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Spring 2005

2004-05 Academic Year

Freshman	7
Sophomore	3
Junior	6
Senior	13
Master's	7
Ph. D	8
Total students	44



SPE ATCE 2004 in Houston, Texas: Alejandro Wills, Carlos Wild, Josh Kamas, Alvaro Nunez, Juan Garcia, Subrat Dhal, Rene Alcalde, Xiaotao Sun, Jianhui Zhang, John Moreno, and Jhon Sepulveda.

From the Chairman...

It has been a busy semester, with reviewers for North Central Accreditation (NCA) at New Mexico Tech in October and then the Accreditation Board for Engineering and Technology (ABET) over Halloween. Trick or Treat! For those of you who are not aware of the role of these two organizations; NCA reviews the entire university including administration, support services and academic programs. ABET primarily reviews engineering programs along with the support services to the engineering programs. I cannot officially inform you of the outcome but will mention that the institution received a favorable review from NCA and the Petroleum and Natural Gas Engineering program received a similar favorable review from ABET. I would like to thank the faculty, the students and the advisory board for their input and assistance in this important process.

Speaking of the Industry Advisory Board, over the past two years several meetings have been held to discuss methods of continuing and increasing support to the program, and of methods to improve the department's efficiency at recruiting, retention and preparing for ABET accreditation in the Fall of 2004. For your information, copies of the minutes from previous meetings can be found on our website. Please review and send me any comments, suggestions or ideas on how we can achieve the goals that have been set. It is evident that the top priority is recruiting qualified undergraduate students. This task will require the concerted efforts of the faculty and alumni to inform high school students of the potential in petroleum engineering and the value of New Mexico Tech.

Also, I like to thank Mike Stogner and Dan Voecks who have both stepped down from the advisory board, and I would like to welcome Jay Paul McWilliams, Jim Lovato and Matt Hill as successors to the board.

Other issues that are just as important include recruitment of our students upon graduation and for summer intern work. I have observed a recent flurry of activity in hiring students for both summer and fulltime positions. This is the first time in years I have witnessed students with multiple interview trips and/or offers. I am sure this success reflects not just the quality of education and caliber of students at NMT, but also the high price of oil and natural gas. How long this continues....

Tech News

Unconventional Gas, Fractured Reservoirs and Infill Drilling

(taken from PTTC Network News, 3rd Quarter, 2004)

DOE recently announced that New Mexico Tech has completed a five-year study for optimization of infill drilling in naturally fractured tight gas reservoirs for the San Juan Basin. Their final report indicates that optimal infill drilling could increase gas recovery anywhere from 23 to 46 percent. In the San Juan Basin well/reservoir productivity varies greatly. Natural fractures and their associated reservoir permeability and permeability anisotropy influence drainage efficiency and infill well potential.

The study generated a wealth of information about optimizing infill drilling and developed a simple to use Infill Well Location Calculator (<http://octane.nmt.edu/software/Infill.asp>) designed specifically for small independents. The study also demonstrated a methodology to define the elliptical drainage area and recoverable gas for existing wells, evaluate hydraulic fracture simulation treatments and their impact on well drainage area and infill well potential, determine the optimal location and number of new infill wells to maximize economic recovery, and forecast the increase in total cumulative gas production from infill drilling.

Following an initial small-scale study of the Blanco Mesaverde reservoir with one operator, New Mexico Tech began working with other producers in 1998 through a cooperative agreement with DOE. They conducted a basin-wide study for both the Mesaverde and Dakota formations. The objective of this project was to develop a methodology to determine optimum well spacing, patterns, and type (vertical or horizontal) to maximize gas recovery from naturally fractured tight gas reservoirs.

Burlington Resources and BP were granted permission to site new well locations based on drainage area and drainage pattern of previously drilled wells. Typically, wells are drilled on a given well spacing and pattern (usually square)

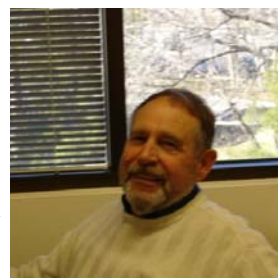
specified by the regulatory agency. For certain formations, gas operators have been able to convince the commission to reduce well spacing so that additional reserves could be produced. This was the first approved deviation in the Mesaverde tight gas sandstone reservoirs in the San Juan Basin, and the approval was a direct result of this project.

Several independent gas operators have approached New Mexico Tech to conduct a similar study without federal funding in other Rocky Mountain basins. One such study is with Occidental Oil and Gas to develop a tight-gas play in the Piceance Basin in Colorado. Occidental is funding a fourteenwell pilot program planned for next year and is negotiating to have New Mexico Tech do the fracture analysis, interpret well tests and production data, and conduct some reservoir modeling.

For further information, contact DOE's Jim Ammer (phone 304-285-4383, email jammer@netl.doe.gov).

Petroleum Engineering Distance Education

The Department of Petroleum Engineering is offering a second course in distance education for the spring 2005 semester. Dr. Robert E. Bretz is offering Petroleum Engineering (PETR) 571/489, Field Process Design and Analysis using a Chemical Process Simulator.



