Danielle Reyna, 2010 UT PGE Summer Undergraduate Research Intern
Your UT PGE External Advisory Committee at Work for You

By James Pappas, RPSEA

When UT and the PGE Department break for summer, so too the Department External Advisory Committee transitions from one year to the next. After three wonderful years serving on the committee, it is time for me and several other members to move on. We do so with pride, knowing that we gave it our best for this department and for The University that we love so much. However, we do so also knowing that we leave the committee in capable hands, that it has some outstanding and dynamic people coming on board, and that it will continue to serve an important purpose for UT PGE. The EAC worked hard to ensure that a growing student population would continue our tradition of quality while meeting employer needs, resulting in retaining our #1 ranking. Most recently, we concentrated on more strategic objectives to assist the staff in ensuring that the department is prepared for the long haul.

Mike Allison now has the EAC reins firmly grasped and will take it from here. Throughout my tenure, I’ve been most impressed by the people of the department—students, staff, and faculty. Their dedication is undeniable, their passion is unquestionable, and their intelligence is second to none. I am proud to have met them, served them, enjoyed their company, and made and strengthened friendships. They do what they do because it’s the right thing to do, and I’m honored to be associated with them.

What’s Ahead for UT PGE’s External Advisory Committee

By Michael Allison, BSPE ’76, Chevron Global Upstream

Whatever powers may be vested in the Chair of the UT PGE External Advisory Committee, my first act must be to thank James Pappas for his years of service to the Committee, and for his year as Chair. And for the other outgoing members of the Committee, we also commend your service. Also, I want to thank James, the Committee, and Dr. Patzek for my opportunity to assist over the next year. I’m sure the new Committee members feel similarly, for of course it is a great privilege and pleasure on our part, as any orange-blooded alumni would freely confess.

Symmetry demands I match James’ lookback with some predictions, recognizing that great sage Yogi Berra reminded us that predictions are hard, especially about the future. No one can predict oil prices, but prior trends suggest that the
cyclic nature of prices will continue but with ever shorter periods. In a word, volatility will likely worsen. Volatility has proved a challenge to graduates seeking employment and to the department in managing overall capacity. We – industry and UT PGE – must become more successful in mitigating these problems, if volatility is here to stay.

Few now doubt that the current gulf tragedy will eventually yield technical, regulatory, and policy shifts in the U.S. and around the world. Societies will, justifiably, demand more from us. This will be, must be, reflected in what is made standard in industry and what is taught at university.

“Societies will, justifiably, demand more from us.”

In addition to undergraduate and graduate education, a vitally important element of UT, the Cockrell School, and UT PGE franchise is R&D. UT PGE faculty and research staff create and grow knowledge and technology for the State of Texas and her industry. But funding for R&D doesn’t come from the same sources as for education (tuition, the Permanent University Fund, legislature). In many cases, it requires partnership between the University and industry. In some cases these partnerships are Joint Industry Projects (JIPs), with many industry participants. Others may involve a few or perhaps one company. Industry receives several benefits from this approach to R&D: the knowledge and technology produced, the experience gained by industry staff working with UT researchers, and knowledge gained by way of hiring graduate students involved in the R&D. Industry investments in UT PGE’s research efforts seemed to buck last year’s price dive, which speaks to the quality of the faculty and research staff in CPGE and its director, Dr. Gary Pope. My prediction would be continued active industry R&D funding and partnering, and the experience gained by industry staff working with UT PGE – must become more successful in mitigating problems which tomorrow’s petroleum engineers will face.

The second issue involves research, and the areas in which we partner with our alumni to improve the effectiveness of key technologies. In his history of EOR research at UT PGE included in this newsletter, our esteemed Gary Pope illustrates the vital role alumni play in our research efforts: graduate students conducting research gain mastery of both technologies and decision-making processes, taking on leadership roles as alumni, guiding the implementation of those technologies to maximize their companies’ efforts in the field. This will be even more important in the years to come, as our industry struggles to cope with the responsibility to produce ever more energy under stricter environmental guidelines.

As you can tell, I believe that alumni like you are the cornerstone of UT PGE’s success. Thanks to a few dedicated individuals, an effort is under way to establish a permanent program to recognize the accomplishments of our alumni. Called the UT PGE Distinguished Alumni Program, this alumni-led event will take place for the first time on Friday, November 12th in Austin, and you can find out more about the program and its initial group of honorees in this newsletter.

The 2010-11 school year likely will be remembered by our students as the year that seismic shifts occurred in their profession. While we cannot predict what will be the final outcome of the Deepwater Horizon incident, we at UT PGE understand that alumni like you are our best partners in preparing tomorrow’s oil and gas professionals. That’s why UT PGE will always be the #1-ranked program in the country.

Alumni – Partners in UT PGE’s Success

By Tad Patzek, Chair, UT PGE

It is an understatement to say that since I last addressed you, UT PGE’s wonderful alumni, a lot has changed in our oil and gas industry. My fellow faculty and I could opine at length on the future price of gas, the new technical and policy challenges which tomorrow’s petroleum engineers will face.

Instead, what I want to focus on is the impact of the spill on tomorrow’s petroleum engineers, and the work that lies ahead preparing our young and talented UT PGE students for a changed oil and gas industry. In short: we can’t do it without the help of our alumni.

The first issue involves curriculum. In view of the disaster, what topics should we emphasize to our UT PGE students? To me, the most important teaching moment is that the key to avoiding confusion and controlling danger is to have a clear work plan that is guided by a single imperative: safety. Well drilling operations should be stopped by anyone who has a valid reason to do so. This singleness of imperative was recognized by cognitive scientists 80 years ago. Any job description becomes confusing and meaningless if one says that safety is important and the lowest costs are important and the fastest turnaround time is important. The reason for the singleness of imperative is physical: no problem in dynamics can be properly formulated in terms of more than one imperative, whether this imperative is stated as a maximum (of safety) or a minimum (of cost). In addition to all the technical knowledge, our students must be taught clarity of purpose. You may have other, better suggestions. Through my numerous discussions with many of you over the last few months, I’ve been reminded repeatedly that our alumni have the most valuable perspective on the skills and problems which tomorrow’s petroleum engineers will face.

