

PRODUCER NEWS

A Quarterly Newsletter for the Texas Oil & Gas Producer

Produced by the Texas Region Petroleum Technology Transfer Council (PTTC) and the Bureau of Economic Geology

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Field-Oriented Research Projects for Independents

The Petroleum Technology Transfer Council (PTTC) is working with the U.S. Department of Energy (DOE) to present results of several field-oriented, DOE-funded research projects designed to assist independents. A traveling workshop has been created to deliver these results to independents in the relevant areas of study.

The DOE manages three field-oriented programs for independents: the Stripper Gas Well program, the Technology Development with Independents program, and the Stripper Well Consortium. Results from some of these programs are now available, and project results relevant to PTTC regions will be presented at the workshops. The first field-oriented workshop sponsored by the Texas PTTC region will be held in Midland, Texas, on November 6. Depending on the level of interest shown by the oil and gas industry, additional workshops may be scheduled for 2002. For more information, visit the PTTC Texas region website at <http://www.energyconnect.com/pttc/workshops>.

Cementing Solutions Plugging Process

Cementing Solutions Plugging Process (CSPP) is a new technique designed to simplify the process of plugging a well bore. This process was demonstrated at a DOE-sponsored workshop in September in cooperation with Cementing Solutions, Inc., and Osage Nation.

CSPP involves (1) filling the well bore with cement or (2) inserting plugs at critical places in the casing. Because the process uses common construction-cement equipment, workover rigs, high-pressure pumping machines, and elaborate mixing equipment are not required. The slurry is premixed offsite, transported to the well site in common ready-mix trucks, and then

transferred into a holding tank and then into the well by using a low-pressure pump. Inside the well, hydrostatic pressure forces the well fluid into the formation, allowing the cement plugs to be placed at appropriate locations. This process can be used for a wide range of well types.

For more information, contact NPTO representative Virginia Weyland (telephone: 918-699-2042; fax: 918-699-2005; or e-mail: virginia.veyland@npto.doe.gov).

Exploration and Production in Mexico

Alfredo E. Guzmán is Exploration Strategies Coordinator for Mexico's Petróleos Mexicanos Exploración y Producción Company (Pemex). Mr. Guzmán recently presented "Exploration and Production in Mexico: Challenges and Opportunities" to the Houston Geological Society and the AAPG Prospect & Property Expo (APPEX). Because the U.S. and Mexico have begun to increase their level of interaction and collaboration—in the oil industry and elsewhere—Mr. Guzmán's comments were especially timely. His conclusions, which, together with detailed information and graphics regarding Mexico's fields, are posted at <http://www.searchanddiscovery.com/documents/guzman/index.htm>. Briefly they are:

- ◆ The low levels of investment in E&P in Mexico in recent years have resulted in a gas deficiency, a critical situation for light oil and a declining scenario for heavy oil.
- ◆ Pemex has built a large portfolio of upstream opportunities but lacks the capital to generate value from them.
- ◆ In order to benefit from portfolio opportunities, Pemex is considering inviting operators to participate, within the present legal framework, in all phases of the E&P value chain. Some of these projects will require financing from the participants. This plan will begin with gas projects.
- ◆ Mexico's Ministry of Energy will soon be negotiating with the Mexican Congress on an initiative to allow full private participation in the E&P of nonassociated gas.
- ◆ Pemex will not be privatized.

PTTC gratefully acknowledges that its primary funding comes through the U.S. Department of Energy's (DOE) Office of Fossil Energy through the National Petroleum Technology Office (NPTO) and Strategic Center for Natural Gas (SCNG) within the National Energy Technology Lab (NETL). PTTC also appreciates the support of several state governments, universities, and state geological surveys, mainly through the Regional Lead Organizations. Tax-deductible industry donations and in-kind contributions play an important role. PTTC is a tax-exempt corporation under IRS Code section 501(c)(3).

AMGP Now a Member of GCAGS

The Asociación Mexicana de Geólogos Petroleros (AMGP) has become a full member of the Gulf Coast Association of Geological Societies. The AMGP is an established and successful professional organization, which was founded in 1949 to provide a forum for the interchange of ideas and fellowship among Mexican geologists. The AMGP partners with the AAPG as well, recently co-sponsoring the 4th Joint AMGP/AAPG International Conference, "Exploration and Development of Gas Plays," in Veracruz, Mexico.

