.

I arrived at Mines in 2004 after spending a few years in the Indian Institute of Geomagnetism doing geomagnetic surveys, many years at the University of Hawai'i doing rock and mineral physics and non-destructive testing of rocks, concrete and cements, and fibers, many more years at Stanford University doing rock physics. I am an experimentalist. I am the co-director of the Center for Rock Abuse together with Mike Batzle, Geophysics Department, CSM and De-hua Han, Geophysics Department at the University of Houston. My main areas of expertise lie in experimental rock and fluid properties, petrophysics, and geophysical well log analysis. We do bridging research to link rock and fluid properties with geophysical signatures, depositional environments, mechanical strengths, deformation styles and mechanisms, and microstructure. Our group uses controlled experiments to investigate variations in physical properties, strength, stiffness, and seismic properties at in situ conditions in fluids, rocks, minerals, and man-made composites.

Our strongly multidisciplinary research focuses on rock, sediment and fluid properties, quantitative nano- and microscale characterizations, flow zone mapping, cement and concrete characterizations. To achieve this

Manika Prasad

• • • Faculty Letters

Prasad continued

goal, we collaborate with civil and petroleum engineering, geophysics, geology, and physics, and with NIST, Indian Institutes of Technology, Institute for Non-Destructive Test methods in Saarbruecken, other interested institutes, and the oil and gas industry. We have collaborated with and co-advised students from these faculties. Indeed, the best synergy in research has come from such multidisciplinary collaborations. For example, I expanded the scope of Acoustic Microscopy and Atomic Force Acoustic Microscopy from non-destructive testing to Earth Sciences and to failure characterization in concrete. I hope for similar collaborations in Petroleum Engineering, for example, on unconsolidated materials (sand, shale, and clay) where my experimental research could have significant cross-over with wellbore stability, sand production, and drilling issues. Other focal points could be permeability and stress mapping in fractured reservoirs through seismic properties, understanding the geomechanical and fracturing processes in reservoirs.

It is an exciting time to be in this research. Our field is rapidly changing and bringing many challenges for us.

On one hand, with growing maturity, we are moving away from 'low-hanging fruits' and the remaining hydrocarbons are more difficult to find and extract. On the other hand, the demand for energy continues to grow. As a result, our discipline is called upon to make reservoir exploration, production, and management more efficient, and help tap the large resources of unconventional reservoirs. I strongly believe that this efficiency will require an integrated approach where multidisciplinary teams of professionals, petroleum engineers, geologists, geophysicists, are able to communicate effectively with each other and integrate different types of data. These changes will require qualified and well-rounded engineers and scientists who are willing to reach outside their own disciplines. There is a necessity, in our increasingly flat world today, of training for a diverse workplace that our discipline will require in the future.

I really look forward to hearing from all of you, alumni and sponsors for feedback and brainstorming sessions to see how we can work together in teaching and research and address some of the challenges facing our discipline today.

Craig W. Van Kirk



Dr. Craig W. Van Kirk

Greetings from me to you via PE's annual newsletter. I hope you and yours are happy and healthy, for I and mine are, thankfully.

Most of you should know by now that after 27 ½ years as PE's Department Head, I stepped aside after last

partners, and fund raising, in particular for PE's new home Marquez Hall.

Before getting into more of those details, I am grateful to report to you that my wife Denise and I are healthy and happy, as are our children (Connie and Tom, and Sam and Amy) and our 6 grandkids (Brendan, Sean, Ryan and Gus, Grace, Ellie). They are all very busy; school, soccer, music lessons, other sports, et al. Since our last annual newsletter last fall, our son-in-law Tom did return safely from his 3rd deployment in the Middle East, and now is preparing for his 4th trip.

During this past year I enjoyed teaching Seniors Reservoir Engineering and Freshpeople the Intro to PE course. Soon I will expand my teaching to the graduate student level, as was my practice some years ago, and serving on more graduate student research committees. Also, I taught a few courses off campus on behalf of CSM, very enjoyable.

In June this past summer I participated in a special SPE Symposium in London addressing the global petroleum industry needs for new PE graduates, focusing on the quantity and quality and the ways forward. SPE President Jaleel Al-Khalifa of Saudi Aramco invited 70 of us representatives from the global petroleum industry for the two days of discussions, debates, and planning. Our CSM PE Department was one of only four universities represented at

spring semester to return to a full-time faculty position without the associated administrative responsibilities. It was my great pleasure to represent CSM's PE Program as Department Head for many years, and now I am transitioning into a different but parallel role for the next 5 to 10 years.