Hook ‘Em!
In September 1941, on the cusp of World War II, Dr. George Fancher began writing what would become the first true petroleum engineering course at UT Austin, “Introduction to Petroleum Engineering.” In addition to complete lesson plans and numerous homework problems, Fancher wrote at length about the state of the oil and gas business in Texas and world-wide.

“The most outstanding historical fact about the petroleum industry,” he wrote in the second paragraph of his 284-page course proposal, “is its comparative youth and the speed with which it has grown. From an obscure contact the industry has grown to the point where there is scarcely a single person whose life is not in some way, closely or remotely, connected with or affected by the petroleum industry.”

Dr. Fancher, only the 3rd Chair of UT PGE, respected the brief timescale in which the industry—Texas’ most powerful economic engine—first developed. “Yet, you must realize that it is within the life span of men now living that we have had a petroleum industry as such.”

Since the first graduating class of two young men in 1931, UT PGE has educated some of the most influential world leaders of the oil and gas industry, and brought on faculty who have pioneered the technologies and techniques used every day by companies large and small. It’s in the desire to honor those alumni and faculty who have made outstanding contributions to the oil and gas industry that a group of UT PGE Alumni from the 1960s, 1970s, and 1980s decided to form the UT Austin Petroleum & Geosystems Engineering Distinguished Alumni Program (UT PGE DA Program).

The Mission of the UT PGE DA Program is “to honor alumni and faculty for their outstanding contributions to the oil and gas industry and to the Petroleum & Geosystems Engineering Department at The University of Texas at Austin.”

Each member inducted into the UT PGE DA Program will hold a BS, MS, or PhD from the department and will be an outstanding member of the oil and gas industry as recognized through their technical or business contributions to the industry, or their leadership in promoting the oil and gas industry.

The inaugural UT PGE DA Program will induct six members, including Dan C. Williams, Jr. (BS PE ’35), Ernest Cockrell, Jr. (BS PE ’36), W. A. “Tex” Moncrief, Jr. (BS PE ’42), Robert L. Parker, Sr. (BS PE ’44), Lois K. Folger (BS PE ’84, MS PE ’95), and Russell E. Parker (BS PE ’00).

The inaugural UT PGE DA Reception and Dinner will be held Friday, November 12, at The Four Seasons Hotel, Austin, Texas. The Reception will begin at 6:00 p.m., and the Dinner at 7:00 p.m. The UT PGE Alumni Reunion will take place on Saturday, November 13, also at The Four Seasons. For more information: www.utpgealways1.org

As of press time, the inaugural UT PGE DA Reception and Dinner is Underwritten by Chevron and a Friend of UT PGE. Premier Sponsors include Anadarko, Fancher Resources, LLC, Halliburton, and Jerry Windlinger (BS PE ’74, MS PE ’76). Sponsors include Marathon, and Platt, Sparks and Associates.

If you or your company are interested in sponsoring this unique tribute to UT PGE’s alumni, please contact Heath Hignight (512-471-3208; heath@mail.utexas.edu), or visit www.utpgealways1.org/sponsor
Deepwater Horizon – Impact on Research, Curriculum

The terrible events that began April 20, 2010 at the Macondo well, Block 252, have had a tremendous impact on the country and our industry sector. The national debate regarding the use of fossil fuels grew hotter, policy changes began—and continue—to rocket through the energy sector, and of course every company with even the smallest role in the energy sector began to see seismic shifts in operations, finances, and short- and long-range business planning. Even those who are not petroleum engineers understand that all of us will feel the effects of this spill for decades to come.

Faculty at UT PGE have played—and continue to play—a strong role in guiding the science and policy in the aftermath of the spill. Faculty members Ken Gray, Martin Chenevert, Tad Patzek, and Paul Bommer have all fielded hundreds of calls and interviews from national and international media, helping to dispel the public’s anxieties about the spill through thoughtful comments about the way in which deep water drilling occurs, how well equipment operates, and the characteristics of ultra-deep reservoirs. In fact, UT faculty from across the Cockrell School contributed greatly to improving the public understanding of the facts and realities of the Macondo spill.

One of the biggest questions facing the department in the age of the Macondo spill is what kind of impact the spill will have on instruction and research at UT PGE. Specifically, what will our faculty teach undergraduate and graduate students about the Macondo spill? What technical topics must be added to the curriculum in order to prepare tomorrow’s UT PEs for solving similar problems before they become catastrophes?

New Research Needed

Tad Patzek, UT PGE Department Chair, testified before the U.S. House of Representatives’ Energy and Environment Subcommittee of the Energy and Commerce Committee on June 9th, sharing the thoughts of UT PGE faculty regarding research issues that might arise from the Macondo well.

“Horrible things happen,” said Patzek to the House Subcommittee, “when complex technologies and procedures overtake humans, who service the technologies falsely assuming complete control.”

Later in his comments before Congress, Patzek stated some key problems in the research field for petroleum engineering:

• As far back as thirty years ago, the federal government began curtailing off-shore technology-related research, to the point that it’s nearly non-existent today;

• Major oil and gas companies and service companies also curtailed, or have become incapable of satisfying, the increasing technology needs of ultra-deepwater drilling and production; and

While acknowledging that the applied research conducted or supported by industry results in measured progress towards key challenges in the petroleum engineering arena, it “tends to be short-term” and focused on finding new reservoirs, increasing hydrocarbon recovery and production methods. Patzek then shared recommendations from numerous UT PGE faculty, counseling that future research funding be directed at the following challenges:

• Improve cementing processes for high temperature, high pressure gas reservoirs

• Develop processes for comprehensive safety analyses of complex systems such as deepwater drilling and production;

• Create a high-capacity offshore oil reclamation vessel;

• Develop models to understand and predict subsurface spill “plume” dynamics with the goal of mitigating or capturing such plumes; and

• Revolutionize deepwater robotics apparatus and operations for deepwater drilling and production

Teaching and Training the Next Generation of PEs

Paul Bommer, one of UT PGE’s senior lecturers, recently served on the federal government’s Flow Rate Technical Group, which conducted and released calculations on the amount of oil and gas spilling into the Gulf of Mexico. In fact, he was commended by U.S. Geologic Survey’s Marcia McNutt regarding his contributions: “Your expertise and experience, to say nothing of your level head, good judgment and balanced scientific assessment, in time of crisis have been invaluable to the Flow Rate Technical Team.”

