

First Intelligent Barrier Valve and Inter Remote Shatter Valve Combination in Dual String Completion Optimised Rig Operations in Malaysia

Date: Feb 2023
Region: Malaysia



Key Achievements

- No well intervention time.
- No personnel exposure due to associated intervention operations.

Challenge

A Malaysian operator was seeking a solution to limit or eliminate the need for intervention operations for deployment of a dual string completion Well. Typical operations require slickline to install and retrieve multiple plugs to set packer and test completion tubing. Due to the long string being highly deviated, avoiding timely wireline tractor runs would increase operational efficiency.

Solution

An Interwell Intelligent Barrier Valve (IBV) was proposed for short string and an Inter Remote Shatter Valve (IRSV) for long string.

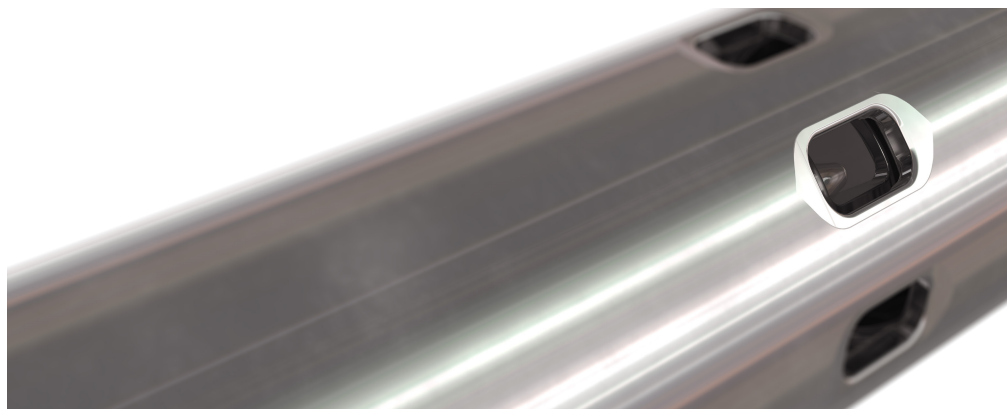
The IBV was selected for its ability to be pre-installed and its capacity to be remotely opened or closed - providing an ISO 14130 Vo barrier. The valve was programmed to be open while running in hole to allow the tubing to self-fill, eliminating the need to top fill whilst running to depth. Once the completion was landed the IBV was closed via a hydrostatic pressure trigger which allowed the tubing to be tested and production packer to be set. Once the Well was secure for production, the IBV was instructed to re-open by pressure command before being retrieved via a single slickline run.

The IRSV is a multi-cycle, remotely activated glass plug known for its robust cycling mechanism and debris-friendly system. The plug, with bi-directional ISO 14310 Vo qualified glass was pre-installed below the production packer in the long string. It was then used for setting the completion packer and enabled pressure integrity testing of the tubing. After installation of the Xmas tree, using a predetermined cycling setup, the plug was pressured open leaving a full-bore ID through the valve to bring the well onto production.

Value Created

The combined use of the IRSV and IBV negated the requirement for multiple well interventions to install, then subsequently remove temporary suspension barriers during dual string completion operations. This saved around 46 hours of critical path rig time, intervention, and personnel exposure by eliminating dual string riser runs and rig ups along with intervention process control equipment installations.

The pre-determined pressure cycling mechanisms of both assemblies worked as designed, providing a robust and reliable solution that remotely activated the barriers then opened them as required. This improved overall rig operation efficiency - helping the operator reduce their environmental footprint.



Intelligent Barrier Valve (IBV)