I am expanding my efforts in several areas of service to CSM, especially teaching classes, alumni relations, public relations, industry and government partners, international

• • • Faculty letters

Van Kirk continued

the events. It was clear that our accomplishments and reputation are well recognized throughout the world, and CSM's PE Department will soon be looked to for more advice and partnerships for expanding our global outreach activities. My wife Denice and I enjoyed a few days in London and a trouble-free exit from Heathrow airport just a few hours before it was shut down because of the bomb scare.

Recently I was asked to assist Iraq in developing a new Petroleum University, so I am attending meetings with Iraqi and American representatives in Jordan in mid-September. This is one example of numerous opportunities CSM's PE Program enjoys these days, being invited to assist others in developing or enhancing their PE capabilities. I am honored to be part of these kinds of efforts.

Some of my ongoing activities which are receiving more attention than before are closely associated with CSM President Bill Scoggins and his needs for CSM; local Denver area and Rocky Mountain industry partners, CSM's role in the Middle East, designing and fund raising for Marquez Hall, and a few others. In the near future I hope to see you

at the SPE Conference in November in California. In the meantime I look forward to seeing you anytime, anywhere. I really enjoy your emails, phone calls, letters, cards, meetings by appointments, and the numerous surprise "drive bys" also. Please do keep in touch, it truly is a significant source of satisfaction. Some of you have known me (and I you) for nearly 40 years, and many of your children are current or recent past CSM students. What fun! On one last sad personal note, my mother-in-law passed away in early April at age 87. She was a remarkable person, had led a remarkable life, and was in quite good health up to her death. I first met her 55 years ago in 1952 when I was 7 years old in the second grade, courting her daughter Denice. We both miss her very much.

Please take care and keep in touch. My best to you and yours,
Craig

• • • PE Faculty 2007



From left, standing: Craig Van Kirk, Hossein Kazemi, Jennifer Miskimins, Bill Eustes, Will Fleckenstein, Mark Miller. From left, sitting: Erdal Ozkan, Linda Battalora, Manika Prasad, Ramona Graves.

Al Sami



Al Sami

It has always been my pleasure to share what I know with others and learn from them as well. Since I switched from industry to academic after 24 years of service in several different industrial environments, wearing many different hats and sometimes several at the same time, it seems that I have made a fulfilling decision for the final years of my professional career. The experience with my own two daughters became very handy in

getting along well with the students. We all are enjoying a very friendly and close relationship. This feeling is the cornerstone of my passion for doing whatever I can to

make it easier for students to understand the principles and concepts. Occasionally I come up with ideas to design and make educational toys to facilitate a better understanding. Sometimes we get involved in discussions about their personal, environmental and social concerns. What will happen after oil or, is hydrogen actually the next alternative source of energy, what about solar energy, wind energy, geothermal oceanic energy, hydroelectric and..... can these really power the future.

What I appreciate the most in the PE Department is working with nationally and internationally distinguished professors with the wealth of knowledge and experience. That's where I get confidence and courage to extend my horizon and advance my thought towards continued improvements.

PE Office Staff 2007

The three of us are fortunate enough to be surrounded by lively, intelligent, interesting, and at times extremely entertaining students. It's a great pleasure to watch the students progress and to even sometimes play a small roll in helping them endure their rigorous education.

It is especially touching to see the alumni return and speak with such appreciation and enthusiasm about their alma mater. We observe many times over how profoundly the Colorado School of Mines has touched so many lives in such a positive manner.



