Successful Oil and Gas Technology Transfer Program Extended to 2015

Long-Term Success of Stripper Well Consortium Supports Small Oil and Gas Producers

Washington, D.C. – The Stripper Well Consortium (SWC) – a program that has successfully provided and transferred technological advances to small, independent oil and gas operators over the past nine years – has been extended to 2015 by the U.S. Department of Energy (DOE).

An industry-driven consortium initiated in 2000, SWC’s goal is to keep "stripper wells" productive in an environmentally safe manner, maximizing the recovery of domestic hydrocarbon resources. The consortium is managed and administered by The Pennsylvania State University on behalf of DOE; the Office of Fossil Energy’s (FE) National Energy Technology Laboratory (NETL) and the New York State Energy Research and Development Authority provide base funding and technical guidance to the program.

Stripper wells produce less than 10 barrels of oil or 60,000 cubic feet of natural gas per day. More than 396,000 stripper oil wells account for nearly 800,000 barrels of oil per day, or about 10 percent of the lower-48 production, and more than 322,000 stripper natural gas wells account for over 1.7 trillion cubic feet of annual natural gas production, or 9 percent of the natural gas produced in the lower 48.

Once a well is plugged and abandoned, the reserves left behind are "lost forever" since it is typically uneconomical to drill another well to recover these abandoned reserves. Every dollar of stripper oil and natural gas production creates roughly one dollar of economic activity and nearly 10 jobs result from every million dollars of stripper well oil and natural gas produced.

Nearly 100 projects have been funded since the initiation of the consortium, which consists of small domestic oil and natural gas producers, as well as service and supply companies, trade associations, industry consultants, technology entrepreneurs, and academia. The successful development and commercialization of many of these projects provided the incentive for DOE to continue program funding. Several of the successes include:

- The Gas Operated Automatic Lift (GOAL) PetroPump developed by Brandywine Energy & Development Company. The pump removes fluid from the wellbore more consistently than currently available plunger lift systems. Test results on wells in New York showed a 1.5 to 2.3-time increase in gas yield using the GOAL PetroPump over other casing plunger-type tools. The tool is inexpensive to operate because it requires no external energy source and limited manpower.

- The Vortex Flow Tools LLC vortex flow unit works similar to a tornado, using produced natural gas to accelerate the water velocity, reduce friction, and assist in lifting and removing fluids. The results of using the flow unit are increased production while reducing the amount of down-time due to water in gas gathering and flow lines. Over 200 Vortex surface tools have been installed in gas-gathering and production lines across the United States.

- Pumping Solutions, Inc. (now part of Smith Lift LLC) has developed a new hydraulic diaphragm submersible pump to continuously clean stripper wells. The pump has been proven to be tolerant of coal and sand fines at higher concentrations than traditional systems. Among other features, it pumps gas/liquid mixtures, can be pumped dry without damage (within motor limits), maintains a constant output with depth, and has been shown to be highly efficient with reduced electric costs.

- Tubel Technologies, Inc. developed three technologies for stripper wells. The first was a low-cost, real-time, down-hole wireless gauge. The gauge primarily measures temperature and pressure, but other parameters can also be measured. The wireless feature of the system eliminates the need for cables, clamps, and splices within the wellbore, thus significantly lowering cost and time for system deployment. The second technology was a plunger lift optimization process, which provides the operator information related to the performance of
the plunger, identifying wells where the plunger is not operating optimally. The third technology is an upgrade of the second whereby the information captured at the wellhead is transmitted wirelessly to a control room at a remote location. This allows the operator to monitor hundreds of wells from a single location and could identify potential well and plunger lift problems fairly quickly to correct problems with minimum production losses.

- Pre-Pump-Off Controls, a set of technologies developed by Oil Well Sentry, Inc., eliminates fluid level issues in beam-pumped wells. The system monitors the amount of fluid in the barrel pump at the bottom of the well and shuts off the beam pump motor or engine when the well is “pumped off.” Use of the system has significantly increased production while decreasing motor/engine energy consumption by 30 percent.

- End of Techline

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