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= = TLOnline Newsbrief = = = = =

Wellbore testing devices help overcome modeling limitations

By Stephanie Dube, Technology Licensing Office

COLLEGE STATION, TX -- When performing research on oil and gas well completion practices, certain environments are almost impossible to duplicate in the laboratory. Fractures in consolidated soil and conditions where the soil around the edge of a wellbore is not compact are difficult to recreate successfully

Today, however, the first additions in a family of testing devices will help overcome these modeling limitations.

David Burnett, associate research scientist in Texas A&M University's Department of Petroleum Engineering, has created two devices that will expand modeling possibilities for wellbores in areas such as the Gulf of Mexico and West Texas. Wellbores are holes drilled into the earth, usually cased with metal or pipe, for the production of gas or oil. The hole is used for the injection, under pressure, of water or gas into a rock formation below the surface.

"Technology to drill oil and gas wells is advancing very rapidly, but completion and drill fluids haven't been," Burnett said. "These devices allow us to test wellbores in a special way. If we can model them (wellbores) rather than using trial and error, then we can test different ways to drill formations in a lab. If we can test them in a lab, then we can model them in a field more closely, and do it faster."

The modeling devices duplicate the conditions of wellbores without using artificial support systems, such as screens, which can affect the integrity of the test. Because of this, the effect that drilling in mud and fluids can have on formations now can be studied as never before.

For environments like the Gulf of Mexico, where unconsolidated soil is a common feature, rock formations are often too unstable to allow proper testing in downhole conditions. Burnett has created a device that allows accurate modeling of such wellbores. Now, instead of being faced with limitations, researchers are offered a wide range of testing opportunities, including studying well cementing activities and sand control measures.

But oil fields such as those in the Gulf of Mexico aren't the only areas benefiting from Burnett's technology. He also has devised a way to model fractures in consolidated rock formations such as those found in West Texas. Current modeling for such fractures is limited. This new technology will open the door for experiments such as measuring the cleanup characteristics of drilling fluid that has penetrated a fracture.

For more information about this technology, refer to TAMUS project #1052 and #1083 and call Page Heller, TLO licensing manager, at (409) 847-8682 or p-heller@tamu.edu

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