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Oil & Natural Gas Projects

Exploration and Production Technologies

Mentor-Based Effort to Advance in Implementation of Preferred Upstream Management Practices

DE-FC26-01BC15272

Program

The project was selected under the Preferred Upstream Management Practices (PUMP) solicitation DE-PS26-01BC15304, issued in the fall of 2000. PUMP is aimed at pairing "best practices" and solutions coming from new technologies with an active campaign of disseminating information to domestic producers. PUMP goals are to slow the decline of domestic oil fields and to maintain the infrastructure to continue to produce oil as a vital part of National security.

Project Goal

The project's goal was to enable producers in California, Oklahoma, and Arkansas to increase oil production by identifying primary constraints, then transferring relevant technology information in a manner that would stimulate application both in those states and Nationwide.

Performers

Petroleum Technology Transfer Council (PTTC)
Houston, TX

PTTC South Midcontinent Region
(Oklahoma Geological Survey)
Norman, OK

PTTC West Coast Region
(University of Southern California)
Los Angeles, CA

California Energy Commission
Sacramento, CA

Global Energy Partners
Lafayette, CA

Project Results

Produced water and associated issues were identified as a major constraint limiting oil production in both the U. S. Midcontinent and California. Focusing its efforts on this common constraint, PTTC developed a concise manual, Produced Water and Associated Issues, that supported numerous workshops and presentations. Data showing increased application of polymer gel water shut-off treatments were gathered. In California, project work attracted significant additional funding, portions of which are supporting limited-scale field demonstrations

of water control technologies.

Benefits

One-on-one interaction, bringing people with common challenges together to focus on those challenges, and sustained technology transfer over time are stimulating producers to apply technologies that are increasing production and reserves and lowering operating costs. With a focus on reducing excessive water production, there are direct environmental benefits.

Background

Many marginal domestic fields risk being prematurely shut down or abandoned because of operational, economic, regulatory, or other factors. Once closed, a field is rarely reopened, because of the considerable costs of restoring the operating infrastructure. Technologies that lower operational costs or increase production in marginal fields are critical to maintaining operations of endangered wells and leases.

Project Summary

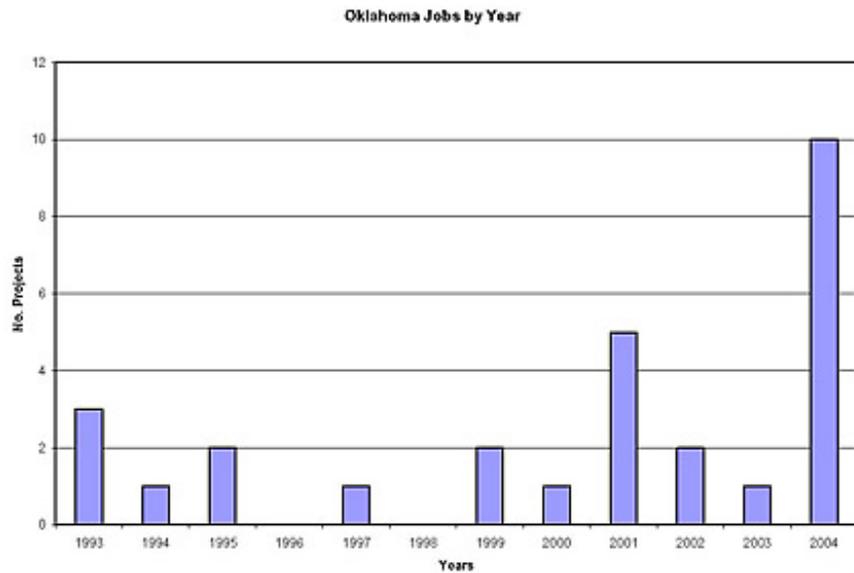
PTTC organized a team of mentors working within its South Midcontinent (Oklahoma/Arkansas) and West Coast (California) regions. These areas have significant oil resources where production is constrained. Well-known mentors, respected in their regions, networked with industry companies, associations, and regulatory groups to identify and prioritize constraints. Excessive produced water and the issues associated with it were common in both areas. Staff evaluated technical solutions appropriate for each area.

The resulting information was packaged for aggressive technology transfer through personal contact, one-on-one or small group meetings, workshops, and case studies in trade journals, newsletters, and especially through the Internet. Specific results within the project include:

- In the South Midcontinent Region, PTTC developed a concise manual focusing on controlling water production, power costs, and wellbore failure reduction. This manual compiles insights from extensive prior PTTC workshops, the technical literature, personal experience, and contact networks. Important as a stand-alone product that PTTC makes available at www.pttc.org, the manual undergirded numerous workshops, presentations, and other activities that drew more than 800 attendees within the targeted areas (Oklahoma, Arkansas, and California) and Nationwide.
- In California project work pooled and analyzed data from Los Angeles Basin operators to identify proven water control diagnostics and solutions. The effort confirmed positive results for practical, proven technologies, with payout averaging 7.1 months. Remedial action templates were constructed to help producers diagnose causes of excessive water production, then choose appropriate technologies.
- Results from California water control work were published in the Petroleum Technology Digest of World Oil, a trade journal with circulation of about 36,000 worldwide.
- Water control work in California led to other groups contributing additional funding (\$300,000 from the California Energy Commission and \$24,000 from Global Energy Partners) to further leverage PUMP project funding. This additional funding is enabling limited-scale field demonstrations of water control technologies.
- PUMP project work led to PTTC, with other funds, supporting polymer gel case study work performed by the University of Kansas Tertiary Oil Recovery Project. This effort included building an online database, www.kgs.ku.edu/Magellan/Polymer, with individual well treatment results.

Current Status (August 2005)

The limited-scale field demonstration projects of water control technologies in California are still in progress. West Coast PTTC staff continues to meet with California operators on a one-on-one basis to assist them in understanding how to identify underlying causes of excessive water production and the appropriate remedial action.



Number of polymer gel water shut-off treatments jumped following technology transfer workshops.



Although average payout for water control was 7.1 months, a majority of the jobs paid out in less time.

Publications

Mentor-Based Effort to Advance Implementation of Preferred Management Practices (PMPs) for Oil Producers in South Midcontinent (Oklahoma/Arkansas) and West Coast (California) Regions, Final Report, December 2004.

Bates, R., Brown, S., McGurk, S., Ershaghi, I., Swanson, G., Water control becomes economically attractive to L.A. basin operators, World Oil, July 2004.

Project Start: September 19, 2001

Project End: September 18, 2004

DOE Contribution: \$500,000 (49.8% of total)

Performer Contribution: \$504,000 (50.2% of total)

Contact Information

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