From bottom to top: Terri Snyder, Eleanor Maes, Denise Winn-Bower

• • • An Invitation



**Please join us in honoring
Dr. Craig Van Kirk
for 27 and 1/2 years of leadership to
Colorado School of Mines
Department of Petroleum
Engineering.
We will be celebrating Craig's
past, present and
future contributions
to the School on
Tuesday, November 13, 2007
5:30 p.m.
at
Hilton Anaheim
California D Ballroom
777 Convention Way
Anaheim, CA**



• • • **New Facility**

MARQUEZ HALL

A World-Class Facility for Petroleum Engineering at Colorado School of Mines

A VISION FOR THE FUTURE

Marquez Hall – a state-of-the-art \$25 million facility for pioneering teaching, research and service – promises to further Colorado School of Mines' position as a global leader with a unique breadth of industry expertise. With the construction of this cutting-edge building, Mines' Department of Petroleum Engineering will push the forefront of new technology and remain at the top of its class in recruiting and training new petroleum engineers. The support of corporate partners, alumni and friends for the Marquez Hall project will ensure that Mines is poised to help industry meet the challenge of increased worldwide energy demand and the need for innovative approaches to resource recovery.

- A total of 60,000 square feet of customized classrooms and research and teaching laboratories.
- Smart classrooms equipped with wireless networking and interactive audio-visual technology.
- Classrooms and laboratories adaptable for conducting made-to-order professional education programs.
- A multi-purpose visualization classroom to support interdisciplinary collaboration between Petroleum Engineering, Geology and Geophysics.
- Capacity for increased faculty research activity and enrollment of up to 400 students.
- Offices and meeting space designed to enhance interaction between students and faculty as well as research teams.
- Informational displays that will educate campus visitors – including thousands of K-12 students – about the petroleum industry.



For naming opportunities, please contact:
 Mr. Peter Han
 (303) 273-3130
peter.han@is.mines.edu

Dr. Craig Van Kirk
 (303) 273-3749
cvankirk@mines.edu

• • • Student Organizations

Society of Petroleum Engineers



Aprill Nelson, SPE President

My name is Aprill Nelson and I am the 2007 President for the Society of Petroleum Engineers student chapter. In the petroleum department, the Mines SPE chapter serves as a tool for students to learn about the petroleum industry and network with alumni and business professionals.

Members are able to learn about diverse topics through the regular lunch meeting that are held on campus. The technical presentations are also a time for students to network with the presenters. In addition, members are encouraged to attend the SPE Denver meetings downtown. Both meetings expose students to technical presentations from distinguished industry leaders on a wide range of issues.

To get every year started off, SPE has a booth set up during the Celebration of Mines to inform new freshmen or undecided students about what SPE is and if it would be

right for them. The biggest event of the semester is going to be the chapter's trip to Anaheim, California for the Annual Technical Conference and Exhibition (ATCE). This gives all students a chance to see the newest technology, listen to paper presentations, form new contacts, look for internships or jobs, and cheer on our PetroBowl. Last year the Mines SPE chapter won the PetroBowl and we hope to repeat our success again this year.

The major event in the spring semester will be the Joint Session Dinner that we have every year with the Denver Professional Chapter. This gives students a chance to meet with alumni and industry professionals from the area if they were not able to attend a lunch meeting. There will also be smaller events taking place throughout the year.

This year, my challenge is to make SPE a more active organization. This fall we sponsored a CSM SPE golf tournament; 11 companies and 22 students attended. The tournament served as an early event where students and company representatives were able to interact in a casual environment. We would like to thank all of the companies who give charitable donations to SPE thus enabling us to participate in many activities. A special thanks to Professor Battalora for being our faculty advisor. If you're interested in learning more or getting involved in the Mines SPE student chapter, please email me at apnelson@mines.edu.

Pi Epsilon Tau



Joshua Wilcox, PET President

Pi Epsilon Tau (PET) is the Honorary Society of Petroleum Engineers which recognizes Petroleum Engineering students for their outstanding excellence in leadership and academics. PET was created to foster loyalty, fellowship and cooperation for the petroleum industry. The society's objectives are to create a closer bond

students are required to have a minimum cumulative GPA of 3.00, while the minimum cumulative GPA requirement of graduate students is 3.25. Scholarship, leadership and sociability are also taken into account during the selection process.

Because leadership falls hand in hand with service, PET dedicates time to make a positive impact in the community and on campus. Besides giving department tours and helping with Discover CSM, the Mines' chapter of PET participates in noble causes such as Race For the Cure. If you have any questions regarding our organization or suggestions for service projects, please feel free to contact me at jwilcox@mines.edu or our faculty sponsor Dr. Graves at rgraves@mines.edu.

between its student members and industry, to broaden the scope of activities of members, and to maintain the high ideals and standards of the engineering profession.

