



School of Petroleum and Geological Engineering

# Discovery

In *OU Discovery's* first Executive Column, industry giant and OU alumnus Archie Dunham describes graduates who will make a difference.

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in Norman



*Archie W. Dunham, President and CEO of Conoco.*



School of Petroleum and Geological Engineering

# Discovery

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## OU Discovery

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# OU Discovery

School of Petroleum and Geological Engineering

## Editor's Letter

**I**f you are reading this introduction, you are a part of OU Petroleum and Geological Engineering history.

You have the first issue of the first volume of *OU Discovery*, the University of Oklahoma School of Petroleum and Geological Engineering's new magazine for friends, alumni, students and future students. Thank you for being a part of our inaugural issue.

On almost every page of this first issue, you are either being introduced to new people who are important to PGE at OU, or we are telling you about a new initiative or focus. This is an exciting time, one that calls for a new publication to keep you informed and involved. That is the primary purpose of *OU Discovery*, to keep you informed and involved in PGE at OU.

Keeping you informed will be relatively easy. In future issues, you will read about changes in the curriculum being made in direct response to industry needs; innovative scholarship and leadership programs that will enhance our ability to attract top prospective engineers; the increasing importance of graduate education to the petroleum and natural gas industry, and other items that will be of interest to individuals who are committed to the energy industry.

Keeping you involved will be the more interesting part. Here are some ways you can help:

■ *Send us your alumni news. Whether it's personal or professional, we invite*

*you to keep your colleagues and classmates informed. Photos and e-mail are welcome.*

■ *Introduce us to a prospective student. Our best leads come from friends and family members. Use the Prospect Reply Card to put us in touch with tomorrow's petroleum engineers.*

■ *Be an author. Write a letter to the editor or contribute an article. Readers are invited to comment on industry issues, educational concerns, employment advice - any topic that might be of interest to other OU Discovery readers.*

Change is clearly the theme of this first issue, but some things will remain the same. Like the old *Sooner Pipeline*, *OU Discovery* will be produced twice a year. Some of the features you see in this issue, like our wonderful first Executive Column, authored by Archie Dunham, will be a regular feature with a different contributor each time. Our guest column, contributed this time by Dr. John Campbell, will be an open forum. We will always be bragging about our students. And, hopefully, the pride that each one of us takes in our association with Petroleum and Geological Engineering at the University of Oklahoma will come through loud and clear in each and every issue of *OU Discovery*.

Please stay in touch, and we will do the same.

*Lisa L. Schmidt*

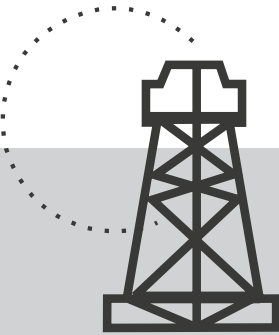
Lisa L. Schmidt  
Editor

# Petroleum Companies and the Quest for Graduates Who Make a Difference

It's an honor to be featured on the cover of this exciting new magazine.

Of all the things that brighten my life, few are more important to me than my home state of Oklahoma and the rich fabric of relationships that bind me to family and friends there.

I plan to maintain those precious ties until my last breath. Among a lifetime of Oklahoma memories, some of the most vivid were created at OU's School of Petroleum and Geological Engineering.



## Executive Column

By Archie W. Dunham,  
President and C.E.O.  
Conoco, Inc.

*B.S. School of Petroleum  
and Geological Engineering,  
The University of Oklahoma*

During the months and years to come, *OU Discovery* will be an excellent biannual reminder of the marvelous education we received, and the benefits we still receive, as graduates of this outstanding school.

As I write these lines in early March, PGE alumni who chose a career in the petroleum business come to work each day and are confronted by the nagging question: "When are crude prices going to recover?"

It's been that way now for almost a year, thanks to one of the most severe downturns in industry history. The value of a barrel of crude oil slipped into freefall last summer when it became obvious that the demand falloff in Asia was real. Today, the value of West Texas Intermediate is about half of what it was just two years ago. On an inflation-adjusted basis, crude prices are at the lowest levels we've seen in a quarter century.

The impairment to industry earnings has been severe. Today, companies are proceeding carefully and cautiously — delaying discretionary investment and reducing costs in any way possible. A new wave of mega-mergers in the industry adds to the inclination of companies to reduce costs by cutting back on employment while also slowing down, or stopping in some cases, the recruitment of new graduates.

How long will this last? In my view, energy prices are likely to remain soft for a while, at least through 1999. Much will depend on what OPEC does during the next 90 days to further restrain production. But even in the absence of an early OPEC agreement, I believe crude prices will improve, sooner rather than later. Asia is already recovering, so demand for crude and refined products should strengthen during the second half of this year. Supply will also tighten, as recent cuts in drilling and investment by cash-strapped companies begin to eat into production growth. Eventually supply-demand will tighten to the point that prices trend upward.