DOE's Field-Oriented Research Projects Workshop for Independents

This DOE-traveling workshop, co-sponsored by PTTC Texas and Southwest Regions and held in Midland on November 6, provided attendees the chance to hear from small independents who have received funding from DOE's Technology Development with Independents Program. The following representatives and companies reported on their programs:

- ◆ Walt North, American Warrior and MNA Enterprises
- ◆ Stevel Melzer, Capataz Operating
- ◆ Gary Covatch, Stripper Well Consortium
- ◆ Bruce Miller, Yates Energy
- ◆ Ron MacDonald, Schlumberger-Holditch

Research results included information about increasing production, reducing operating costs, reducing environmental concerns, formation evaluation determinations from core and log studies; soft ware programs for evaluating marginal wells; self generation of electricity from lease gas; infield development programs; and availability of DOE money to assist independents with projects and stripper well programs. Most reservoir studies presented at this workshop are in the Permian Basin.

1996 USGS Open-File Report on the Barnett Shale, Fort Worth Basin

The following 1996 U.S. Geological Survey (USGS) Open-File Report No. 96-0254 is available for those interested in the Barnett Shale: "**Production Characteristics and Resource Assessment of the Barnett Shale Continuous (Unconventional) Gas Accumulation, Fort Worth Basin, Texas,**" by James W. Schmoker, John C. Quinn, Robert A. Crovelli, Vito F. Nuccio, and Timothy C. Hester. This report can be ordered directly from USGS Information Services, Box 25286, Denver Federal Center, Denver

CO 80225-0046 (telephone: 1-888-ASK-USGS; fax 303-202-4693). Cost: \$3.25.

DOE/Bureau-Funded Research on Low-Recovery-Efficiency Carbonate Reservoirs in the Permian Basin

Bureau researcher Dr. Stephen C. Ruppel is among recently announced winners of the U.S. Department of Energy's ongoing petroleum research program to develop new tools for increasing the production of domestic oil. The project, selected in the category of Oil Technology: Reservoir Efficiency Processes, will target carbonate oil reservoirs in the Permian Basin that contain large volumes of remaining oil.

Data from a selected Permian Basin carbonate reservoir will be compared with data from geologically similar outcrops in the Sierra Diablo Mountains of West Texas; these data will then be used to develop an improved computer model of the reservoir. The model will be made available to oil and gas companies to help them determine efficient oil recovery technologies, such as horizontal-well drilling, CO₂ injection, and infill drilling.

This and similar projects are managed by the National Petroleum Technology Office in Tulsa, Oklahoma, the oil research arm of DOE's National Petroleum Technology Laboratory. For more information, please visit the NPTL website at http://www2.fossil.energy.gov/techline/tl_baa2001_oil.shtml or contact Dr. Stephen Ruppel (telephone: 512-471-2965; e-mail: stephen.ruppel@beg.utexas.edu).

Increased Federal Funding for DOE Fossil Energy

The U.S. Department of Energy's (DOE) Fossil Energy Program is expected to receive increased funding for fiscal year 2002. The House and Senate passed a final version of the Interior and Related Agencies Appropriations Bill (H.R. 2217), which is expected to be signed into law by President Bush.

Under the bill, the DOE will receive \$583 million—a 30% increase over the President's budget request and 35% over 2001 funding. Increased funding for DOE's programs targets CO₂ sequestration, natural gas exploration and production, gas hydrates, petroleum and oil technology, and cooperative research.

For more information about H.R. 2217 and other governmental activities relating to geoscientists, visit

the American Geological Institute's website under "Government Affairs" at <http://www.agiweb.org>.

CO₂ Flood, East Ford Field, Delaware Basin, West Texas

Researchers at the Bureau of Economic Geology, in partnership with Orla Petco, Inc., recently completed a DOE Class III project that targeted East Ford field in Reeves County, Texas. The project included reservoir characterization, followed by evaluation of a CO₂ flood conducted in East Ford field. The field produces from the Ramsey Sandstone (upper Bell Canyon Formation) in the Permian Delaware Mountain Group.

Orla Petco began the CO₂ flood in the Ramsey sandstone in July 1995, and the response phase was reached in December 1997. As a result of the flood, production from the East Ford unit has increased from 30 bbl/d at the end of primary production to more than 185 bbl/d in 2001. The unit had produced 180,097 bbl of oil from the start of tertiary recovery through May 2001, so essentially all production can be attributed to the enhanced oil recovery project.