Paul Bommer worked with UT’s Faculty Innovation Center to develop animations (above) that helped explain aspects of the Deepwater Horizon blowout to national media and PGE students.
Chevron Alliance Celebration

Exciting research will continue as a result of a new Phase 2, $3 million, 3-year agreement signed on April 16, 2010, continuing the Chevron-UT Alliance that partners university researchers with technology leaders.

The Chevron-UT Enhanced Oil Recovery Alliance pays for students and faculty to explore engineering and technological solutions that advance the field. These solutions can have a more immediate impact on the commercial sector because the research is informed by the end goal of developing a viable technology. Additionally, students benefit from active and sustained mentoring by Chevron professionals in the execution of the research and learn how industry approaches and defines problems.

The expansion of the alliance was announced and an intellectual property agreement was signed at a luncheon at the Etter-Harbin Alumni Center. The event included comments from Chevron Energy Technology Company President Melody Meyer, UT PGE Professor Gary Pope, Cockrell School of Engineering Dean Greg Fenves, Vice President for Research Juan Sanchez, and Provost Steven Leslie. Attended by

Bommer Appointed to NAE Spill Committee

In late July, Paul Bommer was appointed to the National Academy of Engineering/National Research Council Committee for the study on Analysis of Causes of the Deepwater Horizon Explosion, Fire, and Oil Spill. “The committee will examine the probable causes of the Deepwater Horizon explosion, fire, and oil spill in order to identify measures for presenting similar harm in the future,” according to an announcement by NAE President Charles Vest. Bommer’s service on this important committee is expected to continue through July 2011.

Just days after the spill, Bommer—ever the educator—challenged students in his classes to do the same thing: come up with an estimate of the flow rate into the Gulf based upon the best possible information they could find in reports, on the web, and through the TV reports aired during nightly news programs and online.

“It’s so important to put current events into class,” said Bommer. “It brought to the classroom an exercise that was taking place in the news—and (the students) were remarkably accurate in their predictions about the flow rate, given the data released to the public at that time.”

However, notes Bommer, many other topics relating to the Macondo well will find their way into the UT PGE undergraduate curriculum in the coming years: changes in cementing and casing guidelines, new completions processes and procedures, and of course new regulations related to both off-shore and on-shore drilling. Bommer also indicated that while some of these technical aspects will make their way into the PGE curriculum, the engineering fundamentals that have been the core of a UT PE’s education will remain intact.

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Visit www.utpgealways1.org, click on “Update Your Info.”
graduate students, undergraduate students, and UT alumni employed by Chevron, the luncheon celebrated the impact of research and engineering education on the energy industry, and the role that corporations like Chevron play in bringing new technology created at UT PGE into industry.

“The Alliance has been a true research partnership from the beginning, and when you take the industrial leaders in EOR and the university leaders in EOR, and you put them together with this level of resources and talent, interesting things happen,” said Pope.

In addition to research funding, Chevron has given over $853,000 to the Cockrell School since 2005 for scholarships, graduate fellowships, and student programs such as the Equal Opportunity in Engineering Program, Women in Engineering Program, and LeaderShape-Texas. Chevron also funded the renovation of three laboratories -- Petrophysics, Production and Geomechanics -- in UT PGE, providing our students with state-of-the-art equipment.

“Chevron and PGE are truly partners in engineering education.”

Jairam Kamath, Chevron, and Gary Pope.

UT VP for Research Juan Sanchez and Chevron Energy Technology Company President Melody Meyer sign new research agreement.

“UT is among the very strongest of Chevron’s alliances and one of the most highly engaged,” said Melody Meyer, president of Chevron Energy Technology Company. “This alliance is certainly about people, partnership and performance. It would not be successful without the people—faculty and students working with Chevron. It is also a unique partnership, with real contributions and engagement. And performance — our first phase has been very successful and we look forward to the successes of the next several years.”

Chevron and PGE are truly partners in engineering education.

Geomechanics Lab – What’s Next

As the latest teaching lab to be renovated with generous support from Chevron, UT PGE’s Geomechanics Lab will evolve from a mish-mash of research-grade equipment and materials that have been in use for over 25 years, to a first-class teaching lab with multiple stations that introduce students to rock deformation through specific projects. “Having facilities where students can directly perform mechanical experiments on rocks as well as see state of the art equipment in operation should significantly improve their understanding of geomechanical principles and appreciation of its importance to petroleum engineering operations,” says faculty member Jon Olson. The renovated lab will be used by undergraduates taking Reservoir Geomechanics, as well as graduate students taking Petroleum Geology for Engineers.

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Innovative Student Recruiting Program Shows Strong Results

Before the launch of UT PGE’s new recruiting program in Spring 2009, recruiting prospective students was almost entirely reactive in nature. The department responded to inquiries about the program, but we did not reach out to prospective students who did not contact us directly. There was also no one in place to provide the specialized care families and students require when they visit our department.

In an effort to respond to these needs and achieve progress toward impacting the department’s goals for increasing diversity in the student population, the department hired Erin Gandy as the Recruitment Support Specialist—a new position within UT PGE.

As a recruiter, Gandy talks to students about careers in the oil and gas industry in a way that makes it exciting, special, important, and possible, while stressing the importance of considering graduate school among their options after finishing their bachelor’s program. “The key,” says Gandy, “is to plant the seed early so that talented students consider graduate school a viable option even before they start the undergraduate program.”

Placing that seed means talking about the future of the oil and gas industry, and the impact that one engineer’s projects or research can have on the global energy industry. To help students and parents understand these possibilities, Gandy worked with UT’s Faculty Innovation Center to launch a first-of-its-kind undergraduate and graduate recruiting program called I Am The Natural Resource (www.iamthenaturalresource.org). The program includes not only a website with multimedia explanations of engineering technology and research, but no one in place to provide the specialized care families and students require when they visit our department.

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And the strategy is producing results. In the first full year since Gandy joined the department and I Am The Natural Resource launched, UT PGE achieved an increase in the number of American students admitted to the PhD program. In Fall of 2009, only 6% of PGE’s incoming PhD students were American. For Fall 2010, that number has jumped to 19%. The graduate program’s population of American students grew from 15% to 20% overall. In addition, the entering freshman class is composed of nearly 25% women, compared to PGE’s overall population of about 19% women in past years. “The difference in our program is that we express the interest in top recruits instead of waiting for them to express an interest in us,” she says, “and that is what a real recruiting program must do.” UT PGE has remained the #1 program at the graduate level for many years, so it is important that the department works hard to recruit the very best students. This is what the I Am The Natural Resource initiative seeks to do.

