

Permian Basin

Expandable liner hanger (ELH) system for floated liner applications helps operator optimize liner deployment

VersaFlex® XSL ELH and ball-set running tool provide a pressure-balanced, engineered system tailored for floated liner applications

CHALLENGE

Difficulties associated with floating in liner hanger using casing-conveyed buoyancy systems

SOLUTION

VersaFlex® XSL ELH and Ball-Set running tool

- Engineered, pressure-balanced expandable hanger solution for floated liner applications

RESULT

Successful float-in deployment with zero HSE or SQ issues

Overview

An operator in the Permian Basin wanted to optimize production liner deployments and required a 5.5 × 7.625-in. liner hanger system that could be floated in “mud over air” using a casing-conveyed buoyancy system. Such buoyancy systems are easily integrated with the casing string; however, certain challenges should be considered during incorporation of these tools in a liner application.

Halliburton delivered a VersaFlex® XSL ELH and used the Ball-Set running tool to provide a pressure-balanced, engineered system tailored for floated liner applications.

Challenge

To deploy a liner hanger system using the “float-in” method, a casing flotation sub is run as part of the liner string and serves as the temporary fluid barrier. When running in, the work string section above the flotation sub is fluid filled while the liner section below remains unfilled. This creates the buoyancy effect that reduces drag forces. Once the liner system reaches target depth (TD), the flotation sub must be ruptured to re-establish circulation and continue cement operations. High surface pressures applied during the rupturing process can cause hydraulic imbalance in the work string as the fluid/air swap occurs and increase the risk of premature hanger setting and/or premature running tool release.



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VersaFlex® XSL ELH

Solution

The VersaFlex® XSL ELH and Ball-Set running tool provided a reliable solution for this application because the system remains fully pressure balanced and unaffected during the hydraulic events associated with the flotation sub rupturing process.

The expansion pistons of the Ball-Set running tool remain equalized until a setting ball is dropped into the running tool string. When the setting ball lands on seat, an internal sleeve shifts, which routes pressure to the piston and allows expansion.

Result

Halliburton deployed the floated liner system to TD successfully with zero health, safety, and environment (HSE) or service quality (SQ) issues. After the casing flotation sub ruptured, the air section in the liner filled with fluid as designed. Subsequent cement operations resulted in an accurate plug bump followed by liner expansion.

The VersaFlex XSL ELH with Ball-Set running tool provided a pressure-balanced system ideal for floated liner applications, which helped improve deployment efficiency and maximize asset value.



TD

successfully
reached



ZERO

service quality and
HSE issues

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