The project demonstrated that (1) CO₂ flooding can increase production from deep-water sandstones of the Delaware Mountain Group and (2) reservoir characterization studies provide essential information for designing efficient production strategies.

Researchers think that results can be applied to more than 350 other Delaware Mountain Group reservoirs in West Texas and New Mexico, which together contain more than 1.5 billion barrels of remaining oil.

For more information, please contact Bureau Senior Research Scientist Dr. Shirley P. Dutton (telephone: 512-471-0329; e-mail: shirley.dutton@beg.utexas.edu) or Mr. W. A. Flanders (telephone: 915-686-7209; e-mail: flanders@transpetco.com).

Copies of the project final report (DOE/BC/14936-18) are available from the DOE National Petroleum Technology Office through Oletha Thompson (telephone 918-699-2034).

Case Studies: 2000 and 2001

Listed below are case studies from the *Petroleum Technology Digest* available online at http://www.pttc.org/case_studies/case_studies.htm. The digest is a semiannual supplement to *World Oil*.

September 2001

- ◆ Solid propellants provide cost-effective stimulation in marginal wells
- ◆ Producing a partial-waterdrive gas reservoir at high rate maximizes profitability
- ◆ Web-based pump-off controller reduces electricity costs
- ◆ Small-scale 3-D seismic shoot adds new oil reserves

May 2001

- ◆ Designing a water shut-off treatment for fractured, multi-layered sandstone
- ◆ Using a new biological option to repair polymer-induced formation damage
- ◆ Hydrochloric/phosphoric acid combination improves well performance
- ◆ PC-based simulation optimizes horizontal well development plan

March 2001

- ◆ Horizontal wells extend the Tulare Sands play in Belridge field, California
- ◆ Gel polymer treatments provide lasting production, economic benefits
- ◆ Pressure-activated sealant repairs casing leaks
- ◆ Walking beam-operated compressor offers solution for wellhead compression

September 2000

- ◆ Polymer-specific enzyme breaker improves completion efficiency in horizontal wells
- ◆ Air-pulse lifting system reduces costs
Dewatering high-water-saturation reservoirs yields major reserves
- ◆ Company-operated, integrated E&P waste-management facility reduces costs
- ◆ Nitrogen huff & puff process breathes new life into old field
- ◆ Reliable, low-cost vapor recovery
- ◆ CO₂ injection for enhanced coalbed methane in the San Juan Basin

May 2000

- ◆ Pumping large water volumes revives "watered-out" gas zone
- ◆ How to cut electrical power costs by 30% with little or no investment
- ◆ Alternative artificial lift system improves well profitability
- ◆ Microbial permeability profile modification extends life of oil field
- ◆ Sound technology and better regulation make field development economical
- ◆ Surface geochemical survey adds exploration confidence

CALENDAR OF UPCOMING PTTC Co-SPONSORED EVENTS

December 4–5

Seventh Annual Permian Basin CO₂ Conference Exhibition, Center for Energy and Economic Diversification, Midland, Texas. Contact Bob Kiker, telephone: 915-682-5422; e-mail: pttcpb@marshall.com; website: <http://www.utpb.edu/ceed>.

December 18

Annual Technology Transfer Meeting, Hershey, Pennsylvania. For more information and to register, visit <http://www.energy.psu.edu/swc>.

TEXAS REGION PTTC WORKSHOPS FOR 2001

Visit the Texas Region PTTC website (<http://www.energyconnect.com/workshops>) for details and to register.

November 15

Cross-Section Computer Generation, Farmers Branch, Texas

December 18

Optimized Horizontal Well Technology, Midland, Texas

EVENTS OF INTEREST IN 2002

February 20-21, Midland, TX

March 13-14, Farmington, NM

May 21-22, Casper, WY

Fundamentals of Bioremediation of Hydrocarbon-Contaminated Soils Workshop sponsored by the University of Tulsa Continuing Engineering and Science Education. Website: <http://www.conted.utulsa.edu>; e-mail: conted_cee@utulsa.edu; fax: 918-631-2154; address: The University of Tulsa, CESE, 600 S. College Avenue, Tulsa, OK 74104.

This newsletter is available electronically. Please contact Sylvia Jennette if you would like to receive e-mail notification of the latest edition of ProducerNews.

Texas Oil and Gas Producers: We Want Your Ideas!

The Texas PTTC wants to know what kind of workshops and technology transfer programs you find useful. Please contact us and tell us what you want—the PTTC is here to serve you.

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