In addition to reaching out via the web, Gandy conducts outreach visits to Texas high schools and top universities. Alumni are an essential component of these visits. Without alumni to provide real-world examples that connect engineering to everyday life, students may not understand how engineering impacts and improves the lives of people worldwide. If you are interested in reaching out to prospective students in your home city, please contact Erin Gandy at egandy@mail.utexas.edu. Your help is vital!
EOR Research – Vision, Persistence…and Good Timing

While it’s commonly accepted in the petroleum engineering research arena that UT PGE faculty members are the authority in EOR research, the story about how we got to that point is a fascinating yarn about vision, persistence and old-fashioned good timing. What follows is a snapshot of that story.

Vision & Persistence

In the 1970s, UT PGE’s then-Chair and Professor Emeritus Robert Schechter pioneered fundamental scientific research on surfactants for EOR with numerous faculty and students. UT PGE’s EOR research built on Schechter’s early successes, expanding in scope through the 1980s with several faculty and their students experimenting with carbon dioxide for EOR as well as chemical flooding. As part of his Ph.D research, Dennis Dria, working under the supervision of Gary Pope, was the first person to publish three-phase CO₂-oil-water relative permeability data under reservoir conditions. This and other research were essential for understanding and predicting the injectivity of CO₂ water-alternating-gas EOR methods. Subsequently by 1990, the use of CO₂ for EOR had become a widely used commercial process. At about the same time, Larry Lake published his book, Enhanced Oil Recovery, which to this day is the most authoritative text on the fundamentals of all EOR methods. This book helped capture many of the most important concepts now of renewed interest by the industry.

In the late 1980s and 1990s, the long stretch of low oil prices caused industry to cease nearly all chemical flooding research and field tests. As a result, industry expertise in these technologies began to wane as new petroleum engineers joining the ranks of the workforce rarely came in contact with EOR operations.

Nevertheless, EOR research at UT PGE continued throughout this time of low oil prices because of UT PGE’s belief in the veracity of the technology and scientific merit. One of the most noteworthy examples of this persistence is the continued development of the UTCHEM simulator. This numerical reservoir simulator was created and refined over the years for a variety of both oil field and environmental applications such as simulating water flood tracers and ground water tracers, polymer gel treatments for profile control, the use of chemicals and microbes for cleaning up superfund sites, and of course enhanced oil recovery. Widely considered a benchmark simulator among industry experts, this incredibly successful long-term effort started with Pope’s and Kamy Sepehrnoori’s graduate students in the 1980s, and continues to this day with Mojdeh Delshad, UTCHEM’s current developer, and her students and colleagues.

Good Timing!

As the new millennium arrived, economies worldwide evolved at the most rapid pace in history. Energy prices skyrocketed, and the demand for EOR technology subsequently—and suddenly—increased. Having continued to pioneer EOR technology through applied research, UT PGE was perfectly positioned to help oil and gas companies bring this technology back into broader use.

In response to this increased need for technology and EOR-skilled engineers, UT PGE greatly expanded the number of PGE students working on EOR projects starting in 2002. There are now about 20 undergraduate students and 20 graduate students working in the chemical EOR labs, as well as several post-doctoral fellows and research associates, and many others working on EOR modeling projects. During the past several years, UT PGE consistently presented more technical papers at the SPE IOR symposium in Tulsa than any other academic program, making UT PGE the leading university in this area of research today. Not limited to great teamwork in the university research environment, many of these students have recently completed internships with companies kicking off new field pilots.

During the past few years, the efforts of UT PGE’s EOR faculty and students have resulted in several major breakthroughs, transforming chemical EOR technology. Chemical flooding, for example, can now be used in carbonates as well as sandstone oil reservoirs, a development with the potential to roughly double the reserves from chemical EOR. Kishore Mohanty, who joined the PGE faculty in 2009, is one of the world’s foremost experts in the application of surfactants for wettability alteration of oil-wet fractured carbonates. Concurrent breakthroughs now make it possible to apply chemical EOR to reservoirs with high salinity and/or high temperature, more than doubling the potential reserves again.

Still another breakthrough led by Quoc Nguyen involves the use of surfactants soluble in supercritical carbon dioxide, which may double the recovery efficiency of carbon dioxide floods. Oil companies may add more light oil reserves from EOR in the future than from new discoveries, thanks to this technology innovation. And perhaps the biggest breakthrough of all is the extension of chemical EOR to heavy oil, which could ultimately double the world’s oil reserves. Looking far into the future of EOR, Steve Bryant and Chun Huh among others are pioneering the application of nanotechnology to EOR, experimenting with the dispersion of nanoparticles in flooding and information technology that will no doubt lead to even greater benefits to the industry.

While the technical significance of these research milestones cannot be overstated, it would be a mistake to omit mention of the benefits of EOR research to UT PGE’s educational mission. Such a highly successful research program works like a magnet, helping attract the next generation of faculty and students, supporting the infrastructure of the department, and most importantly providing exceptional laboratory experiences for students that will be of invaluable benefit to them in their petroleum engineering careers.

The enhanced understanding, insight and skills these future petroleum engineers gain from exposure to world-class EOR research and technology will serve them well as the oil and gas industry continues its search for better ways to recover increasingly rare hydrocarbon resources.
UT PGE Spin-off Improves Waterflood Productivity

With an estimated half of U.S. oil production under waterflood as secondary production, it’s intuitive that UT PGE faculty and research staff would be drawn to researching ways in which to improve production from waterflooding.

Enter Professor Larry W. Lake, Director of the Center for Petroleum Asset Risk Management (CPARM), and Emilio Nunez, Assistant Director of CPARM. A company they are launching puts a new reservoir management tool at users’ fingertips. Called CR Petroleum Optimization Technologies, Inc., or CRPOT for short, the company offers software and services that reduce the computing power and time needed to optimize waterfloods and increase oil production. Instead of utilizing large computer systems and expensive proprietary software, CRPOT requires only average monthly production and injection data by well, along with well coordinates; within just minutes on a typical laptop CRPOT can illustrate connectivities between injectors and producers. Essentially, CRPOT generates a trustworthy geologic model statistically.

