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Increasing the Safety and Efficiency of Completions with the Utilisation of Remote Manipulation Systems and Elimination of Hanging Sheaves

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Abstract

The process of running completions typically involves an increased complexity of systems and setups. The running of control lines and umbilicals have historically utilized hanging sheaves to route the lines from the spoolers to well center and require increased number of personnel in the red zone during operations. These complexities introduce many risks and incident potentials that operators aim to eliminate.

Typical procedures for running completions require man-riding operations to hang sheaves in the derrick. Once the control lines or umbilicals are routed through these sheaves, they become overhead loaded objects and subsequently increase the risk of incident to personnel working on the rig floor. Other operational steps include the manual manipulation of lines to clamp the lines/umbilical to the tubular.

This traditional clamping procedure not only requires an increased number of personnel in the red zone, but also introduces inefficiencies to the operation. Through planning and utilization of specialized remote manipulation technologies, operators can remove the need for overhead control line/umbilical sheaves and the manual handling of lines in the red zone.

Although risks do not always result in incidents, organizations still strive to eliminate risks throughout their operations. By utilizing remote technologies that eliminate control line/umbilical hanging sheaves, the operators benefit from the following:

- Eliminating working at height for sheave installation
- Eliminating overhead loaded components and increasing safety of personnel working on the rig floor
- Decreasing the number of personnel required in the red zone and reducing manual handling
- Increasing the efficiency of the operation

By utilizing systems like these, operators have been able to increase average running speeds, improving from 8.8 to 5.9 minutes per joint, as well as eliminate potentially fatal incidents that have occurred during the completions running process.
