

Advanced ASJ Drilling System

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SWC Co-funding: \$153,571

A new drilling system is proposed for faster and lower cost drilling of vertical wells, for finding new reserves, and for the installation of multiple micro-sized lateral drain holes, or extended perforations, for significant improvement in production from stripper wells. Lateral drain holes can provide stimulation of existing zones by providing a conduit for flow from tight formations, bypass of damaged zones and reduced water production due to coning. This system can also clean-out solids, scales and metals from wellbores and can recomplete stripper wells into new zones by cutting the steel casing for lateral installations. This proposal includes the development of a new patent-pending high pressure abrasive slurry pump; development of a new patent (pending) downhole hydraulic motor in a new configuration; deployment of a new abrasive nozzle and several other downhole tools for control of the new drilling process. Bench testing of the individual components and (optional) shallow vertical and directional field tests are included in this project.

If the cost savings from this new system were applied to only 5000 wells drilled per year, where the drilling cost is \$90,000, this would result in savings to the stripper well operators of about \$150 million each year. For 5 years it would be \$750 million in savings. This does not take into account the environmental benefits of smaller unit, the savings from less water production due to avoidance of water coning due to lateral drainholes installed or the increase in oil and gas production due to new wells drilled and lateral drainholes installed.