

Case Study: Shut in Tool C/W Interwell 356-450 Tubing Packer

Challenge

A major operator on the Arabian Peninsula contacted Interwell for a solution to be able to remotely open and close a downhole valve to allow for well testing over an elongated period of time and the ability to check the well parameters from surface gauges on the surface equipment.

Solution

The down hole Shut in Tool will eliminate the wellbore storage effect and significantly reduce the shut-in time during pressure build up.

The wellbore storage effect results from fluids entering the wellbore from the formation, even after the well is shut in at the surface. The pressure data collected during the wellbore storage period is not valid and the period usually lasts a long time. Therefore, it becomes necessary to shut a well in for extended periods to conduct a pressure build up test to ensure that the data collected is representative.

The patent pending multi-cycle instant close down-hole shut-in tool includes a shuttle piston, which when moved, closes a relief port allowing a differential pressure to form across a sliding sleeve. This differential pressure forces a sliding sleeve in a direction which closes the valve.

With or without a differential pressure present, the shuttle valve will continue to force the sliding sleeve in the correct direction to close the valve. This same shuttle piston has the ability to move on the opposite direction. Thereby, the piston will open a relief port to remove the potential differential pressure across the sliding sleeve element and in turn cause the valve to open.

An electronic timer assembly and electric drive motor are provided for controlling the action of the shuttle piston. The operator pre-programs the timing circuit of the job to open, close and re-open the valve multiple times.

Value Created

By using Interwell's Shut in Tool the client was able to program the tool at surface for the predetermined time for the valve to open / close at set periods to enable the client to conduct a well test with their own custom values for pressure build up and well monitoring, the application was deployed via conventional Slickline methods and remained in the well for 51 days where again it was retrieved with no issues via conventional Slickline via "Rig less" operations.

Date:

January 2016

Region/Field:

Arabian Peninsula

Key Capabilities:

- Instant Close Time
- Multiple Cycle Capability
- Metal to Metal Seals
- Eliminates Wellbore Storage Effect
- Modular Design