“The idea came from teaching the undergraduate reservoir engineering class for many years,” says Lake. “There I learned that the production response of even the most complicated oilfield is similar to that of an electrical circuit. An analog between reservoirs and circuits is not new. In fact, it was a standard analysis procedure before computers. What is new here is that we are solving the circuits problem with computers.”

For small and mid-sized oil and gas companies, whose research budgets are zero or very close to it, CRPOT will enable them to analyze data they already collect, improving decision-making processes, adding value—and ultimately profitability.

“This software has the potential to revolutionize the way that companies manage their waterfloods and could result in significant increase in oil production from the waterflooded reservoirs. We are very excited to bring this technology from academic research to the commercial world,” said Nunez, who also serves as CEO of CRPOT.

The CRM technology that is the basis for CRPOT’s software was developed through five years of research supported by various corporate partners at UT Austin. CRPOT formed as Delaware corporation earlier this year and enjoys exclusive licensing rights for the software. CRPOT has completed successfully one study of seven units in one reservoir, and is currently working with a major oil and gas company on a proof-of-concept study.

CRPOT plans to expand and will seek financing options to achieve this expansion later this year.

For more information on CRPOT, visit www.crpot.com or contact Emilio Nunez at enunezcrm@gmail.com / 512-964-0282.

Acclaimed by Industry and Peers, Formation Evaluation Consortium Celebrates 10 Years

A record 110-plus industry personnel representing 23 member companies and 7 guest companies attended the 10th Anniversary Research Consortium on Formation Evaluation at the Four Seasons Hotel, Austin, August 18th-20th. The event included 6 software presentations, 24 technical presentations, and 2 vision presentations on topics ranging from new methods for petrophysical interpretation of well logs and core data to new methods for simulation and interpretation of borehole measurements.

“It was such a complete success,” noted Carlos Torres-Verdin, director and founder of the FE Consortium. “We have produced a significant number of well-cited publications and generated a continuous stream of funding of approximately 1.3 million USD per year during the last 7 years. I could not be more pleased with the participation and enthusiasm our industry and academic partners shared during our 10th Anniversary meeting.”

The success of the FE Consortium’s 10th Anniversary meeting highlights its importance in the overall scope of CPGE’s areas of technical expertise, and is commonly referred to as the top academic facility in the formation evaluation arena for over the last 7 years. CPGE wishes to congratulate Dr. Torres-Verdin, his research and administrative staff, and graduate students for achieving this important milestone.
Impacts Dozens

One Man’s Legacy

Saint Clair Peyton Yates’s introduction to independent oil and gas exploration occurred in 1924 when he was just 10 years old and living in Artesia, New Mexico where his father — with the help of a Model T Ford and his intuitive wife — drilled and discovered the first commercial oil well on New Mexico state-owned lands, thus starting the state’s $7.6 billion permanent royalty fund that finances public schools.

Young Yates, known as “S.P.,” was so intrigued by this that he and his brother followed in their father’s entrepreneurial footsteps and, with hopes of striking it big, dug a 30-ft. well in the backyard of their family home. This first childhood attempt at oil exploration was a bust—not to mention Mr. and Mrs. Yates weren’t too pleased—but an innovative and generous spirit was born in S.P.

He went on to earn his bachelor’s and master’s degrees in Chemical Engineering from The University of Texas at Austin (1937), and attended The School of Engineering Practice at Massachusetts Institute of Technology, founded and directed Yates Drilling Company in 1959 and, along with his brothers, formed Yates Petroleum Corporation, which he led from a Yates Drilling Company in 1959 and, along with his brothers, Massachusetts Institute of Technology, founded and directed (1937), and attended The School of Engineering Practice at

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But one of the most significant impacts of S.P.’s long and prosperous life is happening right here at the Cockrell School of Engineering. In April 2009, his wife Estelle gave a $1 million gift to UT PGE in memory of S.P., who passed away in August 2008 at the age of 93.

The gift established two endowments—the S.P. Yates Memorial Endowment for Graduate Fellowships and the S.P. Yates Memorial Endowment for Student Projects. Twenty-five students have been supported by the endowments, 13 at the graduate level and 12 in undergraduate summer research internships, which give students the chance to do hands-on research and provide insight into graduate studies.

The goal of the gift is to recruit and retain U.S. students pursuing advanced degrees in petroleum engineering. One of the keys to recruitment is encouraging undergraduates to explore research. Of the undergraduates who have received a Yates’ scholarship for the summer program, 56 percent have since been admitted to or committed to applying to the UT Petroleum Engineering graduate program, and another 31 percent said they are strongly considering applying.

“When I was an undergraduate, I had the opportunity to work on a research project and it spurred me to pursue a master’s degree. That project helped me understand that graduate school isn’t just more classes. I would have the opportunity to work with brilliant faculty to find new solutions to our world’s toughest energy challenges.” said Peyton Yates Jr., S.P. and Estelle’s son, who received both a bachelor’s (1965) and master’s degree (1966) in petroleum engineering from UT.

In the last two decades, as the role of graduate students has shifted from that of an apprentice to, often, the co-creator of technology with a supervising professor, the Cockrell School’s ability to remain preeminent among top engineering programs has hinged on the quality of the graduate students it recruits.

“These fellowship students will create the technology that improves people’s everyday lives and maintains the competitiveness of our economy. If not for supporters like the Yates family, it would be difficult for students to have such opportunities,” Cockrell School Dean Dr. Gregory Fenves said.

Because of this, Fenves has made it a fundraising priority to raise $135 million for graduate fellowships by 2014. The Yates’ family hopes their gift will inspire other alumni to support graduate education.

One of seven graduate students to benefit from the S.P. Yates Fellowship this semester is Stuart Coleman. Coleman said the fellowship will help pay his major college expenses, including tuition and books, while he pursues his master’s degree in petroleum engineering. His research is focused on the use of anthropogenic CO2 for enhanced oil recovery and long-term storage along the Texas Gulf Coast.

“Growing up with a single mother, I have relied on merit-based scholarships to help finance my high school, college and graduate education. Without such generosity from others, I may not have had the same opportunities for achievement,” he said. “It is my hope to one day give back at the level the [Yates family] have given to UT.”