Eligibility for membership is based upon academic achievement and exceptional character. Undergraduate

• • • Student Organizations

American Association of Drilling Engineers



Geordie Chambers AADE President and CSM President Bill Scoggins

Welcome back to all the faculty, alumni and students of the Petroleum Engineering Department. My name is Geordie Chambers and I am the current President of the student section of the American Association of Drilling Engineers (AADE) for the Colorado School of Mines. AADE allows student members to participate in the very dynamic world of Petroleum Engineering by getting them actively involved in the industry. The CSM section was started in 1996 under the Denver Chapter of AADE. At the time it was the first AADE student section in the Nation; today, many other Universities have followed suit. Currently the CSM section of AADE is being used as a template for a Wyoming student section of AADE.

The professionals in the Denver Chapter are more active then ever before with the CSM student section. This year we are pairing up with the Denver Chapter to form a mentoring program to assist undergraduate and graduate students with getting to know the industry, making career choices/plans,

and making contacts all over the country with different operators and service companies.

Dominic Spencer and Rick Davis, officers in the Denver AADE section started up the program in late August with a question and answer lunch meeting in Alderson Hall. The program will facilitate interaction between the students and the professionals over the course of this year via phone, e-mail and lunch visits. If you are a practicing petroleum engineer or a student looking to get involved in the mentoring program, make sure to contact me or another officer of AADE.

CSM AADE members are invited and encouraged to attend dinner meetings in Denver with the professionals from the industry. The Denver Chapter even pays the student section members dinner costs and encourages students to interact with the engineers. In March, CSM AADE student section will take the lead in organizing a joint session dinner meeting downtown for the professionals. Planning this meeting is a great way to get to know the Denver chapter officers and meet lots people across the industry. At the joint session meeting, the Denver chapter plans to give away tens of thousands of scholarship dollars to the most active AADE student members.

In conclusion, AADE is a great way for students to get one on one advice from professionals, meet practicing engineers, earn scholarships, learn about new topics, and even eat free food. I would like to thank the Denver Chapter of AADE, Dr. Eustes, CSM faculty sponsor, and all of our members for making CSM's AADE student section what it is today. The officers and I are really excited about this years events. If you would like to get involved, contact me at gchamber@mines.edu. Our website is <http://www.aade.org/Denver/CSM>.

• • • Field Sessions

PEGN315 Field Session in California

By Dr. Mark G. Miller

I am extremely grateful to the more than a dozen companies and sixty people who helped show the California 315 Field Session their operations. With their time and help, we were able to showcase some of the unique operations in Southern California. The students were able to see oilfield operations in a variety of different situations, both onshore and offshore. They were able to see both large and small operators, service companies, and government sector operations. In particular, I would like to thank Dave Mayer and Joe Nahama for their help in making contacts and making the field trip a success.

We started out the trip visiting offshore Santa Barbara

operations with Pacific Operators Offshore, Inc. Steve Coombs and Will Fleckenstein were the primary leaders of an exciting trip, complete with rope swing transfer of the students from a crew boat to the platform. One student made several attempt "gestures" before finally leaving the dock. Because of the multiple zones and small spacing, Aera's South Belridge operations proved to be a feast for the students' eyes. The forest of pumping units, pipelines, and workover rigs sitting in the middle of the desolate landscape was a memorable scene for the students, many of who had never seen an oilfield before. Sherry Stien, Ryan Nelson, and David Wahl were the primary contacts for a day that

• • • Field Sessions

PEGN315 California continued

was very well received by the students. It began in the field looking at various stages of a frac operation and ended in the office with alumni Bob Palermo presenting aspects of his career. In the middle, Aera President and CEO Gene Voiland talked about integrity and how important it is. Throughout the day Mines people were there to help. In addition to those alumni mentioned above, these included Dave Mayer, Mike Dixon, David Miner, and Andy Swint. The students were presented with a wide variety of career viewpoints and left excited about the petroleum industry.

Thursday brought visits to a couple of service companies. In the morning, Halliburton's Rafael Hernandez graciously showed us fracturing and cementing equipment, then he took us to the analysis lab where students got hands-on with crosslinked gel and examined cement analysis equipment. After a BBQ lunch provided by Halliburton, we were able to visit tubular goods provider JD Rush. Paul Fahey and Tony Curtis gave us a presentation about their state-of-the-art facility, then took us on a tour showing us what tubing looks like after being pulled from California's deviated wells. They then showed us a nifty tubing-straightening machine that rotates the tubing and bends it back into usable form. Finally, we saw milling operations that cut specialized thread into the tubing ends. We felt very privileged to see their operation.