The petroleum industry will rebound and once again be an aggressive recruiter of new talent, especially at superior institutions like OU's School of Petroleum and Geological Engineering.

What kind of graduates will companies like mine be looking for? First, we will look for someone



**Archie  
Dunham**

who's trained in a technical discipline — whether it's petroleum or chemical engineering, finance systems technology, or mathematics. Naturally, the new employee will learn a great deal as he or she gains experience on the job, but Conoco is not in the business of providing “graduate education” to new hires. Companies that depend on sophisticated technologies, work processes and communications systems as their lifeblood require new employees who can contribute from day one.

But being well prepared for the world of work requires more than just technical training, no matter how good the training. Increasingly, employers look for other qualities in the people they choose.

One is vision. The traditional, tried-and-true ways of doing things no longer cut it in companies with ambitious growth plans. Growth companies need visionary thinkers — “entrepreneurs” — throughout their whole organization, at all levels. Entrepreneurs are people who are forward-looking, motivated and creative, people for whom achieving or exceeding existing goals is not enough. Entrepreneurs seek to continuously raise the standards of achievement by expanding the performance envelope not just by a little, but by an order of magnitude. Cyberstars like Bill

Gates and Michael Dell provide the most visible examples; they've created totally new ways of doing things . . . totally new products . . . and, indeed, totally new industries.

Another desirable quality of newcomers to an organization is flexibility in putting knowledge to work — one's own knowledge and that of others. In today's competitive environment, “knowledge” does not have to be exclusively owned by a company in order to create value. Successful companies are skilled and practiced at gaining access to the intellectual assets of others — through alliances, partnerships and joint ventures. True “learning organizations” that are good at this must be staffed by flexible, open-minded people who possess the responsiveness and customer orientation to excel at partnering with others.

quickly to new technologies, who can switch flexibly from task to task, and who can be energized to use their talent on behalf of the company. Talent, like electricity, must be switched on for it to make a contribution.

Finally, companies in the future are going to want people who have a healthy sense of proportion about job and career . . . and dimensions of their lives. As the leader of a company with ambitious goals, I want all of our employees to believe in what they're doing when they come to work each day. I want them to be fully committed to the company's goals and willing to go the extra mile to help achieve them.

But at the same time, I want Conoco's employees to have a rich and rewarding life away from the office, refinery or drilling rig. Each of us should leave room for reflec-

“Talent, like electricity, must be switched on for it to make a contribution.”

New graduates need to be flexible and adaptable for another reason. Specialized knowledge has a short-term value in a world where data and information can be zapped almost anywhere with the click of a mouse. To stay ahead of competitors, companies must capitalize quickly on what they know. So they need employees who can adapt

tion, friendships, a satisfying family life and a fulfilling spiritual life. These are the pursuits that give meaning and depth to our day-to-day existence; they represent the better part, I believe, of why we've been put on this planet. All new

*continued on page 4*

**Dunham**, continued from page 3

graduates, those from OU or from any other school, need to concentrate just as much on developing relationships with their family and friends, on reflection, and on their spiritual growth . . . as they do on their professional lives.

How do you foster development of a well-rounded, high-productivity graduate (and new employee)? The starting point must, of course, be a high-quality student — an intelligent, highly motivated, goal-oriented young individual, just the kind of person who is drawn to PGE. Then, a series of partnerships must come into play to complete the education process:

- *School and Student working together to ensure that the new graduate will have the knowledge and skills he or she needs to compete.*
- *Industry and School working together in a way that the institution understands what companies are looking for in employees and, in return, that companies support the school's program*
- *Student and Industry working together to ensure that new graduates are given the opportunity, and the responsibility, to succeed in challenging assignments on the job . . . and that, in fact, they succeed.*

OU Discovery will strengthen these important partnerships. I'm delighted to be associated with its inaugural issue, and I look forward to reading many more issues in the years to come. ■

**A**rchie W. Dunham is president and chief executive officer of Conoco Inc. and an executive vice president of E.I. du Pont de Nemours and Company, Conoco's parent.

Dunham joined Conoco in 1966 as an associate engineer in Houston. For seven years he worked in various positions within the natural gas and gas products department and the corporate new project development group. In 1973, he became manager of the gas products division, followed by an appointment to Harvard University's Management Development Program.

He was elected executive vice president of Douglas Oil Company, a Conoco subsidiary in California, in 1976 and became president of the subsidiary in 1979. He returned to Houston in 1981 as vice president of logistics and downstream planning. In 1983, he was named vice president of transportation, natural gas and gas products. After participating in Stanford University's Senior Executive Management Program, he became executive vice president of petroleum products, North America, in 1985 and was elected to the Conoco board of directors.

In 1987, Dunham became senior vice president of DuPont's chemicals and pigments sector at DuPont headquarters in Wilmington, Delaware. He assumed the same position for polymer products in 1989.

Dunham returned to Houston in 1992 as Conoco's executive vice president, exploration production. He held that position until becoming president and CEO in January 1996.

