



SPE-SAS-939

Step Change Technology for Running Tubulars

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This paper was prepared for presentation at the 2011 SPE Saudi Arabia Section Technical Symposium and Exhibition held in AlKhobar, Saudi Arabia, 15–18 May 2011.

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Abstract

Oil and gas well construction requires the installation of tubulars at a specific depth, prescribed for reasons of mechanics, formation pressure and wellbore integrity or accessing reserves. Deepwater construction has an additional need to also land all strings in the subsea wellhead with precision. The industry has recognized this significant problem for some time. There have many instances of failed well programs where critical depths have not been secured. A step change technology solution has been created to reduce well construction risk, applicable to all casing strings, liners and completion strings.

An elegant solution has been created with a new family of tools based upon a unique mud motor. Exceptionally, the motor can be drilled up using a normal polycrystalline diamond cutter (PDC) bit in minutes, and for any intermediate string, the cemented shoe track and motor are drilled with the next bottom hole assembly (BHA). The result is a time saving, practical, cost-effective solution which can be systematically applied to ensure all tubulars are placed on depth.

Similarly, with the advent of complex, expensive completion systems, there is an absolute necessity to land on target. An ideal solution also eliminates the need to rotate the completion string. One of the new technologies does this, and provides a gun barrel borehole right in front of the completion. Results of applying this technology are presented in this paper.

To date the technology has provided a new approach to running tubulars, and mitigating operating risk. It provides a significant boost to ensure well integrity and has clearly demonstrated the ability to recover collapsed hole and land completions across the entire reserves section, delivering an outstanding return on the technical investment.