Friday brought us to Bonanza Creek. Alumni Mike Starzar and his team gave us the independent's perspective. The students were very impressed by Mike's introduction to oil field financing talk. They liked the idea of being able to go out and find financing, make improvements to a field, then sell it and repeat the process. We then were able to go out and see Bonanza Creek's operations. We saw production facilities, steam injectors, and steam generators. Students asked a lot of questions.

While Saturday was mostly free, the evening was spent at an Alumni picnic in Bakersfield. Joe and Beth Nahama, Peter and Michelle Ashton, and Dave and Billie Mayer were the prime movers in making reservations, contacting alumni, and arranging food for an excellent picnic. In

between kicking a soccer ball around, the students got to meet alumni, alumni got to catch up amongst themselves, and everyone got to have Lonnie Curley cook for them. The students enjoyed it very much.

After a free day on Sunday (don't ask, don't tell), we were treated to a geology field trip led by Chevron geologists Mike Ponak and Tim Elam. Dave Mayer and Joe Nahama also helped out. The students got to see faults, steam coming out of the ground, diatomite, and perhaps the most memorable of all, naturally occurring tar seeps. I think that next time we visit these seeps, I will require the students bring two Hefty garbage bags, one for each leg. No matter how careful we try to be, a little tar seems to go a long way in making once new vans into "I wonder if steam cleaning will work?" This year one student decided to see if he ran fast enough, would the tar pit be able to catch him? The fact of birds and snakes entombed in the gooey mess was not a deterrent. Fortunately the only loss was a pair of steel-toed boots.

Occidental's Elk Hills was the next stop. Arlyse Scrizner put an excellent program for us together. Joshua Yurkanin and Devin Mills were some of the alumni helping out. The students were extremely impressed by the tour of the latest generation of H&P FlexRig. Devin stayed up well beyond his evening tour to show us a very impressive sight. For the drillers among the students, this was the best day. We also were treated to pumping units, production facilities, and lunch presentations. Oxy went out of their way to treat us very well.

Wednesday morning found us at Schlumberger's wireline facility. Julian Largo and Maritza Bernal-Mora gave us a presentation about opportunities at Schlumberger and then led us around their facility. We got to wear blue Schlumberger coveralls. I wonder how long it will be before one of the required items the students bring, in addition to hard hats, steel toed boots, and safety glasses, is fire retardant clothing. In the afternoon, the California Division of Oil and Gas hosted us at their facility. Randy Adams gave us a very nice presentation of the role of the division. A contest was held that kept the attention of the students. Finally,



A group photo after Mike Starzar gave a tour of Bonanza Creek's operations which included production facilities, steam injectors, and steam generators.

• • • Field Sessions

PEGN315 California continued



Chevron Geologist, Mike Ponek shows the group a natural oil seep on the Geology field trip.



Devin Mills discussing the Flex Rig at Elk Hills (OXY)

A Note from:
Will Fleckenstein

Randy and Dan Tuttle led us on a tour around Bakersfield showing us the impact of urban encroachment on oilfield development.

Long Beach and Occidental's Thums offshore development were the next stop. Ryan Cadenhead helped organize our visit, Salina Derichsweiler hosted our group, and help from Candra Janova and Marieke Gaudet was greatly appreciated. After safety presentations and a brief history of the field, we were able to again go offshore, this time to an island rather than a platform. Students were amazed at the effort that has gone into creating an environment that tries its best to conceal the oilfield operations from the shore. Waterfalls and hidden drilling rigs were part of the effort. Students left with a strong image of how oil companies and local communities can work together so that both benefit.

Finally, Venoco's Beverly Hills Oil Field was the last stop on the last day. Sally English provided us an excellent tour of the facility. Besides the colorfully paneled drilling rig, students saw air quality monitors surrounding the facility. They heard about issues of producing in close contact with the school and local governments. We went into the drilling rig and saw that it was not much more than a shell, likely never to drill again. It was a nice way to round out the trip. We are very grateful for your support, both those named and unnamed above.