Dunham is active in several professional business and advisory

organizations. On the national level, he is chairman of the United States Energy Association and serves on the boards of directors of the American Petroleum Institute and the Energy Institute of the Americas as well as the National Board of the Smithsonian Institution and the board of trustees of the George Bush Presidential Library Foundation. He is on the executive committee and the board of directors of the U.S.-Russia Business Council. Dunham is also a member of the National Petroleum Council, a key advisory body to the Secretary of Energy.

Locally, he is a member of the executive committee and board of directors of the Greater Houston partnership, the board of governors of The Houston Forum and the board of directors for Memorial Hermann Healthcare System. Dunham also serves on the boards of trustees of Houston Grand Opera, the Houston Symphony, and the United Way of the Texas Gulf Coast. He led Conoco's 1996, 1997, and 1998 corporate United Way campaigns, which each raised more than \$1 million. Dunham and his wife, Linda, are active members of the Second Baptist Church of Houston.

Born in Ada, Oklahoma, in 1938, Dunham holds a bachelor's degree in geological engineering and a master's degree in business administration from the University of Oklahoma. He has been honored by both the College of Business Administration and the College of Engineering as a distinguished graduate. In 1994, he was recognized by the OU Board of Regents for his dedicated service and demonstrated leadership to the University of Oklahoma. Dunham was inducted into the Oklahoma Hall of Fame in 1998.

The Dunhams have three children and seven grandchildren.

## “A School for Leaders”

**I**n the latest issue of *Strategy & Business*, a quarterly published by Booz Allen Hamilton, John Quelich, former dean of the London School of Business, wrote: “The scarcity of qualified managers has become a major constraint on the speed with which multi-national companies can expand their international sales.” Other similar commentaries parrot the same concern — a lack of leadership for the future.

If you study the genesis of petroleum engineering, you will discover that, starting in the mid-1950s, the University of Oklahoma led the way in developing so many of the giants in the oil business. Archie Dunham, author of our first Executive Column; John Campbell, another pioneer and *OU Discovery* contributor; and 1998-99 SPE President Gustavo Inciarte are all OU Petroleum and Geological Engineering graduates and leaders.

Sports teams have their dynasty years. So do businesses, universities and schools. The *U.S. News and World Report's 1998 Best Graduate Schools* ranked OU's School of Petroleum Engineering as tied with Stanford University for third place. Texas A&M was ranked first and the University of Texas, second. One could argue that the rankings are subjective, or that the resources available to the Texas schools are too great to compete against. As the new director, I respect both Texas schools for their accomplishments, as well as the tradition that Stanford has in Reservoir Engineering.



Keith Millheim

However, numbers of graduates don't make the school, nor does the money to which it has access. Production of future leaders, the tradition of leadership in research, innovative technology development and application, and committed faculty and students make the mark of the school.

Students go to certain universities and academies like Harvard, MIT, Stanford, Annapolis and West Point because they want to be the best of the best, the future leaders.

As director, I have a vision for the School of Petroleum and Geological Engineering: To be a school for leaders. This includes all aspects of leadership for students, faculty, research staff and our alumni.

Industries go through various phases as they mature. Like the aerospace, automotive, mining and other industries, the oil and gas industry went from the technological pioneering days between the 1950s through the 1970s, to the technological development boom days of the 1970s through the mid-1980s. From the mid-80's until now, a new maturity has occurred. We've shifted into a “business driven

industry” where application of technology is the priority.

One could speculate that each era caused the production of a certain type of Petroleum Engineering graduate. As we enter the new millennium, there is no doubt we are challenged by another era for the petroleum student and graduate, and the role of the school with industry. This is certainly reflected in the new accreditation standards referred to as ABET 2000.

This year, the College of Engineering and the School of Petroleum and Geological Engineering will be up for ABET 2000 accreditation. But even more importantly the school, in partnership with industry via our Advisory Board, will define the new needs of industry for undergraduate students. We will change, alter, add and drop courses to meet these new needs for our dynamic industry.

To achieve real excellence in leadership, and to be industry leaders, requires hard work, commitment and, most importantly, the will to change. Already, faculty teams are developing new directions for our reservoir engineering program, and the start of our new Well Construction Technology

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By Keith Millheim

Director,  
Petroleum and Geological  
Engineering,  
The University of Oklahoma

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“As director, I have a vision for the School of PGE: To be a school for leaders.”

Center (previously called FFCE). A third team is piloting our school through the new territory of ABET 2000.

New initiatives in conjunction with the Sarkeys Energy Center in the areas of reservoir, rock physics and natural gas engineering, have been started. We envision a partnership with Sarkeys that will build our research capacity, and we are pursuing opportunities to create a master's degree in Natural Gas Engineering and Management with the

School of Chemical Engineering and Materials Science and the Institute for Gas Utilization Technologies. There are other initiatives in the pipeline that will be reported as they progress.