Estelle said her husband was a modest and shy man, who likely never imagined his legacy would be carried forward by generations of S.P. Yates Fellows and Scholars.

“He made a considerable mark on his family, his local community of Artesia, and now the UT community,” she said. “What started with a young boy drilling a well in his backyard is now helping to change the world.”

If you’re interested in supporting PGE students, please contact Amanda Brown at 512-471-4046 or amanda.brown@austin.utexas.edu.

PGE’s Extraordinary Exes

To celebrate 125 years, the Texas Exes selected 125 Extraordinary Exes to show that what starts here truly changes the world. Several UT PGE alumni made the list: Louis Beecherl (BS PE ’48), Tex Moncrief (BS PE ’42) and J.C. Anderson (BS PE ’54). To see the entire list visit http://www.texasesxes.org/125/extraordinaryexes.asp

Platt Awarded
Engineer of Distinction

C. Ronald (Ronny) Platt (BS PE ’62) was recognized in December, 2009 with the highest honor that the Cockrell School of Engineering bestows upon its graduates, the Engineer
Charles Simmons Honored with Lone Star Legend Award

On June 15, the oil titans in Dallas and Fort Worth gathered to honor longtime friend and petroleum engineer Charles M. Simmons. Oil legends like Caroline Rose Hunt, Herbert Hunt, T. Boone Pickens, Ed Cox and fellow UT alumnus W.A. “Tex” Moncrief, and his son Charlie Moncrief were in attendance as The Texas Alliance of Energy Producers presented its Lone Star Legend Award to Charles for his invention of the perforation ball sealer process.

It all started in the fall of 1954, when Charles ran into a problem: he wanted to fracture well casing selectively, but at the time no such process existed. So Charles hollowed out 40 rubber balls used to play jacks, filled each with a marble, and pumped them into a well to seal perforations in the well casing. Recalling the experiment, Charles said, "Those first jack balls and marbles came from the dime store in Borger, Texas." At the time, natural gas sold for three cents per Mcf.

Charles' pioneering technique is still being used around the world to extract oil and gas from reluctant rocks. Today in Colorado’s Piceance Basin, ExxonMobil has expanded on Charles' ball sealer technique to stimulate the gas-bearing portions of the massive Mesa Verde sandstone averaging 50 zones per well. Projected recovery is 35 trillion cubic feet of gas, a two-year supply for the United States.

Charles graduated with a UT degree in Petroleum Engineering in 1948, and would go on to spend 38 years working for The Western Company, retiring in 1985 as senior vice president and a director of the company. He is an active member of the Longhorn community, both through his achievements as an engineer and his philanthropy. He chaired the Engineering Foundation Advisory Council, served on the Chancellor’s Council for The University of Texas System, and is a lifetime member of the Texas Exes and a Friend of Alec. Charles is not only a Lone Star Legend, he is a Longhorn Legend.
Helping Students from 7,000 Miles Away: The David and Kim Kennedy Endowed Presidential Scholarship

Even from the shores of Equatorial Guinea in Central Africa, UT PGE alumnus David Kennedy and his wife Kim are doing what they can to help engineering students in Austin. As a student David was a scholarship recipient, and now by establishing the David and Kim Kennedy Endowed Presidential Scholarship, this generous couple is helping students in the same way David was helped while on the road to becoming a Petroleum Engineering graduate in 1981.

“We are confident our scholarship will be awarded with the same wisdom that came into play when I was a scholarship recipient myself 30 years ago. Back in those days Kim and I were newlyweds on a shoestring budget. My much-appreciated $1,000/year scholarship paid for all my tuition, fees and books and we still had enough left over to go out for a nice Mexican dinner each semester. We are very pleased to be able to give something back to the program that made such a difference in our lives,” David said.

David and Kim have lived all over the world, as David spent many years working for Chevron and now with Hess. David is the Country Manager for Hess in Equatorial Guinea, where he and Kim are currently on a three-year assignment. Their eldest son, Dan, followed in his dad’s footsteps first by graduating from UT in 2008 with a Petroleum Engineering degree and then hired on at Chevron as a reservoir engineer working on West African assets. Their other son just completed his undergraduate degree in Florida, so the Kennedys have first-hand experience with the rising cost of tuition and the need for more scholarship support.

If you’re interested in supporting UT PGE students, please contact Amanda Brown at 512-471-4046 or amanda.brown@austin.utexas.edu.

Pope Recognized

Professor Gary Pope was awarded the OilChem Technologies Award at the Tulsa IOR Symposium on April 26, 2010, in Tulsa, Oklahoma for outstanding contributions to chemical enhanced oil recovery. Pope, holder of the Texaco Centennial Chair and Director of CPGE, has authored or co-authored more than 210 technical papers on EOR-related topics.

Prodanović Joins UT PGE Faculty

At the University of Texas new faculty are offered a wide range of training and outreach opportunities and new faculty member Maša Prodanović has already taken advantage of one of them. Prodanović, who earned her Ph.D from State University of New York at Stony Brook in Computational Applied Math, joined UT PGE as an assistant professor in August, but got her start helping the department with its undergraduate and graduate recruiting activities last spring and summer. In addition to participating in Women in Engineering’s Consider Every Option program, which introduces high school girls to the opportunities provided by a career in petroleum engineering, Prodanović will take over as Faculty Advisor for UT AADE. To find out more about Prodanović, visit her website: http://users.ices.utexas.edu/~masha/index.html

Wheeler made Fellow of American Academy of Arts & Sciences

Professor Mary Wheeler, who holds the Ernest and Virginia Cockrell Chair in Engineering, was selected as a fellow by the American Academy of Arts and Sciences. This is an outstanding accomplishment that reflects Wheeler’s amazing career of research and teaching.

Bommer recognized by ConocoPhillips for Teaching, Mentoring

Annually, ConocoPhillips recognizes a small group of university faculty from across the country who students feel are not only great instructors, but professionally influential and wonderful mentors. Last fall, ConocoPhillips bestowed this distinction, the ConocoPhillips Faculty Sponsorship award, on Dr. Paul Bommer. The award includes a check for $25,000 to be used during the next year. This year’s winners came from ten different universities, and among them, Bommer was the only winner from the University of Texas, and is one of only three winners who are engineers.