The field session after the sophomore year was divided between a group touring the Rocky Mountain oil and gas fields, a group touring the oil industry in and about Houston, and finally a 40 student group which visited California. I have been working on a redevelopment project for Pacific Operators, for a CSM PE graduate students, Steve Coombs, who was gracious enough to open their offshore platforms and onshore facilities for an all day tour for those 40 students. Platform Houchin, when set in 1968, was the largest platform in the world in terms of well slots, and it is very educational for the students to visit a platform in its 40th year of continuous production and see the various stages of redevelopment operations needed after the wells are initially completed to ensure that economic production continues.

• • • Field Sessions

PEGN315 California continued



Alum Picnic in Bakersfield. A big thanks to Joe and Beth Maiama, Peter and Michelle Ashton, and Dave and Billie Mayer for organizing the event.

PEGN315 Field Session in the Rockies

By Alred W. Eustes

This year was my eleventh field session. We had 124 students registered for the class. So, as we did last year, we split them into three groups. Mark took a group to California and Erdal took a group to Texas. For the third year in a row, I stayed in the Rocky Mountain region with my 49 students.

The first few days we were in the Denver-Julesberg basin. I always spend the first day going over expectations and safety issues. Since this is most of the students' first foray into the field, I want them to incorporate health, safety, and environment into the very essence of the engineering skills. The second day, John Cooke of Anadarko showed us around production equipment, a coiled tubing drilling rig (quite interesting!), and a workover unit. Helping him help us was Mike Lingreen, Paul McCarville, Dave Ziegler, Larry Grunewald, Dave Donahoe, and kicking it all off was Greg McIntosh.

The third day was with CalFrac and EnCana. Chad Buffington, Mark Lamontagne, and Paul Salaz gave us a Frac-job 101 in Platteville. CalFrac outfitted all of us with FRC (which is comical as some of the outfits were quite large as compared to our students). We then went to an EnCana site with Chad and Paul where we were joined by Chad Caldwell, Jordan Kejr, Jay Ridenour of CalFrac who, with the EnCana people, were waiting on us before starting the



Future drilling managers relax on a Williams rig.

equipment. That was nice as we could climb in amongst the equipment without too much danger. Then they cranked it up and off they went. We finished the day with Ed Landureth, Randy Lavalleur, and Don Morris at an EnCana gas plant tour just east of Platteville.

The last two days of the first week were spent on the road to Trinidad, Colorado. There we met up with Tom Beardslee, Thomas Segura, Jack Wiseman, and Kevin Tanner, who led us on a jaunt through the southern woods of the Raton Basin. To add the really special touch of reality to the tour of the rig, frac job, production equipment, and workover unit,

• • • Field Sessions

PEGN315 California continued



Students visit the Shell facility in the Piceance Basin.

they arranged for a rather large thunderstorm to dump on us at the beginning of the tour. I thought I left that kind of ground mud behind when I joined the faculty here, but, no, it brought back memories of my time in Oklahoma and Texas. Nevertheless, it was a good tour. The next morning, which was crystal clear and cool, Justin Bellamy and Sarah Hawkins showed us the geology and reservoir engineering behind coal-bed methane. Like last year's tour, I thought this tour was a great integration of engineering and geology. Our thanks go out to Dave Holmes for putting it all together.

One of the potential sources of oil in the future could lie in the massive oil shales in our state. Leading the way towards development is Shell. During one of her visits to Mines, I asked Kelda McFee if there were anything we could see in Colorado with Shell, and she suggested the Mahogany Project. This is the oil shale project in which Shell is investing significant resources. What a wonderful opportunity! We left for it early Monday morning, where we met up with Jackie Haney, Matthew Sands, Tracy Boyd, and Jill Davis at Shell's new facility, which is exceptionally new and nice but difficult to find (as I found out to my chagrin). They gave us lunch, a review of the project and a grand tour of the initial project along with the current activities. This looks like quite a promising project.

We stayed the night in Grand Junction so we could see Schlumberger's camp and the Woods Group's workshop. Schlumberger broke us into small groups and showed us all around their camp. Travis Almer, the camp manager, was kind to let so many of his troops help us out. I don't have a total list as they shuttled quite a bit, but here is who I caught: Dean Culp, Matt Hudson, Owen Oleson, John Sheed, and Larry Skanderbeg.