This is not a shotgun approach, but a business strategy and plan. We are building on our strengths, traditions and industry network.

Aligning with the overall strategic goals of the College of Engineering, the School of Petroleum and Geological Engineering plans to be a leader in making it work. Barriers will come down. Old excuses and history will not deter us. Only by example will we show the students, alumni and industry that the University of Oklahoma School of Petroleum and Geological Engineering is once again a “school of leaders for leaders.”

As the line from Frank Herbert's classic, *Dune*, says, “The Sleeper has awakened.” ■

### Keith K. Millheim

Eberly Family Chair and Director, Petroleum and Geological Engineering, University of Oklahoma

Ph.D., Mining Engineering, University of Leoben, Austria

M.Sc., Petroleum Engineering, University of Oklahoma

B.Sc., Petroleum Science, Marietta College

Only current member of OU Engineering faculty in the National Academy of Engineering.

Co-authored *Applied Drilling Engineering*, published in 1986 and still considered the principal drilling textbook in use today.

Most recent publication: “Virtual Experience Simulation for Drilling - The Concept,” Annual SPE/IADC Drilling Conference, Amsterdam, Holland (with T. Gabler).

Holds five patents.

Internationally known consultant in strategic planning.

Research consultant, Amoco Production Research, Tulsa, 1991-1994

Board of Directors, Rig Design Services LTD and RDS-Naftagas LTD, 1995-1997

Director, University of Leoben, Austria, Department of Drilling, Petroleum Production and Economics, 1994-1998

Current JPT Special Columnist  
SPE Distinguished Lecturer Emeritus

Received first SPE Drilling Engineering Award

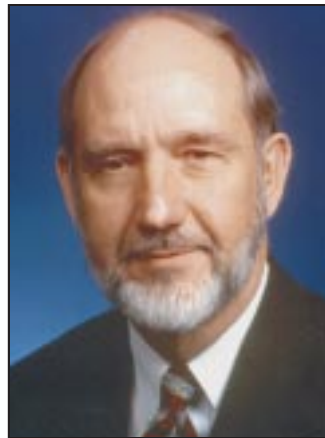
Distinguished SPE Member

Professional experience includes work in Australia, Canada, the Middle East, United Kingdom, North Sea, Norwegian North Sea, Netherlands, South America, and throughout the United States.

## Dr. W. Arthur “Skip” Porter: Re-engineering OU’s College of Engineering

**U**niversity of Oklahoma College of Engineering Dean W. Arthur “Skip” Porter has a vision. It starts in the classrooms and labs at OU. It crosses time. It crosses cultures. It crosses curriculum. It embraces this state’s economic destiny. It encompasses the world. And it all starts with this precept... “The difference between creating jobs and creating wealth is knowledge. We must understand that knowledge is the new coin of the realm. To gain a competitive advantage in a changing global economy, we must learn how to leverage this community’s intellectual resources,” said Porter.

It’s a bold statement. It’s a bold vision. And in a bold move Dr. Porter has accepted the challenge of leading the University of Oklahoma College of Engineering into the next millennium and the leveraging of intellectual assets has begun. He’s been on campus just 10 months and already you can see, hear, sense and feel his vision becoming reality. Significant progress has been made in all facets of the College of Engineering. The most meaningful advancement being in changing attitudes, perceptions and thought patterns.



Dean  
“Skip”  
Porter

“I have challenged everyone here in the College of Engineering, from the faculty to the students, to

rethink their education...its delivery...its content...its usefulness in today’s global marketplace,” he said.

Porter’s challenge is being met. Today’s CoE students are being taught not only the technical knowledge they will need to succeed in the workplace, but also the analytical and the practical skills they will need to be competitive in the future.

“Our graduates not only need to be able to get jobs once they leave our campus, they need to be able to create jobs as well if we are going to take control of this state’s economic destiny,” explains Porter.

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He’s been on campus just 10 months and already you can see, hear, sense and feel his vision becoming reality.

Porter, continued from page 7

Directors and faculty throughout the CoE are finding innovative ways to incorporate entrepreneurial experiences into their traditional course work. This means more group projects, where the process is as edifying as the outcome. This means teaching the value of technology transfer. This means exposing students to collaborations between OU, industry and government. This means educating our students on managing not only talent and technology, but marketing, management and financial issues. For example, Porter teamed up this spring with Rick Cosier, dean of the Price School of Business, and Steve Gillon, dean of the Honors College, in an unprecedented move to teach an undergraduate Honors course that challenges students with the mission of turning Oklahoma into a "Silicon Valley." The thought provoking new course is titled "The Role of Technology in the Wealth of Nations."

"I wanted to get energy flowing and conversations started," said Porter, "not just on campus, but in the community, over the Internet and out among other intelligentsia."

