

First Multi Set Wireline Plug with IBV set as shallow well barrier

Date: Aug 2021
Region: Norway



Key Capabilities

- Slim Design
- Can be run, set, equalised and retracted multiple times in the same run
- Can be fully set and left as a barrier in the well
- Optimise operations
- Compatible with Add-On (IBV)
- Run with real-time e-line technology

Challenge

Ahead of completion recovery operations, a major North Sea operator was required to carry out a temporary well suspension with wireline to allow the Xmas tree to be removed and enable installation of the BOPs.

The gas lifted completion incorporated an Annular Safety Valve (ASV) below the Down Hole Safety Valve (DHSV) and so before the completion could be recovered, the ASV had to be punched and a bridge plug installed below. The ASV is then released by applying 5,000 psi against the bridge plug.

When carried out conventionally, this operation requires the plug to be recovered and an additional plug run in hole and installed above the DHSV. This provides the primary barrier, enabling the Xmas tree to be removed and the BOPs to be installed. Following the successful installation of the BOPs.

Solution

To reduce the number of wireline runs, Interwell's Multi Set Wireline Plug (MSWP) with Intelligent Barrier Valve (IBV) was selected for the operation. The MSWP provides a well barrier that can be set and released on e-line multiple times without exiting and re-entering the well

The IBV is a remotely operated barrier valve designed to complement plugging devices and add operational efficiencies by reducing the number of well interventions. When used for completion recovery, the IBV can be functioned opened by applying a pressure command from surface, removing the need to recover the plug on wireline.

Prior to the completion being recovered, the tubing was cut, and the well was circulated out to water-based mud. The ASV punch tool was then run-in-hole, located in the ASV, and then subsequently punched.

The MSWP with the IBV was run-in hole and set below the ASV. A pressure of 5000psi was then applied to release the ASV. Following successful confirmation of release, the MSWP was signaled to unset. This allowed the MSWP to be pulled above the DHSV and then re-set as the primary well barrier below the Xmas Tree. A 4000psi pressure test confirmed the MSWP had been successfully re-set which then allowed the setting tool to be permanently released from the barrier.

The Xmas tree was nipped down and the drilling BOPs installed. The IBV was then remotely functioned opened by applying a pressure command from surface, allowing pressure below the MSWP to be verified and the completion to be recovered without having to recover the shallow barrier.

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Value Created

The MSWP provided the operator with a means to release the ASV and install a primary barrier above the DHSV in one run. This removed the need to recover the barrier post ASV release and eliminated the additional run required to install the primary barrier for completion recovery.

The IBV allowed the primary barrier to be remotely function opened, providing a means to recover the completion with the barrier still installed and removing the need to rig up wireline.

By utilizing the MSWP made up to the IBV, the operator was able to remove 4 runs typically associated to carrying out this operation using conventional methods resulting in significant rig time savings and a reduction in HS&E exposure.

