

Mexico

Surge reduction package optimizes liner run speed in tight annular clearance

SuperFill™ surge reduction systems help operators control surge pressures, minimize induced mud losses, and increase efficiency during 9 5/8-in. liner run

CHALLENGE

- Narrow pressure window in shallow-water Mexico
- High risk of induced losses during RIH
- 0.543-in. tight annular clearance
- Ineffective mitigation from reduced RIH speed

SOLUTION

- SuperFill™ surge reduction system for surge control
- Auto-fill float equipment for minimal pressure drop
- SuperFill™ II diverter with glass ball seat for reliable conversion
- Commander™ cement head for efficient plug deployment

RESULT

- Reduced rig time by ~40%
- Cut mud losses by up to 50%
- Executed clean plug deployment through diverter
- Set VersaFlex® ELH at 5,000 psi without issues

Overview

Operators in Mexico's shallow waters often struggle to run 9 5/8-in. liners through 11 7/8-in. intermediate casing strings because of narrow pressure margins created by low fracture pressure and high pore pressure. These tight windows demand precise surge pressure control. Without it, the operator risks lost circulation, higher costs, and inefficient run-in-hole (RIH) performance.

Challenge

One operator experienced difficulty to reach bottom while it ran the 9 5/8-in. drilling liner inside the 11 7/8-in. casing. Induced losses posed a major threat and could increase costs through drilling fluid loss and remedial actions. The reduction of pipe run speed, a common mitigation tactic, rarely prevents lost circulation under such conditions.

The design required the liner to land at a measured depth (MD) of 3,390 m, which left only 0.543-in. of annular clearance between the strings. This extremely tight space made surge pressure management essential to remain within the narrow pore pressure window and execute a successful run.

Solution

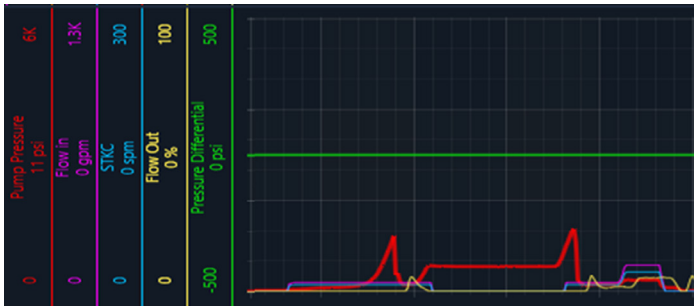
To help manage surge pressure and improve RIH efficiency, Halliburton deployed the SuperFill™ surge reduction system, which includes true auto-fill float equipment and a landing string diverter system compatible with subsurface release plug systems and VersaFlex® expandable liner hangers (ELHs). The SuperFill™ II FVB float collar features a fullbore ID across open flapper valves that allows casing to auto-fill with minimal pressure drop. Paired with the SuperFill™ II diverter, it minimizes surge pressure while RIH. The diverter's glass ball seat avoids risks linked to expandable metal seats, complex spring-loaded mechanisms, and segmented seats. This helps ensure compatibility with wiper darts from the Halliburton SSR-II™ cement plug system and contingency setting balls for the VersaFlex ELH system.

Result

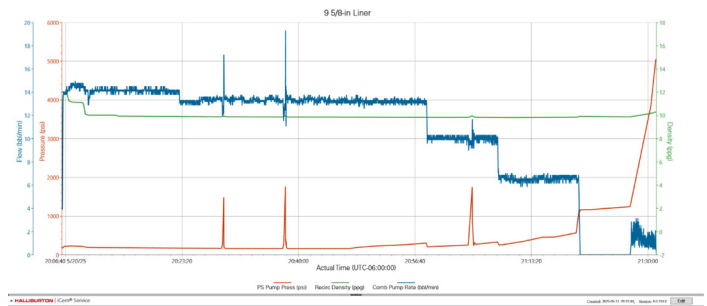
Halliburton deployed a complete casing equipment package that included the SuperFill™ system, SSR-II™ plug system, and Commander™ cement head. This allowed the operator to meet all RIH and zonal isolation key performance indicators. The operator reduced rig time by an estimated 40% and cut mud losses by up to 50% while it ran the liner.

From the rig floor, crews dropped the SuperFill™ II diverter closing ball when the 9 5/8-in. shoe sat 82 m off bottom. Surface pressure confirmed tool closure and verified that the glass seat shattered through the closing confirmation sub. A second pressure event converted the SuperFill™ II FVB float equipment from auto-fill to closed-end/backpressure mode as designed.

Throughout the cement operation, the SSR-II™ dual-plug system performed exactly as expected. Both operating darts traveled cleanly through the diverter and closing confirmation sub with no pressure anomalies, and the crew released both plugs successfully. The team set the VersaFlex® ELH against the landed top plug at 5,000 psi.



SuperFill™ II diverter closure and glass shattering at 1,400 psi. Surface pressure test confirmed tool closure and glass seat shattering for a fullbore ID along the string.



Cement job displacement with SSR-II™ operating darts and clean displacement through SuperFill™ II diverter system and proper release of bottom and top plugs, followed by successful landing.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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