Porter is morphing other areas of the CoE as well. New faculty evaluation and benchmarking standards are now in place that compare OU College of Engineering faculty against national standards of the top 25 public engineering colleges. In addition, CoE promotion and tenure standards are being re-evaluated to reflect the importance of Porter's fourth component of technology transfer being added to the traditional university paradigm of teaching, research and service.

"This process of change is as difficult as it is rewarding, but it has to be done to ensure our graduates become the brave new leaders and thinkers needed to guide Oklahoma and the world through the next century," said Porter.

**F**rom the moment W. Arthur "Skip" Porter crossed the Red River north into Oklahoma, things just haven't been the same...for Oklahoma or for him. He has hit the red dirt running and change for the better has been as constant as the Oklahoma wind. Since July of 1998, Porter has been the visionary presence for the University of Oklahoma Office of Technology Development, the agent of change for the OU College of Engineering and the advocate of intellectual prosperity for the State of Oklahoma.

Under Porter's leadership, the Office of Technology Development at OU has helped six new businesses get up and running. Plans are under way for a technology research park, and an incubator for fledgling entrepreneurs will soon open its doors. Porter's vision hasn't stopped there. He has added the fourth component of technology transfer to the traditional university paradigm of teaching, research and service. He intends to produce graduates who not only get jobs, but are the brave thinkers of tomorrow who create new jobs. At Porter's impetus, the OU College of Engineering is raising academic standards with the intention of recruiting the best and the brightest faculty and students to the Sooner campus.

As Secretary for Science and Technology Development for the State of Oklahoma, Porter has led

In addition to serving as the OU dean of Engineering, Porter serves as the University Vice President for Technology Development and is the Secretary of Science and Technology Development for the State of Oklahoma. ■

the charge to make Oklahoma a leader in the global marketplace by facilitating a dialog between faculty researchers, business gurus and government leaders to diminish the barriers that preclude new technology from getting to the marketplace.

Prior to his coming to Oklahoma, Porter was president and CEO of the Houston Advanced Research Center (HARC), a non-profit, university-linked research institution with major research interests in energy, the environment and policy studies. Under his leadership, HARC raised more than \$135 million in research projects and grants, and currently attracts more than \$13 million in industry and government support for its research.

For more than two decades, Porter has been recognized as an international authority on technology commercialization and the management of collaborative projects. His insight into this highly specialized area is regularly sought by government, industry and academic organizations here and abroad.

Porter is the recipient of numerous awards and honors, including NASA's Certificate of Research Recognition, which he has received twice. In addition he is the 1996 recipient of the American Society for Engineering Management's Technology Leadership

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## Viewpoint Of Ole Dr. John

**T**

hese are the best of times; these are the worst of times; these are challenging times.

From my point of view, these are the best of times in the sense that the College of Engineering and PGE are in the process of developing and implementing strategic plans to re-engineer themselves — to serve the needs of the marketplace in the forthcoming century. These are the worst of times for those striving to survive in the short term and retaining a base for future prosperity. These are challenging times for all as we wrestle with the problems and barriers that must be addressed to achieve desired goals. People are searching for desirable solutions and then trying to ascertain which of these are doable.

One of the advantages of being old is that you have survived a lot of ups and downs. Every time you survive a down and enjoy an up, the process gets a bit easier. At this point, I am happy to have grown up in the only depression of this century. It prepared me for the rollercoaster ride that we call life. I mention this as a prelude to the idea that adversity creates opportunity if one chooses to embrace it. We must accept the fact that adversity is usually nothing more than a situation which arises that cannot be addressed using conventional wisdom and old familiar practices.

The petroleum industry of my youth is not the petroleum industry of today. It is now a mature indus-

try. Oil and gas are now merely commodities. It is subject to global and political constraints over which the industry has little control. It is easy to assemble a list of ills that can bring tears to our eyes. But, I find much to be optimistic about. (Let me hasten to add that I believe this is rational and not due to the onset of senility.)

What does all of this mean to the College of Engineering and PGE at OU? First of all, the problems among industries differ in severity and scope, but all are facing drastic changes. Some of the problems are unique to petroleum, but many are not. But, for our purposes we need to concentrate on PGE. If the faculty and administration truly listen to the industry and supply the type of graduates needed, if they supply the type of distance learning needed to continually upgrade the professional staff, and if they provide needed research support, half of its problem has been solved. This is an internal university responsibility subject to the advice and support of its clients.

What is the other half? It is having a satisfactory quality and quantity of students to meet both the industry needs and maintain the critical mass of students needed to remain and prosper as a separate school in the college. In the past 30 years or so, PGE has gone from being a “star” in the College of Engineering to a “bit player” as its enrollment has continued to decline in comparison with other schools. Much like a production decline curve, at some point in the decline,



*John Campbell*

abandonment results. It appears that the industry will continue to hire at least 30-35 PGE graduates per year regardless of its short-term problems. This results in a total undergraduate enrollment that satisfies both industry and the internal requirements at OU to maintain a viable program. How do they recruit a sufficient number of quality students? With scholarship support!

