

PRECISION MECHANICAL APPLICATIONS COMBINED PLUG SETTING & MULTIPLE SLEEVE SHIFTING E-LINE OPERATION

Country: Norway
Year: 2018
Technologies: **PowerTrac 318** ● **PrecisionStroker 318** ●
PrecisionHydraulic Shifting Tool 441

MAKING INTERVENTION
SMARTER

Combined plug setting & multiple sleeve shifting e-line operation delivers a precise, highly effective & efficient intervention solution

- Single-run combined service solution
- Precise and controlled manipulation

CHALLENGE

A customer wished to optimize the oil production from a well – firstly by setting a plug to shut off an existing production interval and secondly by opening several pre-installed reservoir control sliding sleeves. The challenge was to provide a time saving solution by combining what was normally a two-run operation into a single run.

SOLUTION

Design e-line deployed solution using the **PrecisionHydraulic Shifting Tool** and **PrecisionStroker** to ensure high accuracy and control across the combined operation. This solution provided power to both the plug setting and sleeve shifting tools along with real-time command and toolstring status readout at surface. The combined setting and shifting functionality required the use of a through-wired shifting tool to enable real-time activation of the plug setting tool which was positioned below. The bi-directional **PrecisionHydraulic Shifting Tool** used in conjunction with the bi-directional **PrecisionStroker** enabled sliding sleeve shifting in both directions during the operation. Furthermore, its dogs were retractable on command to ensure no inadvertent shifting occurred while traversing the multiple sleeves positioned in the well.

Pre-job system integration testing was done at Altus Intervention's Well Intervention Academy using a mock up completion comprised of two sleeves rigged up with a tubing joint in a horizontal set-up. This was done to test that there was no incompatibility between the plug setting and sleeve shifting components of the combined tool string, and no inadvertent tool hang up occurred within the completion. The toolstring was run in hole, depth correlated and the plug set and released without issue. Subsequent correlation was then done for the sleeve section. The real-time control and surface readout of stroker force and position enabled a precise sleeve shifting operation, and six sleeves were shifted successfully as per requirements.

RESULTS

The **PrecisionStroker** also provided a means of pulling the plug if it were to get inadvertently stuck whilst running to set depth. Multiple release subs were also positioned in the toolstring to enable independent recovery of the plug and stroker assembly if desired. In addition, a memory pressure/temperature gauge was run which provided further validation of sleeve shifting upon download and analysis. Furthermore, the **PowerTrac** Tractor was used to convey the toolstring across the highly deviated section of the well. This single-run combined service solution delivered a flawless operation with considerable time savings.