Robert E. Bretz, Associate Professor of Petroleum and Chemical Engineering.

This 3 credit hours course runs from January 18th to May 13th on Tuesday and Thursday evenings from 7:00 p.m. – 8:15 p.m.

The course is designed for engineers interested in learning how to use a chemical process simulator for designing and analyzing field surface processes in petroleum operations.

More information can be found on the Petroleum website.



3rd Annual 49'ers Gold Rush Golf Scramble
\$49.00 per person-2 person teams
Friday, October 21, 2005



Sponsor a Hole for just \$50.00!

Just detach and mail back with your business card or indicate what information you'd like to see on the hole sponsor sign, or complete the online sponsorship form on our website.

Business Name: _____

Sign information: _____

Make and send checks to:

NMT SPE
 MSEC 300A
 801 Leroy Place
 Socorro, NM 87801

Registration Form

Tee Time 1:00 p.m.

Name: _____ Partner: _____
 Amount paid: _____ Card #: _____

Registration deadline: Thursday, October 20, 2005

Tournament Registration: 12:00 - 1:00 p.m.

Lunch for participants: 12:00—1:00 p.m.
 (hosted by the Office for Advancement)

Dinner for participants from 4:30—6:00 p.m.
 (hosted by the Office for Advancement)

No partner? No problem! Let us know and we can pair you up with someone.

Send entry fee and make check payable to: or credit card payments accepted at:

NMT SPE
 MSEC 300A
 801 Leroy Place
 Socorro, NM 87801
 (505)835-5412

NMT Golf Course
 Attn: Russ Moore
 801 Leroy Place
 Socorro, NM 87801
 (505)835-5335

1st, 2nd, 3rd Place Awards

Prizes for closet to the pin

Prizes for hole in one



For questions contact SPE at (505) 835-5412

Thanks for supporting the SPE annual 49'ers Gold Rush Golf Tournament!



ChevronTexaco supports New Mexico Tech

Chevron Texaco recently visited the New Mexico Tech campus to present scholarship and gift money in the amount of \$10,750 to the college. Leslie Armentrout and Bob Heinke with ChevronTexaco announced the gift at an awards banquet honoring past recipients of ChevronTexaco scholarships.

The money was be distributed as gifts to the Petroleum and Natural Gas Engineering Department and Geology program for the purpose of supporting student activities, as scholarships for Petroleum Engineering, Earth Science and Chemical and Mechanical Engineering students, and as support to student organizations such as SPE, SHPE, SWE and AAPG. This is the second consecutive year ChevronTexaco has made this donation to support students

at New Mexico Tech. They have also actively recruited for summer intern and full-time positions over the past several years.

Last year's support to the Petroleum and Natural Gas Engineering program was used for travel to send two students to the SPE Regional Student Presentation Contest, to support the Landon B. Taylor Banquet for students, faculty and alumni, and to provide food and drink for the SPE student chapter kickoff meeting. The scholarship recipients for the academic year 2004-05 are Ronald Hetzler, Joshua Kamas, and Erick Estrada.

Burlington Resources Education

For the second consecutive year Burlington Resources has provided a \$10,000 grant to the Petroleum and Natural Gas Engineering Program to support student research on practical industry problems.

In the first year, a GIS database was developed using public-domain core analysis for the Mesaverde and Dakota Formation in the San Juan Basin. This work was a collaboration between PTTC, Southwest Regional coordinator, Ms. Martha Cather and Dr. Thomas Engler, Chairman – Petroleum and Natural Gas Engineering Department of New Mexico Tech. Both Geology and Engineering undergraduates were supported in this effort.

The work was directed towards collecting core analysis data and providing said data in a usable format for engineers and geologists. This has not been done previously, and is expected to prove invaluable to industry as reference information. Further, this work has the potential to

enhance petrophysics/log evaluation and thus lead to future research in these areas.

The current proposed project complements the previous work on core data collection and analysis. Candidate wells with sufficient core analysis and logs will be selected and data compared to develop core-log based relationships. For example, of particular interest will be if permeability (both horizontal and vertical) can be related to porosity. The benefit is improved definition (or range) of petrophysical properties to enhance reservoir description and gas-in-place estimates. Existing computer software and hardware will be utilized to perform this work.

Tech Announces Four Major Petroleum Research Projects

ALBUQUERQUE – Acting Under Secretary of Energy David Garman formally announced the start of six major research projects in New Mexico at a press conference at Wednesday, Oct. 6.

The projects are all being funded by more than \$5 million in research grants provided by the U. S. Department of Energy. Researchers at the Petroleum Research and Recovery Center, or PRRC, at New Mexico Tech earned four of the six awards, totaling \$4.75 million. The funding is from the U.S. Department of Energy's National Energy Technology Laboratory. "This shows that we have good researchers because all these grants were competitive," PRRC director Robert Lee said. "I'm very happy because our researchers are doing excellent jobs."