I have looked at the funds now available and estimate that they must be increased about \$100,000 per year in order to meet both quality and quantity needs. Where will they come from? Some will come from a few who are willing to share their good fortune by establishing scholarship endowment funds. Some will come from company grants as enlightened owners and managers realize that such commitments are a whale of an investment. The rest will come from individuals or groups who can pledge to support a deserving student for four years by an annual investment of \$2,500 to \$3,000.

*continued on page10*

Campbell, continued from page 9

Each of us who love OU and want to preserve our industry must get involved. We need to help find young men and women who will use PGE as a springboard to success — and then we need to support them. In doing so we are doing them, PGE, and the industry a favor. Besides, it will make us feel pretty darn good about ourselves. ■

**D**r. John M. Campbell Sr. is CEO of the Campbell Group of Companies, with offices in Norman, Oklahoma; Hamilton, Bermuda; Houston, Texas and London. Until 1968, he was chair of OU's School of Petroleum and Geological Engineering. He was elected to membership in the National Academy of Engineering in 1991 "for contributions to petroleum engineering theory and practice, and the design of offshore gas and oil gathering systems." ■

## SPE Technology Summit Draws Industry Leaders to Campus

**D**ecision-makers and industry leaders from across the country and around the world will be on campus April 29 and 30 for what is being called one of the most important energy-related events of 1999. The SPE Technology Roundtable will be hosted by the University of Oklahoma and Sarkeys Energy Center. Keith Millheim, director of OU's School of Petroleum and Geological Engineering, will serve as roundtable facilitator.

Chief technology officers from mega-majors, existing majors, independents, service companies, government, and universities will take part in discussions on technology and utilization for the emerging oil and gas industry. This is only the

third time that SPE has sponsored such a gathering. The first SPE Roundtable on Research and Technology was held in Cambridge, U.K., in 1993. The second was in Caracas, Venezuela, in 1994. Oil prices were around \$15-\$18 a barrel (U.S. dollars) at that time. "Now with prices closer to \$10 to \$12 U.S. dollars per barrel, the one certain fact is that the industry will be different. The unknown is *how* different," observes Gustavo Inciarte, 1999 SPE president and University of Oklahoma alumnus.

"What will be the role of research and technology? What will the "new" industry look like? Who will be the researchers, the technology developers, and providers?" asked Inciarte in his letter of invitation. Inciarte invited 20 preeminent leaders from six countries and the United States. Inciarte will also be attending the summit as president of SPE. As with the first two roundtables, key findings from the event will be reported in the *Journal of Petroleum Technology*.

"The opportunity for OU to host a major event like this is a tribute to both the new leadership in the College of Engineering, and the long and proud history of this university as a key player in the energy industry," says Millheim. "Our students will have a chance to see first-hand how an enormous industry like the oil business responds to change."

The SPE Technology Summit is by invitation only. For information regarding media coverage, contact the SPE Dallas office at [spedal@spelink.spe.org](mailto:spedal@spelink.spe.org). ■

## New Faculty From Cardinal to Crimson

Richard G. Hughes is PGE's newest faculty member, joining the university community in January of this year. Hughes hails from Stanford University, where he completed his PhD. in Petroleum Engineering in 1998. He also holds a master's degree from Stanford as well as a B.S. with Honors from the New Mexico Institute of Mining and Technology.

Hughes brings experience from Amerada Hess Corporation, Dwigths Energy Data, and Tenneco Oil Company to his position as assistant professor. Please join the rest of the PGE family in welcoming Richard, his wife, Amy, and kids Randy, 7 1/2, and Michael, 3.



# OU Discovery

School of Petroleum and Geological Engineering

**Congratulations to the graduating seniors in petroleum engineering:**

*Amy Bunch*

*Joshua Cooper*

*Michael Mercer*

*Chen-Fah Ng*

*Craig Stewart*

*Oleg Tolmatchev*

*Robert Underwood, Jr.*

*Tia Watts*

## 1999-2000 Officers

**SPE Student Chapter:**

**President:** *Ion Ispas*

**Vice President:**

*Rick Murillo*

**Secretary:** *Leo Kouemo*

**Treasurer:** *Walter Poquioma*

**St. Pat's Representative:**

*Don Miller*

**Pi Epsilon Tau:**

**President:** *Walter Poquioma*

**Executive Vice President:**

*Catherine Seaton*

**Second Vice President:**

*Julio Cabrera*

**Secretary-Treasurer:**

*Kehinde Adesina*

**Corresponding Secretary:**

*Rick Murillo*

**St. Pat's Representative:**

*Murray Gardin*



*Steve Richards, Industry Advisory Board Chair, and June Richards*

## 1998 Distinguished Scholars Banquet October 23, 1998

*Keith Millheim congratulates Mojisola Enilari, elected by the PGE faculty as 1998-99 Outstanding Sophomore*



*Keith Millheim and Rob Underwood, 1998-99 Toolpusher Award recipient, which recognizes students who have "gone the extra mile" to help and promote PGE and named in honor of the person "who gets things done around the rig."*

# Well Construction Technology Center:

## *New Name Reflects Expanded Capabilities*

The name of the Fracturing Fluid Characterization Facility, (FFCF), has been changed to the Well Construction Technology Center (WCTC). This name change reflects the University of Oklahoma's new strategies for commercialization, as well as the expanding capabilities of this North Campus research facility.

