Case Study

i-Seat and d-Solve interventionless packer setting solution

NOV Completion & Production Solutions

North Sea operator saved over six days of operation time and cost while using our i-Seat and d-Solve interventionless packer setting solution

Background

In 2018, a North Sea operator worked with NOV to explore options for eliminating the cost and risk associated with several days of operations required to set production packers.
Typical packer setting operations included:

- A wireline run to pull the downhole safety valve hold-open sleeve
- A tractor run to pull the check valve below the production packer
- Wireline runs to set and pull a shallow set plug

Solution

NOV proposed the i-Seat ball sub and d-Solve dissolvable ball solution to eliminate the need for wireline runs associated with packer setting. The operator required the d-Solve ball to hold 5,000 psi for a minimum of 30 minutes, and then to pass through the i-Seat within 24 hours. Extensive testing was performed to qualify the d-Solve ball for well conditions. In two full-scale tests performed in packer fluids at 70°C, the balls successfully held 5,000 psi and passed through the i-Seats in under 24 hours.

Result

In an operation that took less than 4 hours, the d-Solve ball was pumped to the i-Seat and pressure was applied to test the tubing and held for 30 minutes to set the production packer. An annulus test was performed, confirming that the packer was successfully set. The d-Solve and i-Seat solution eliminated the requirement for up to six days of rig time used on operations associated with conventionally setting production packers.

Our NOV d-Solve and i-Seat solution eliminated the requirement for up to six days of intervention and rig time spent on operations associated with conventionally setting production packers.

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Case Study Snapshot

Date: July 2018

Project Area: North Sea

Challenges:

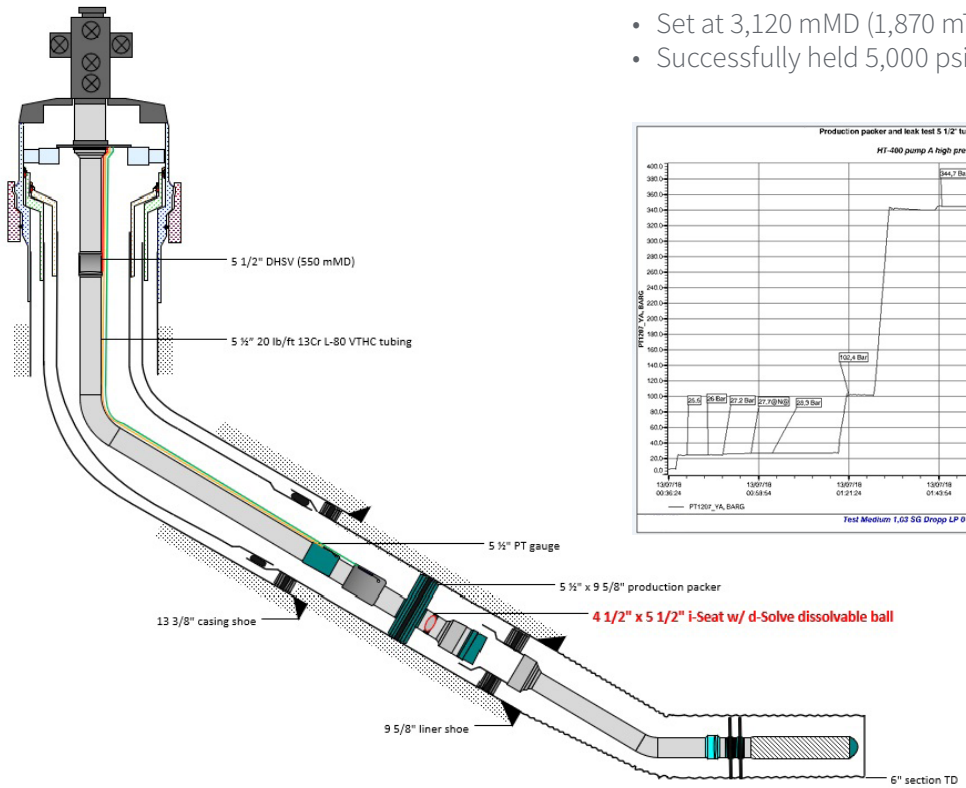
- Cost and risk associated with wireline run required for pulling downhole safety valve hold-open sleeve
- Cost and risk associated with wireline tractor run required for pulling check valve below production packer
- Cost and risk associated with wireline runs for setting and pulling a shallow set plug
- Ensure 5,000 psi pressure integrity for 30 min at 70°C in two separate completion fluid systems

Solution:

- i-Seat: ball seat sub
- d-Solve: dissolvable ball

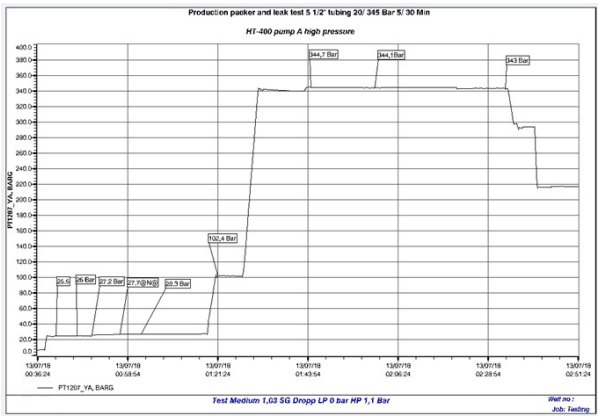
Results:

- Saved four to six days of combined rig and intervention time by eliminating operations required for conventional packer setting
- Eliminated cost and risk of wireline run required to pull downhole safety valve hold-open sleeve
- Eliminated cost and risk of tractor run required to pull check valve below production packer
- Eliminated cost and risk of wireline runs required to set and pull shallow set plug



i-Seat and d-Solve performance:

- Set at 3,120 mMD (1,870 mTVD) at 88° inclination and 70°C BHT
- Successfully held 5,000 psi (345 bar) for 30 min to set packer



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