Jablonowski Honored by SPE

Assistant Professor Christopher Jablonowski received a 2010 SPE Regional Award for Management and Information. Given by the Southwestern North America Region, the award recognizes “exceptional contributions to the Society of Petroleum Engineers at section and regional levels and recognizes the devotion of time and effort to the programs and development of technical expertise.”

Sharma Recognized with Hocott Award

Professor Mukul Sharma received the Billy & Claude R. Hocott Award for 2010. The Hocott award recognizes “faculty members who have made significant contributions in furthering the profession of engineering through documented research…and have brought significant credit to the engineering profession and been judged most worthy by the recipient’s peers.”

Peters Receives Teaching Award

Professor Ekwere Peters won the UT PGE Teaching Award for excellence in teaching during 2009-2010. Peters, who teaches Physical & Chemical Behavior of Petroleum Fluids, and Theory and Applications of Reservoir Transients is known for his engaging lectures.

Torres-Verdín Voted “Outstanding Faculty”

Professor Carlos Torres-Verdín was recognized with a UT Student Engineering Council Faculty Appreciation Award. This award, voted on by students, is presented to one professor in each engineering department and recognizes “outstanding faculty.”
Simulating Exploration Brings Success

Last April, an interdisciplinary group of students (business, geology, geophysics, and petroleum engineering) participated in the inaugural specialized training course hosted on campus by BP, called BP Energy Play. A series of talks were given by a training consultant flown in from the United Kingdom, and then the 47 students were divided into teams. Each team ran its own exploration and production company, using BP software for the simulation. These teams were given the challenge of trying to maximize profits for their company over a ten year period, while staying within the parameters set by their Board of Directors.

Friday’s 1st-place team included: Christy Treat, BBA; Adam Reeder, UT PGE; Ian Warren, BBA; Bobby Reece, Geophysics; and Dave Modl, BBA. Saturday’s 1st-place team included Robert Miller, BBA; Pak Wong, BBA; Anmar Davila-Chacon, Geology; Muhammed Hamza Ahmed, UT PGE; and Jeremy Roussel, UT PGE.

"By combining people from different disciplines, the BP Energy Play demonstrates that the synthesis of technical knowledge to business decisions drives success," explained Jeremy Roussel of UT PGE. "As a Petroleum Engineering student, my knowledge of hydrocarbon production profiles helped our team by demonstrating at what point operating expenses began to overtake profits in a field."

Spisak Wins 2nd at AADE Poster Contest

Kudos to graduate student Ben Spisak, who placed second in the American Association of Drilling Engineers Student Poster Contest. The contest, held at the 2010 AADE Drilling Fluids Technical Conference & Exhibition in Houston last April, included students from Louisiana State, Texas A&M, University of Alaska, University of Calgary, University of Louisiana at Lafayette, OU, and TU. Ben, a student of Dr. Martin Chenevert, presented his work on “Using Nanoparticles to Achieve Wellbore Stability in Shales.” This award included a $1000 check and a bronze medal.

UT PGE Student, Staff Win WEP Awards

At the WEP Evening with Industry Banquet on Thursday, February 4th, 2010, two members of the UT PGE family were recognized. UT PGE senior Becca Lewis was honored with a Rising Star award, which recognizes women in the School of Engineering, based on her academic excellence, involvement in WEP initiatives, and leadership, mentorship and volunteer experiences. Lewis is majoring in Geosystems Engineering & Hydrogeology and became interested in carbon capture and storage after an internship with URS Washington Division. In addition to her stellar academic performance, Becca is an enthusiastic water polo player; in 2009 she was MVP on the Texas All Conference Women’s Water Polo team, and this year she is serving as president and captain of Texas Women’s Water Polo.

Erin Gandy, Recruitment Support Specialist for UT PGE, was also recognized on February 4th as this year’s Women in Engineering Advocate Award recipient by the UT Women in Engineering Program. The Women in Engineering Advocate Award recognizes an outstanding faculty or staff member viewed by students and WEP as helping advance women in the field of engineering. Erin’s efforts in addressing both the recruitment and retention of women students in UT PGE have been outstanding.

UT PGE Wins 2009 Petrobowl

UT PGE’s team won the eighth Annual Petrobowl at the SPE Annual Technical Conference & Exhibition in New Orleans on October 6th. The Petrobowl is a quiz style competition between sixteen collegiate teams, pitting one team against another to test their knowledge of petroleum engineering. Competing for UT PGE were Kelli Rankin, Michael Sykes, Nathan Taylor and team captain Sanzhar Zharkeshov. In the final competition with the Missouri University of Science and Technology the University of Texas won handily. The proud team returned to campus with a trophy and a check for $2500 from EnCana.

Summer Research Leads to Graduate School, Careers

Over the 2010 summer, PGE was once again pleased to host a group of talented interns who conducted research in the areas of enhanced oil recovery, nanotechnology, drilling, production, heavy oil, modeling, and economics. The program is an essential component of PGE’s I Am The Natural Resource Campaign, which seeks to recruit top students and diversify the student body.

The goal of the PGE Summer Research Internship program is to provide top undergraduates with an opportunity to experience academic research and faculty mentorship similar to that experienced by graduate students. Over the course of the summer, interns learn about important areas of research within petroleum engineering and also about graduate school fundamentals. An important addition to the program this year was a trip to the oil field, courtesy of Dr. Tim Taylor of Texas American Resources Company.

There are many summer research programs at universities. What sets PGE’s program apart is its focus on providing participants with the tools necessary to make an informed decision about pursuing graduate study. Interns who complete the program have both a sense of their own fit within academic research and knowledge of the necessary steps to take in order to apply to and succeed in graduate school.

Over the past two years, the program has produced the following results for its 23 participants: 52% - Admitted to UT PGE graduate program or committed to applying upon graduation; 35% - Strongly considering applying to UT PGE graduate program upon graduation; 13% - Not applying to UT PGE upon graduation.