The capabilities have been expanded to additional areas of the oil and gas industry, including drilling, completions and production. The new name encompasses the broad spectrum of the petroleum industry and more clearly defines the role that the Center will perform. The strategies for the expansion of the scope of the WCTC into other research areas are in closer alignment with those of the School of Petroleum and Geological Engineering, as well as the College of Engineering.

Several industry projects and third-party proprietary tests are currently being conducted at the WCTC. The Fracturing Fluid Characterization project; Coiled Tubing Consortium; Proppant Flowback Consortium; SBIR sub-contracts; and several other proprietary tests are under way at this time.

The WCTC provides a broad range of engineering and technological services to help meet the needs of the petroleum industry.

Listed below are some of the equipment and engineering services unique to the Center:



### *Equipment*

- Unique High Pressure Simulator (HPS) – 7 ft. X 9 1/3 ft. vertical slot with state-of-the-art fiber optic vision system
- 9500 feet of coiled tubing ranging in size from 1 inch to 2 3/8 inch OD
- Field scale mixing and pumping capabilities.
- Bohlin rheometer and high pressure, high temperature Fann viscometers
- 500 ft. double-pipe heat exchanger
- Foam flow loop with elevated temperature testing capabilities
- Wireless data acquisition and control systems

### *Engineering Services*

- Mathematical modeling / experimental study of fluid behavior
- Proppant transport and placement
- Frictional losses in straight tubulars as well as coiled tubing

- Concentric and eccentric annuli flow behavior of complex fluids
- Proppant flowback and sand production studies
- Wellbore cleanout simulations and experimental studies
- Dynamic fluid leakoff
- Near wellbore fluid behavior and perforation pressure losses
- Rheology of foam fluids

During this time of downsizing and mergers in the petroleum industry, the WCTC faculty and research staff see the opportunity to continue to align themselves to the research needs of the industry. For more information about WCTC, visit the website at [www.ou.edu/wctc](http://www.ou.edu/wctc). ■

### *Faculty Team:*

Dr. Subhash Shah, Team Leader  
 Dr. Samuel Osisanya  
 Dr. Keith Millheim

## Accreditation Visit Scheduled for Fall

**T**he petroleum engineering program at the University of Oklahoma has been continuously accredited since 1936 and is one of the oldest accredited engineering programs at OU, along with civil, electrical and mechanical engineering. This fall, the engineering programs at the university will undergo an accreditation review by a team of visiting engineers from industry and academia. In anticipation, preparations are underway in the College of Engineering and the School of Petroleum and Geological Engineering to showcase our engineering programs.

Engineering programs in the United States are reviewed and accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The EAC has recently made some major changes to the criteria for accreditation. The new criteria require each program to develop a

clear set of objectives, detail how those objectives are achieved within the curriculum and demonstrate the objectives are being met through a regular assessment program.

The petroleum engineering program is putting together a self study report that documents the educational experience provided to the student. The faculty, with input from the Advisory Board, have developed a set of program objectives:

1. Our graduates will be able to apply basic math, science, and engineering knowledge to identify, formulate, and solve engineering problems, design and conduct experiments, analyze and interpret data, and design systems, components, or processes using modern techniques, skills, and engineering tools suitable for engineering practice.

2. Our graduates will experience a broad-based education in an environment that fosters an understanding of contemporary issues, the global and social impact of engineering solutions, their ethical and

professional responsibility, and the need for effective communication and continuous learning for successful careers.

3. Our graduates will be able to characterize and evaluate subsurface geological formations using geological and engineering methods.

4. Our graduates will be able to design and analyze systems for drilling, completing and producing wells, and apply reservoir engineering principles for optimizing resource development.

5. Our graduates will be able to incorporate engineering economics and resource evaluation methods with the concepts of uncertainty and risk management in the design and selection of equipment and procedures, and development of systems or processes for production and recovery of resources. ■

### Faculty Team:

*Dr. Roy Knapp*  
*Dr. J.C. Roegiers*  
*Dr. Djebbar Tiab*  
*Dr. Michael Wiggins, Team Leader*

## Reservoir Engineering Excellence Team

**T**he mission of this team is to establish OU as a leading center of excellence in reservoir engineering education and research. The team is conducting a critical review of our reservoir

engineering curriculum and research activities. We seek to align our curriculum and research with the needs of oil and gas industry while instilling in our students an ability for lifelong learning.