I must also thank Allen Starkey from the Denver office for helping arrange the tour. Allen helps us out a lot. That afternoon was a visit to the Wood's Group to see wellheads. I thank Steve Helfner, workshop manager, for letting us jump into his brand new shop. Another individual from the Denver office (now with Weatherford) is Rick Davis. He drove all the way from Denver just to the Grand Junction workshop to go over wellheads. He gave a good speech which didn't always focus on wellheads; he wandered into the realities of engineering and operations and working for a living. It was thought provoking. We left for Utah that afternoon.

Sometimes, the field session doesn't work as planned. Case in point was our trip to Utah. We had planned on visiting a single company in the Tavaputs Plateau area. Unfortunately, Friday afternoon of the first week I received a call that the company could not accommodate us. Bummer, now what? That's when I relied on the alumni network, and they came through! I spoke with a number of alumni, including retired faculty Dr. Richard Christiansen, now with Wind River Resources out of Salt Lake City. He had recently spoken with someone who knew of Newfield's operations at Monument Buttes and the manager there, alumnus Mike Guinn. So after some phone calls on my behalf, I called Mike on Sunday afternoon and asked about hosting us the next Wednesday. Not only did he say yes, he even fed us that day with a cook out and had another thought provoking session on the reality of petroleum engineering. Things worked out great with production facilities, compressors, and rigs. We got to see a very challenging oil field. Appreciation goes out to Kathy Chapman, Derwin Priebe, and Scott Simonton of Newfield for your help. And a super thanks to Richard for

• • • Field Sessions

PEGN315 Rockies continued



A group photo after visiting Calfrac.

me out and to Mike for letting us come, especially on such short notice. And thank you alumni, wherever you are, for making this program happen.

We drove back to Grand Junction after the Monument Buttes tour. The next day was a double tour. In the morning, Susan Alvillar of Williams Company took us to a Helmerick and Paine Flex 4 rig. Now that's a cool rig. We finished the morning with a gander at William's gas plant in Rifle with Jarvis Abbey.

After a nice lunch provided by Williams, we were handed off to the EnCana folks. I wanted this tour to be different so I requested that we focus on the environmental mitigation efforts they were doing. And were they ever! We journeyed to Mamm Creek where David Grisso, Sherry Long, Lauren Dorosz, and Don Morris gave us a grand tour of camouflage facilities, location reclamation efforts, and a rather large water treatment facility. It is good to see these efforts and I thank Doug Hoch for helping us set it up.

On the last evening of the field session, I took about half the group to Glenwood Hot Springs. There I soaked my poor old tired bones in the hot springs while the students were being rambunctious down at the other side of the pool. I think the game is called "chicken" or something like that. Anyway, while I was dressing in the locker room, I overheard a couple of older gentlemen talking about our students. They were commenting on how they must have been Army people because they were so rowdy. I wisely said nothing, but I did grin a bit.

One of the things I like to do in these newsletters is to be certain to list everybody that helped make these field sessions the successes that they are. However, in the hustle and bustle of the session, I sometimes don't get everyone's name that helped us. I apologize if I have misidentified or even left you out of our thanks. If I have inadvertently left you off, please let me know.



Students pose next to a coiled tubing rig.

As always, the people and companies that we visited showed us a great time. Thank you to all. I want to thank the many people who made this class possible. Please keep in mind if you want to see CSM continue this tradition and program, we need your help. Every year, it is a challenge for me (and Erdal and Mark) to coordinate and organize these trips. I find it rather like a jigsaw puzzle with significant logistical problems. Frankly, it is satisfying to see these trips work out as well as they do and to meet the class objectives. The help we need is for opportunities for tours and visits and travel support. Please contact me in any manner and let me know what you might have to offer.

• • • Field Session

PEGN315 Field Session in Houston



A group picture after students visit the Marathon field office.



Chevron introduces students to their company culture.



Students visiting a workover rig in Texas.



Students visiting the Baker Hughes field office.

• • • Field Sessions

PEGN316 Field Session in Massadona

By Jennifer L. Miskimins

Here's your quiz for the newsletter—what do you get when you combine 90 students, eight TA's, three instructors, and two weeks outdoors in NW Colorado? You got it—the Massadona field camp!! As you can imagine from those numbers, the concept of “packed like sardines” comes to mind. And we were. But the camp and associated facilities handled it better than any of us had hoped.