Four of the new research projects, which are designed to develop the nation's oil and gas resources and protect water resources, will be conducted at the Petroleum Recovery Research Center in Socorro, a research division of New Mexico Tech. Lee said, "This is a big deal for us. We rely on research dollars, so that's very important to us. This [getting four large grants at once] doesn't happen very often." Lee said he was especially gratified that two of the projects are proposals by junior researchers. "We are very, very happy to have junior professors get funded," Lee said. "When young people get awarded, that tells us we have a bright future."

The researchers who earned grants are senior engineers Reid B. Grigg and Randall S. Seright and junior engineers Junhang Dong and Robert S. Balch. Two of the research projects started Friday, October 1. Another begins on January 1, 2005, while the other starts on April 1, 2005. The projects, which are all funded for a three-year period:

- "Aperture-Tolerant, Chemical-Based Methods to Reduce Channeling," funded for \$1.2 million, principal investigator Randall S. Seright, senior engineer and section head (October 1 start date). For every barrel of oil produced, eight barrels of water are produced. Seright and his team will investigate how to minimize the production of undesirable water.

- "Treating Coal-Bed Methane Produced Water for Beneficial Use by MFI Zeolite Membranes," funded for \$1.14 million, investigator Junhang Dong, researcher and assistant professor of chemical and petroleum engineering at Tech (October 1 start date). Water produced during gas exploration has a high saline content and also contains oil. When using sea-water desalinization technology, the trace oil content clogs the filters. Dong and his team will use nano-sized membranes made of zeolite – a naturally-occurring dirt. Dong's research has led to a patent, which is pending.
- "A Customizable Fuzzy Expert System for Regional and Local Play Analysis," funded for \$1.2 million, principal investigator Robert S. Balch, Tech scientist and section head (January 1, 2005, start date). Oil and gas exploration always includes a degree of risk. Not every well produces enough oil to be cost effective. Balch and his team will use "fuzzy logic" to help calculate probabilities of success based on past experience and expert opinions.
- "Improved Gas Flooding Efficiency," funded for \$1.2 million, principal investigator Reid B. Grigg, senior scientist and section head (April 1, 2005, start date). Once oil is found, bringing the oil to the surface can be costly. Grigg and his team will research how to inject carbon dioxide into an oil deposit to make the oil lighter and easier to bring to the surface, making the process more efficient and cost-effective.

Garman also announced that recent DOE grants have been made to New Mexico researchers affiliated with Correlations Company and Lovelace Biomedical and Environmental Research Institute.

WANTED

We have received numerous correspondence from alumni throughout the years from postcards to letters to business cards to emails.

We would like to feature updates of what you are doing for those that have lost track and want to contact you or just to find out how you are doing.

We would like to also update Tanya's alumni records so that she has correct contact information for invitations, newsletters, etc.

You can send us your business card, short bio, or both. We will feature some of the bios in the newsletter with whatever information you would like to provide. Here's your chance to brag about yourself! We know you are doing wonderful things! Please include pictures!

Due to confidentiality issues, we will not provide any information that you do not want published.

You can also enter your information and/or bio on the website.

If we publish your information, you will receive a gift.

2005 Langdon Taylor Banquet



**Saturday, April 30, 2005
Rancher's Steakhouse
606 N. California
Socorro, NM 87801**



Time

6:00 p.m.	Cocktails
7:00 p.m.	Dinner
8:00 p.m.	Awards

Cost

\$5.00	Students with SPE membership
\$10.00	Students without SPE membership and/or guests

Awards

F. David Martin	outstanding Freshman student
Langdon B. Taylor	outstanding undergraduate student who committed time and effort to the SPE student chapter
Joe Taber	outstanding graduate student who committed time and effort to the SPE student chapter.
Distinguished Faculty	for their support of the SPE chapter



Winners of the 2004
Dr. Chen classic:
Dr. Chen, Nick Jacka
Justin Stolworthy, and
Erick Estrada

Dr. Chen Annual Classic Golf Tournament

(Golf tournament fee includes cart, green fees, and lunch)

- \$25.00 per person
- 1st, 2nd, and 3rd place awards





Petroleum Engineering Department
MSEC 300A
801 Leroy Place
Socorro, NM 87801

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Petroleum Engineering Newsletter Contest

This is our fourth edition of the newsletter and we don't have a name for it. So, you guessed it.

You can submit your entry in one of four ways: mail in the form below, complete the form online, contact the Petroleum Engineering Department at (505) 835-5412 or email petro@nmt.edu.

We will announce the name of the newsletter at the Langdon Taylor Banquet.

The winner will be given a SPE Polo Shirt, 2 tickets to the Langdon Taylor Banquet, and a one night's accommodation in Socorro while you attend the banquet.

The winner will be notified by April 18, 2005 to plan accordingly.

Deadline to submit your entry is April 15, 2005

Newsletter Entry Form

Newsletter name _____
Submitted by _____
Address _____
City, State, Zip _____
Telephone _____
Email _____
