DRILLING

Taking A Hit To Make A Play

Disposable motor seeing onshore success

BECAUSE OF EXPENSIVE drilling day rates running into the hundreds of thousands of dollars, disposable positive displacement motors have been used effectively offshore to help keep costs in check.

Operators run these motors on the end of their production string to make sure casing gets to the bottom. The motor lets the operator drill or circulate through tight spots and bridges, eliminating the need to trip casing and perform cleanout trips. In these cases, running a cost-effective disposable motor is inexpensive insurance.

Seeing this success offshore, The Motor Company, a Calgary-based service and supply outfit, decided to bring the idea to Western Canada. With wells being drilled deeper and longer in the shale gas area of northeast British Columbia and heavy oil applications in Saskatchewan and Alberta, a new market is emerging, says the motor's designer.

"We sold a bunch of [disposable motors] in the North Sea, some in the Gulf of Mexico," says Dan Gretener, president. "They run these on their final casing string and that's just to ensure they get their casing to bottom if they get into tight spots.

"If they have to pull their casing out of the hole and do a trip and everything else, that's usually at least a day and a half, two days, sometimes a bit longer. With the rig costs you experience offshore, it's a huge amount. That's where the idea originated."

Due to cost, use of disposable motors has been limited in Alberta, Gretener says. When needed for sacrificial purposes, vendors would typically send a used, usually worn-out motor. The problem, though, is that many companies want new, more reliable variations. Recently, The Motor Company introduced the newly-fabricated disposable motor to Western Canada with positive results to date.

The purpose-built GeoDrive disposable motors are priced to be left in the well and engineered to handle cementing. The most practical use in Western Canada is in liner installations, Gretener notes, citing success in a particular application in northeast B.C.

"We can build a disposable motor [that's less costly]," he adds. "There are areas in Alberta in the heavy oil area and southeast Saskatchewan where they limit their horizontal reaches because they know they can't get their liners out there. They can only push so hard and they can only push so far.

"In the past, you didn't put a motor on it because the cost of a motor was $60,000 or $70,000."

The motors, he says, are effective in deeper vertical wells along the Foothills and in the shale gas development in northeast B.C.

Bruce Garland, drilling and completions lead for northeast B.C. with Nexen Inc., says while drilling a shale gas well in the Horn River Basin in early 2009, poor hole conditions caused problems running a 114.3-millimetre liner into a 156-millimetre horizontal section.

"These issues became so dramatic that it became impossible to run the 114.3-millimetre liner past the intermediate casing point," he recalls.

After numerous failed attempts, including casing scraper runs and wiper trips to clean the intermediate string to a point where the liner could be run to bottom, Nexen searched for other methods.

INEXPENSIVE INSURANCE
Originally developed for offshore application, The Motor Company's disposable motors are gaining a foothold in Western Canada.

"It was The Motor Company's disposal mud motor that provided the most cost-effective solution to aid in running the liner top [to] bottom," Garland says. "The motor along with a rollercone bit were run at the bottom of the 114.3-millimetre liner, enabling us to wash through the sand build-up inside the … intermediate casing and successfully place and cement the production liner on bottom."

The motors are also used in snubbing operations where the operator wants to drill out plugs and drop the motor on the bottom, eliminating the need for additional snubbing in and out of the wellbore.

"We've drilled in excess of 100 hours with these motors [in] conventional drilling without a problem," Gretener says. "The big thing we had to do was bring the costs down to a level that would appeal to the market here.

"We've redesigned a lot of the internal components. Some of that's proprietary."

The design changes make the motors more economic to fabricate and machine. They've been in commercial operation since the end of December.

"Although these motors are labelled disposable, they have gone through rigorous testing and are built with only new components," Gretener says.

• Richard Macedo

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