PENNSTATE

Establishment of an Industry-Driven Consortium Focused on Improving the Production Performance of Domestic Stripper Wells

First Quarterly Technical Progress Report for the Period 10/01/2000 to 12/31/2000

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ABSTRACT

The Pennsylvania State University, under contract to the U.S. Department of Energy, National Energy Technology Laboratory will establish, promote, and manage a national industry-driven Stripper Well Consortium (SWC) that will be focused on improving the production performance of domestic petroleum and/or natural gas stripper wells. The consortium creates a partnership with the U.S. petroleum and natural gas industries and trade associations, state funding agencies, academia, and the National Energy Technology Laboratory.

This report serves as the first quarterly technical progress report for the SWC. The SWC is in its infancy; however, interest from the petroleum and natural gas industry has grown substantially during this reporting period. As of December 31, 2000, nineteen members have joined the consortium and several other companies have expressed interest. During the last three months, efforts were focused on the development of the necessary infrastructure and membership base to begin the consortium technology development activities. These efforts included: 1) preparing a draft constitution and bylaws, 2) developing draft membership application forms, 3) developing an intellectual property statement, 4) providing overview presentations to trade association meetings, and 5) marketing the consortium individually to potential members. These activities are discussed in further detail in this first quarterly technical progress report.

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1.0 INTRODUCTION

The Pennsylvania State University, under contract to the U.S. Department of Energy (DOE), National Energy Technology Laboratory (NETL) is in the process of establishing an industry-driven stripper well consortium that will be focused on improving the production performance of domestic petroleum and/or natural gas stripper wells. Industry-driven consortia provide a cost-efficient vehicle for developing, transferring, and deploying new technologies into the private sector. The Stripper Well Consortium (SWC) will create a partnership with the U.S. petroleum and natural gas industries and trade associations, state funding agencies, academia, the National Energy Technology Laboratory, and the National Petroleum Technology Office.

There are approximately 433,000 stripper wells in the U.S. that produce petroleum and natural gas. Approximately 170,000 of these wells produce natural gas and the remaining 263,000 wells produce petroleum. These wells account for approximately 5% of the domestic natural gas production and 15% of the domestic petroleum production. Independent producers typically operate stripper wells. Independent producers often have limited financial resources that could be used for development of new technologies to improve well recovery and operation, and to address the development of technology needed to comply with increasingly stringent environmental regulations. With reservoir depletion and maturity, the number of stripper wells in the U.S. is expected to increase, and with their plugging, these valuable natural gas and petroleum resources may be abandoned prematurely and lost forever. Improper well abandonment of stripper wells is also a major economic and environmental issue. The quantity and location of these wells are poorly documented; however, it is estimated that the number of orphan wells in the U.S. easily exceeds 100,000.

Consortium research will be conducted in the areas of reservoir remediation, wellbore clean up, and surface system optimization. Consortium members will elect an Executive Council that will be charged with soliciting proposals from the consortium membership and reviewing projects for funding. Proposals must address improving the production performance of stripper wells and must provide significant cost share. The process of having industry develop, review, and select projects for funding will ensure that the consortium conducts research that is relevant and timely to industry. Co-funding of projects using external sources of funding will be sought to ensure that consortium funds are highly leveraged.

1.1 Organizational Structure

Penn State has organized the SWC to be industry driven. Under this model, companies pay a modest membership fee to join and participate in the consortium. The SWC has a two-tier, full and affiliate membership structure. Full membership is reserved for companies and universities, which are engaged in U.S. natural gas and petroleum industries. Affiliate membership is reserved for trade agencies and state organizations. The SWC will have a Constitution and Bylaws, which outline the governing principles of the consortium. Each member company appoints one representative to a Technical Advisory Committee. The Technical Advisory Committee is responsible for steering the technical direction of the consortium and is responsible for electing seven voting members to the SWC Executive Council. The Executive Council voting members are responsible for selecting proposed research programs for funding. In addition to the seven elected Council members, the Executive Council also has three standing non-voting members. These members include: 1) Mr. Gary Covatch (NETL-Strategic Center for Natural Gas, 2) Mr. Dan Ferguson (NETL-National Petroleum Technology Office), and 3) Mr. Joel Morrison (Penn State-SWC Director).

