

Permian Liner Hanger System Success

Liner hanger system improves operational efficiencies

Background

An operator in the Permian Basin was looking to increase operational efficiencies as they had previously utilized monobore operations and were now looking to liner hangers. This would save them rig time, reduce casing costs, and improve production by moving to 4-in. production tubing from 2-7/8-in. production tubing.

NOV approached the operator to run a trial job consisting of NOV's 4.5-in. TXP liner top packer and GSP hydraulic liner hanger system utilizing an HRS setting tool with a BPS toe sleeve ran in the shoe. The operator assigned the trial job in a critical field with the intent of running and cementing a 4.5-in., 13.5-lb HCP-110 rotating liner hanger system inside of 7-in., 29-lb HCP-110 casing with a setting depth of 6,372 ft.

Solution

The liner system was run with a 15-ft PBR, TXP liner top packer, and a GSP hydraulic, rotating liner hanger. The GSP liner hanger was selected for its pocketed slip design with recessed slips and a mechanical lock in order to prevent premature actuation during run-in-hole. The liner system was deployed with our hydraulically locked HRS setting tool in order to prevent premature release during run-in-hole and then mechanically released after setting the hanger. The landing collar with ball seat was utilized to set the liner hanger and to release the hydraulic lock of the HRS setting tool.

Results

The liner hanger system was successfully deployed in this horizontal application with 100% success and 0 hours of NPT. The GSP liner hanger was successfully set, HRS setting tool was released and confirmed free on first attempt, and the ball seat successfully sheared at the calculated pressure values.

The liner was successfully cemented with the drill pipe dart pumped, single wiper plug shearing as per theoretical calculated values and plugs successfully bumped. The packer was then set and liner top successfully pressure tested.

The operator was highly satisfied with the successful deployment of the equipment. As a result of the solid performance of the equipment and the services provided, the operator has awarded NOV future liner hanger work.

Case study facts

Location: Permian Basin, Texas, USA

Well type: Onshore, production

Hole size and angle: 6.125-in. open hole, 92° F

Casing size and type: 7.000 in. 29-lb, HCP-110

Liner size and type: 4.500 in. 13.5-lb, HCP-110

Liner length: 5,097.87 ft

Bottom hole pressure: 3,270 psi

Bottom hole temperature: 145° F

Products

- 7-in. Polished bore receptacle
- 7-in. TXP liner top packer
- 7-in. GSP hydraulic set rotating liner hanger
- 7-in. Single wiper plug
- 7-in. Landing collar c/w ball seat
- HRS setting tool

