Case Study

Operator saves time and successfully mitigates risk using TREX QuickPORT IV sleeves in a hybrid completion

UNITED STATES, PERMIAN BASIN
CEMENTED QUICKFRAC SYSTEM

Background

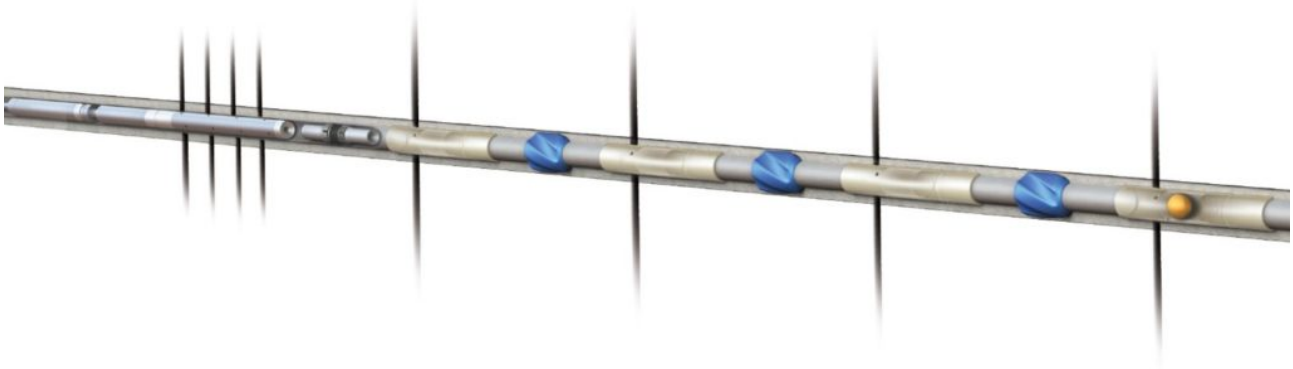
An operator using plug-and-perf in the Permian Basin was experiencing difficulties using wireline and coiled tubing for plug setting and perforating operations in laterals with measured depth greater than 20,000 ft. By running 4 stages of TREX™ limited entry cemented sleeves at the toe of a well alongside plug-and-perf heel stages, the operator saved a significant amount of time and mitigated the risk of wireline or coiled tubing getting stuck in longer laterals. The operator has since begun to use QuickPORT IV sleeves at the toe in multiple wells as part of their standard completion program.

Challenge

As the measured depths of wells drilled by the operator in the Permian were increasing beyond 20,000 ft, there was a concern about being able to provide sufficient weight on the drilling bit to mill out plugs, as well as getting wireline and coiled tubing to bottom to set plugs, to millout and to cleanout in longer laterals. Expensive perforating equipment was also lost downhole on three separate occasions, prompting the operator to look at alternate well stimulation solutions.

Solution

In one of their subsequent wells, the operator ran 4 stages of TREX limited entry cemented sleeves at the toe of the well. Each stage had 4 ball-activated QuickPORT™ IV sleeves as a solution to mitigate the operational risks with the plug-and-perf method seen at the longer distances. Using the limited-entry method, a single ball pumped from surface activates multiple QuickPORT IV sleeves in a cluster for stimulation. Balls of incrementally larger size pumped in a single, continuous pumping operation are used to activate and stimulate subsequent stages uphole in the well.



TREX limited entry hybrid completion solution consisting of QuickPORT IV sleeves at the toe followed by plug-and-perf stages

Results

It took an average of 20 to 30 minutes per stage for balls to reach, land on seat, and shift and pass through QuickPORT IV sleeves. Similar wells in the area using plug-and-perf were averaging 4 hours per stage to run plugs and fire guns and come back out of hole. The 4-stage cluster of QuickPORT IV sleeves at the toe saved the operator approximately 14 hours on location, lowering expenses on equipment rentals. Using QuickPORT IV sleeves also enabled the operator to reduce time and cost spent on deploying and milling plugs through long lateral distances.

The operator has begun to use 4 stages of 4 QuickPORT IV sleeves per stage at the toe in multiple wells as part of their standard completion program. This includes wells with an MD less than 20,000 ft to take advantage of the improved time and cost efficiencies of ball-activated sleeves.

Packers Plus is the innovator of open hole multi-stage fracturing systems, providing field-proven and cost-effective methods for completing horizontal wells with superior production results in numerous formations around the world, including mature reservoirs. The company has diversified its portfolio with the TREX product line of cemented completion technologies that includes single point and limited entry ball-activated sleeves, pressure testable toe sleeves and liner hangers.