The 2010 PGE Summer Research Interns were Monet Motiee and Danielle Reyna of UT Mechanical Engineering; Rohan Sheth of UT Chemical Engineering; Dong Song of UT Civil Engineering; Eric Pittman of UT Biochemistry; Stephen Coddou, Rebecca Lewis, and Chak-Hau Michael Tso of UT Geosystems Engineering; and Elissia Deresan, David Livesy, Chonpatin Phaiboonpalayoi, Ashley Roling, and Joseph Tansey of UT Petroleum Engineering. The group was also joined by UT Chemical Engineering’s Daniel Ayoub, who started in the UT PGE graduate program this Fall. Special thanks to Drs. Matthew Balhoff, Steven Bryant, Chun Huh, Russell Johns, Larry Lake, Kishore Mohanty, Quoc Nguyen, Gary Pope, and Mukul Sharma for supervising the interns.

The 2010 PGE Summer Research Interns extend deep gratitude to Mr. Peyton Yates, Dr. Gary Pope, Dr. Larry Lake, Dr. Mukul Sharma, Dr. Kishore Mohanty, Dr. Tad Patzek, and BP for providing funding that makes this program possible.
Jerry Harold Clay (1938-2010)
Jerry Harold Clay (BS PE ’59) of Tyler passed away March 30, 2010 at the age of 73. Born and raised in Athens, TX with brothers Tom, Leon, and Pete, and sister Doris, Jerry graduated Athens High School in 1954 and completed his degree in Petroleum Engineering at UT in 1959. His career in the oil and gas industry spanned the 1960s until his passing, having co-founded Carlton Oil and Millican Oil companies in the 1980s, followed by White Rock Exploration in 2000 with his son, Richard. A local philanthropist, Jerry loved his family and leaves behind wife Dixi, sons Kyle and Richard, and their families. Jerry’s family plans to establish an endowed scholarship in Jerry’s name for UT PGE, so that his dedication to education and the energy industry lives on.

George S. Monkhouse (1917-2009)
George S. Monkhouse (BS PE ’38) passed away on August 4, 2009 in Athens, Texas at the age of 92. He was the youngest of three raised by a single mom. He put himself through college before joining the US Army Air Corps where he fixed planes in England during WWII. After the war, he came home to Dallas and made his way in the world of petroleum engineering first working at Core Laboratories and then at James A. Lewis Engineering in the field of secondary recovery. He met his wife of 58 years, Genevie, on a blind date, and they raised two daughters, Mary Ann and Patty. He was also the beloved “Poppy” to six grandchildren and one great grandson.

All of these facts typically appear in the obituaries of people from the Greatest Generation, but they don’t tell the complete story of George Monkhouse’s life and his incredible generosity. Although he only stood at 5’6”, George was a man of considerable stature. Over the years, he quietly provided financial assistance to many people and organizations – saving someone from foreclosure here, buying a new refrigerator, stove or car there, creating trusts for special needs children, or even paying a Kansas City homeowner’s property taxes. He was a devoted father and grandfather. His joy in life was spending precious time with his three children and seven grandchildren.

Farrille S. Young, Jr. (1939-2010)
Farrille S. “Sonny” Young, Jr. passed away on Wednesday, the 30th of June 2010 while vacationing at Green Turtle Cay, The Bahamas.

Born in Kansas City, Missouri on February 27, 1939, Young attended Lamar High School, lettering in five sports and was honored as an outstanding lineman in Texas High School Football. Following graduation from Lamar HS, Young attended UT Austin, obtaining his BS, MS, and PhD degrees in Petroleum Engineering.

Following graduation from the UT Austin, Young worked for Exxon Co. USA, where he served as a senior and staff engineer engaged in the development of automated rig design. Subsequent to his work at Exxon Co. USA., Young joined Baroid Div., NL Industries, where he worked in various operational assignments related to the application of drilling technology. Young wrote numerous publications in the field of drilling and rock mechanics. He co-authored the SPE Textbook Series, Vol. 2, Applied Drilling Engineering published in 1986 and currently in circulation. Young was a registered professional engineer in the State of Texas.

Young had a passion for outdoors and enjoyed boating, hunting, fishing, and golfing. He was an avid fan of Texas Longhorn football. He loved to travel and his most cherished place on earth was the blue waters of The Bahamas. Farrille was a devoted father and grandfather. His joy in life was spending precious time with his three children and seven grandchildren.

UT PGE Advisory Committee Updates Workforce Initiative

In response to industry consolidation and the growing cost of undergraduate education, UT PGE’s External Advisory Committee approved a critical change to the successful Workforce Initiative during its Spring 2010 meeting. Companies participating in the Workforce Initiative can now choose different levels of support, based on their recruiting needs and goals.

Originally launched in the 2001-02 academic year, the Workforce Initiative was created by the External Advisory Committee and led by former Senior Lecturer Tim Taylor. The Workforce Initiative was designed to improve the quality and quantity of undergraduate students in UT PGE, while also improving student retention and graduation rates. The Initiative accomplished these goals by awarding scholarships to students achieving and maintaining strong academic progress, while also supporting direct outreach to Texas high schools to promote the petroleum engineering discipline and UT PGE. Member companies agreed to make contributions of $30,000 or more annually to be recognized as supporting the Initiative. When the Initiative began, the department’s undergraduate enrollment was under 200 and the average SAT score was 1210. As of Fall 2009, the department’s undergraduate population was over 500, and SAT’s averaged 1275—directly contributing to the department’s ranking as the top petroleum engineering program in the country!

Starting in Fall 2010, member companies can now choose different levels of support annually. This enables companies to tailor their support to their recruiting needs and long-term commitment to the department’s undergraduate education mission. Now, companies with a desire to support a greater number of scholarships each year can support the Initiative at the $50,000 Platinum level, while companies with different recruiting needs and strategies can support the Initiative at the Gold level ($35,000), Silver level ($25,000) or Bronze level ($15,000). And, for motivated groups of alumni, a special “Alumni” level has been established at $10,000. “Even in tough economic times, our industry partners recognize the importance of supporting the educational initiative to recruit, support, and graduate the most qualified petroleum engineers. At a time when many academic programs saw a drastic reduction in financial support, the Workforce Initiative grew due to the vision of member companies,” said Heath Hignight, PGE Development Officer.

The department would like to thank the following companies for their 2010-11 support of the UT PGE Workforce Initiative:

- **Platinum**: Chevron, ConocoPhillips, and Hilcorp
- **Gold**: BP and EOG Resources
- **Silver**: Anadarko, Apache, Chesapeake, Devon, Marathon Oil, and Shell
- **Bronze**: Schlumberger and Texas American Resources Company

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