This year Linda Battalora joined Donna Anderson and me as an instructor at the camp, and we were aided by eight very talented and capable TA's who truly made our lives easy. All 90 students survived the camp and departed in one piece minus the typical cuts, scrapes, and usual colds. In fact, the only casualty of the entire camp was one truck that found a ditch coming off the Raven Ridge outcrop—and I'm happy to report that it is also in one piece (minus a few dents and scratches).

As always, we need to thank several folks for their generosity in hosting us including Steve McPherson from Anadarko, Ron Wackowski from Chevron, Russ Griffin from Questar, and Craig Stratton from Production Logging Services (PLS). Other than being absolutely amazed at how much 100 people can eat, these folks have never hesitated to continue to host us as our numbers grow, and we can't thank them enough for being willing to deal with our motley crew.

We also need to thank recent grads, Sean Burke and Dwyatt Jackson, for going out before the camp and repairing the fire pit. We now have a fire pit big enough to double as a



Dr. Donna and her favorite new toy--the bullhorn!

wildebeest trap but is also more safe and protected from the delightful winds “occasionally” present in NW Colorado. As you can imagine, and have probably gathered from recent newsletter articles, the increased enrollment in the department is putting strains on the facilities and manpower situation at the camp. In fact, it is likely that next year, the camp will be split into two sections and run for four total weeks. Such changes bring additional issues, including the need for additional and experienced TA's and instructors both in the geology and petroleum engineering realms. With that in mind, we have started to discuss the possibility of taking out alumni as potential TA's, the idea being that companies might “donate” a week or two of these folks' time to the department. If such a situation interests you, please let me know, and we can discuss further specifics.

One final note that we thought might interest those of you who survived on ramen noodles and pop tarts at camp—would you believe that one night of our residence, the Massadona Tavern served over 100 steaks!! Nothing like a few students to ramp up your business!!



Debating the benefits and detriments of carbon dioxide flooding.

• • • Field Sessions

PEGN316 Massadona continued

Massadona Class of '07.



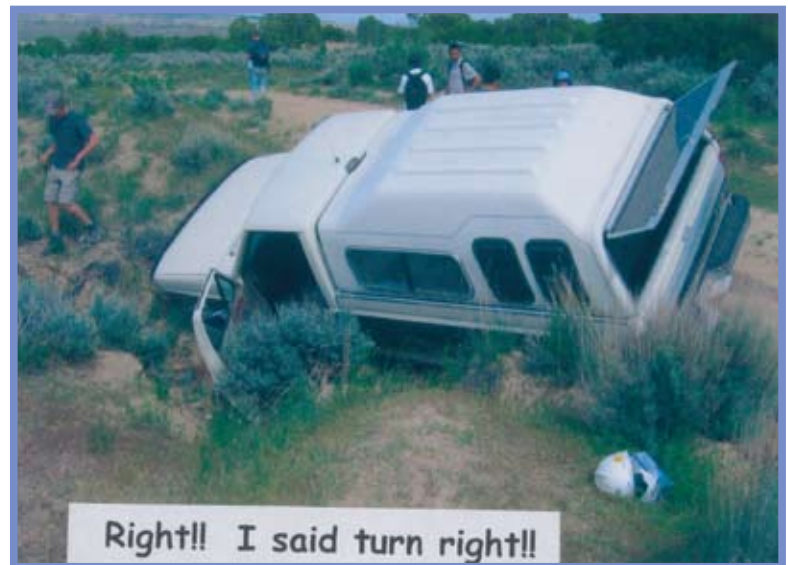
Your friendly
Massadona staff.

Remember when class
sizes were this big?



Won't miss us when we fall into the river.

• • • Field Sessions



• • • Field Sessions



• • • Alumni Reception at ATCE

Please join us in honoring Dr. Craig Van Kirk for his distinguished leadership to Colorado School of Mines' Department of Petroleum Engineering. Craig has stepped down as Department Head to concentrate on helping Petroleum Engineering and the Institution explore new initiatives and partnerships.

Please see page 12 for more information.

All are welcome to attend this special reception, regardless of attendance at the SPE Conference



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