Expro Excellence

Expro provides toe sliding sleeve solution for HPHT wells, eliminating intervention by coiled tubing thus saving rig time whilst improving efficiency and safety

Well Flow Management | DST-TCP

Objectives and background

- Expro approached by a major operator in North America to provide a solution following several sequential failures of their existing provider's toe sliding sleeve
- Scope of work had extreme HPHT wellbore parameters:

  – Bottomhole temperature (BHT) of approx. 320°F (160°C), with plans to hold the tool downhole for up to 90 days before opening

  – Bottomhole pressure (BHP) approaching 19,000 psi (131.00 MPa)

Tool Highlights

- Expro's toe sliding sleeves were invented specifically for the horizontal wellbore environment to eliminate one or more coiled tubing perforating runs.
- In today's horizontal well environment, the staging of operations is highly choreographed with minimal time breaks planned between discrete services - this is in order to maximise time savings and crew efficiencies. Any small issue causing lost time has the potential to escalate creating much larger issues.
- Installed in over 700 wells in the last 2 years
- Functions at a success rate of approximately 95%

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- Understanding the operator's critical downhole requirements using Expro's modelling application an engineered toe sliding sleeve was proposed and approved
- Bottomhole conditions required seal components and system requirements
- Modelling indicated that Expro's toe sliding sleeve should open at approx. 12,320 psi surface pressure – after 40 days cemented downhole and subjected to temperatures of approx. 320°F, the sleeve successfully opened at 11,700 psi
- Expro team in Oklahoma City built, pressure tested the tool to ensure no leaks, and then installed the tool in the wellbore, with 100% success rate

Value to the client

- The toe sliding sleeve eliminated interventions by coiled tubing saving rig time and improving efficiency for the operator
- Improved safety due to reduced personnel on location
- Reduced costs as it allows for several well to be opened before expensive frac equipment is deployed to location (they can then frac several wells sequentially for maximum efficiency)

Reduction of rig time

Cost saving