1.2 Technology Focus Areas

Once each year, the SWC will solicit proposals from its membership for co-funding. Penn State and the NETL program managers are in the process of developing proposal submission and reporting guidelines to ensure the proposals and reports are submitted in a consistent and acceptable format. The proposals will be submitted to the SWC Director four weeks in advance of an annual members meeting that will be held to review proposals submitted for funding. The SWC Director will distribute the proposals to the Executive Council prior to the annual meeting for their review. A proposal guideline evaluation form will be developed to aid in the Council evaluation process. Members that seek co-funding will be required to provide the consortium membership a nominal 20-30 minute presentation on the proposed work. A minimum of 30% cost share will be required for all projects. Cost share is to be in the form of cash and/or in-kind support.

Proposed and selected projects shall be consistent with the objective and goals of the SWC. Technology development will be focused on improving the production performance of domestic stripper wells. Proposers shall identify technologies of critical interest to stripper well operators and provide research support to eliminate or minimize the key production barriers identified. Technology development shall include, but not limited to, the following areas:

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- Reservoir remediation, characterization, and operations;
 - Well-bore clean-up;
 - Surface and collection optimization.

2.0 EXPERIMENTAL

A description of experimental methods is required by the DOE for all quarterly technical progress reports. In this program, Penn State is responsible for establishing and managing an industry-driven stripper well consortium. Technology development research awards are made on a competitive basis. Therefore, this section is not applicable to the Penn State contracted activities. Technical reports from the individual researchers will be required to contain an experimental discussion section and will be submitted to consortium members and DOE for their review.

3.0 RESULTS AND DISCUSSION

During the last reporting period, the following four activities were conducted: 1) developing the governing documents for the SWC, 2) marketing efforts for the consortium were initiated, 3) membership recruitment drives were launched, and 4) a consortium sponsored organizational meeting was planned.

3.1 Governing Documents

The Penn State/NETL management team developed a draft of the SWC Constitution and Bylaws during this reporting period. In addition, full and affiliate membership application forms were developed and integrated into the SWC Constitution and Bylaws. The Constitution and Bylaws are viewed as draft documents and are not contained within this report until they are voted on and adopted by the SWC membership.

3.2 Marketing Efforts

Marketing the SWC began upon October 1, 2000. Penn State has extensive petroleum and natural gas industrial and trade association contacts that were immediately solicited for potential membership. Two presentations were made to trade associations during this reporting period. The first presentation was held on September 25, 2000 at the annual Pennsylvania Oil and Gas Association meeting in Bradford, Pennsylvania. Approximately 40 attendees heard an overview of the SWC. The second meeting was held on December 6,

2000 at Charleston, West Virginia during an IOGA-West Virginia meeting. Over 125 attendees were exposed to the SWC during this presentation.

During this reporting period, Penn State interviewed and hired a full time graphic/ web design artist that will be charged with designing and maintaining a SWC web site and will be responsible for designing newsletters and other miscellaneous marketing media for the consortium. In addition, several internal meetings were held to discuss the infrastructure needed to support the SWC activities. These meetings resulted in the creation of dedicated office space and staff support for consortia based research.

3.3 Membership Recruitment

Nineteen members joined the SWC during this reporting period. The diverse membership comprised of petroleum and natural gas producers, service companies, trade associations, and academia constituted the SWC membership. Numerous companies have expressed interest in joining the consortium and have indicated that they are in the process of completing their membership application forms.

3.4 Upcoming Organizational Meeting

The inaugural meeting for the SWC has been planned for January 29, 2001 in Pittsburgh, Pennsylvania. Major activities of the inaugural meeting will include: 1) adoption of the SWC Constitution and Bylaws, 2) formation and networking of the Technical Advisory Committee, 3) discussion of technology development focus areas, and 4) election of the Executive Council members.

4.0 CONCLUSION

The SWC is in its infancy; however, is growing rapidly. The governing documents are in the draft form and will provide the SWC with the necessary administrative foundation. The inaugural meeting in which SWC members will adopt the governing documents has been set for January 29. Over 165 company representatives have been provided a SWC program overview. Many of the present members and several trade associations are actively recruiting members for the consortium. Efforts are underway to ensure the membership will be geographically diverse. In addition, the New York State Energy and Development Authority (NYSERDA) has expressed interest in formally participating in the SWC and potentially co-funding proposed research which would have general applicability to New

York. The Penn State/ NETL management team has set a goal of increasing the current membership of nineteen companies to thirty companies by the January 29 inaugural meeting.

In conclusion, the SWC is off to a good start.

5.0 REFERENCES

A listing of referenced materials is required by the DOE for each quarterly technical progress report. This technical progress did not utilize any reference materials.