A graduate-level program focused on reservoir engineering and management is also under consideration. ■

### Faculty Team:

*Dr. Faruk Civan*  
*Dr. Anuj Gupta*  
*Dr. Richard Hughes*  
*Dr. Daniel O'Meara*  
*Dr. Keith Millheim, Team Leader*

The School of Petroleum and Geological Engineering is grateful for the support our students and program receive from the following friends, companies and alumni. While we have made every effort to insure the accuracy of these listings, please call to our attention and accept our apologies for any errors or omissions.

Shawn Abt  
Mr. & Mrs. W.B. Akers  
Richard Alexander  
Roberta R. Allen  
George Allman  
Ronny Altman  
Amerada Hess Companies  
Amoco  
Anadarko Petroleum  
James K. Anderson  
James Andritos  
ARCO  
R.F. Atkinson  
B. P. Exploration  
B. H. P. Petroleum  
Baker Hughes  
Gerald H. Barnes  
Robert Beams  
John Bell  
BHP Petroleum  
Tray Black  
Bev Blackwood  
Janice M. Brickey  
Lawrence Brock  
Don E. Brown  
Burlington Resources  
James Burtner  
Hershel Carver  
Pete Cawthon  
S.J. Cerny  
Chevron  
H.E. "Eddie" Chiles  
John Chisholm  
Conoco  
Coppedge Oil & Gas  
Davis Coppedge  
Jack Cowan  
Glenn Cox  
Carol Lee Crain  
Desk & Derrick Club  
Jeff Dietert  
Richard Dixon  
David Donohue  
J. Michael Drennen  
Du Pont/Conoco  
James Duck  
Thomas Dugan  
The Eberly Family  
Mary Elder  
Marshall England  
Enserch Corporation  
Richard and Ruth Evans

Ronald and Estelle Evans  
Exxon  
Louis Fasholz  
Fidelity Investments Charitable  
Debra Ann Fitter  
Kelly Foster  
Margaret Foster  
Robert L. Foster  
Robert Fowler  
Rickey L. Frederick  
David Freeman  
Ohm P. Garg  
Ahmad Ghassemi  
Henry Gilbert  
Wayne Glenn  
Richard & Linda Goddard  
W.S. Griffin  
James Griffith  
William Gufey  
Genliang Guo  
G. Carl Hale  
Halliburton  
Robert Hanley  
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Winson Heng  
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Robert Holly  
David Hunt  
Robert H. Huston, Jr.  
IBM  
Gustavo Inciarte  
Ingersoll-Rand Company  
Behram Irani  
Farieda Irani  
Ronnie Irani  
Kevin Jensen  
John & Nancy Snyder Foundation  
John M. Campbell  
F.T. Johnson  
Cye Kahanek  
James Kern  
Kerr-McGee  
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Robert Knox  
KPMG Peat Marwick Foundation  
R.H. Krumme  
L.O. Ward Oil Operations  
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Graydon Laughbaum  
Joseph Lawnick  
Mr. & Mrs. Fred Lieberman

Bill Lindsey  
Thomas Luccock  
Charles & Patricia Lukehart  
Hulon Madeley  
D. Malekzadeh  
Marathon/USX  
Alex Massad  
Robyn Matthews  
Thomas H. McCasland  
Harry McLeod  
Wilfred McLeod  
Curtis Mewbourne  
Mewbourne Oil Company  
Mid-Continent Oilmen's  
Invitational, Inc.  
Bradley Miller  
Cheryl Miller  
Martin Miller  
Mobil  
Edward Morris  
Tom Morton  
John Moseley  
Allan & Marilyn Neustadt  
Newville Engineering, Inc.  
NGC Oil  
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Occidental Petroleum Foundation  
R. Alan O'Donnell  
William Orr  
Pacific Enterprises  
Bill Parker  
James D. Pate  
Randy Patterson  
Robert Patterson  
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Phillips Petroleum Co.  
Pamela Pierce  
Mr. & Mrs. Dominique Pinkney  
Morris Pitman  
Blair Powell  
Vernon Pringle  
Gertrude Pruett  
Quintin Little Co.  
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Davis Reaugh  
James Richards  
Steven Richards  
John Ritz  
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Schlumberger  
Lisa Schmidt  
Mark Schumacher  
Hollis Scoggin  
Mark Seefeldt

John Seng  
Don Sessions  
John Sessions  
Shell Oil Company  
Terry Shyer  
Shawn Lavette Simmons  
Paul Simpson  
Baljit Singh  
Arlie Skov  
Jack Sleeper  
George Smith  
Gordon Smith  
Steven Smith  
Wynne Snoots  
Snyder Oil  
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Ward Oil  
Ward Petroleum Corporation  
Arliss Watts  
Loy Webb  
G.L. Weger  
Linda Wesling  
Kristy Wicker  
Michael & Tanya Wiggins  
Lester Wilkonson  
Donald Witt  
Paul Witt  
Leslie Wylie  
John Yeager  
Betty Zoccola & Bonnie Hartis