

Case Study: Pre-P&A with Interwell's Intelligent Barrier Valve



Date: June 2019
Region: North Sea



Key Capabilities

- Multiple open/close features
- Barrier valve qualified to ISO 14310 Vo Standards
- Largest flow area in the market
- Activation flexibility (Pressure, time, hydrostatic, temperature, deviation)
- Debris tolerance

Challenge

Having been drilled and completed in April 1997, with 5.5" 23 lbf/ft production tubing, the well was ready for P&A after producing hydrocarbons for almost 22 years. To improve cost efficiency, the aim was to do the job off-line. The requirement was to set a deep plug, cut deep, and circulate heavy brine before completing a shallow cut. In line with the NORSOK standard, a shallow plug had to be set to prevent hydrocarbons from migrating to the surface.

The client wanted the ability to kill the well with a heavier fluid if a pressure increase was observed. To reduce cost this needed to be done remotely, off-line if possible.

Solution

Interwell mobilized both the deep and shallow barriers. The deep High Pressure High Temperature Retrievable Bridge (HPHT) plug was used, as its slim design provided a small enough OD to go through the restrictions in the well.

For the shallow barrier, a Medium Expansion Retrievable Bridge Plug (ME) was equipped with Interwell's new IBV (Intelligent Barrier Valve) which can be used as an "on demand" barrier for reliable pressure integrity when you need it. Opening the IBV allows flow control access through the valve to safely equalize, circulate or produce. Using Interwell's intelligent software multi-cycling is possible without intervention/control lines. The IBV was opened with positive pressure and kept open for 10 Hours (to allow heavier fluid to be pumped in) before closing it as a barrier (Qualified to ISO14310 Vo 7500 PSI, 150°C).

Value Created

By using the IBV we successfully supplied a barrier qualified ISO Vo. During the operation the valve was successfully opened and closed 6 times and pressure was maintained while thousands of liters of heavy brine was circulated. By carrying out the job off-line, the client was able to realize significant cost saving, with 40-50 hours of rig time saved.

Reduce Risk
Reduce Cost
Increase Possibilities