

Mexico

Innovative surge reduction solution enabled successful drilling liner deployment

SuperFill™ II Diverter effectively managed surge pressure while RIH in close-clearance, shallow-water project

CHALLENGE

- Efficiently RIH with liner through tight annular clearance and operational window
- Full compatibility with subsurface systems, such as liner hangers and SSR® cement plugs

SOLUTION

- SuperFill™ II diverter with innovative ball glass seat to provide surge reduction while RIH
- Unrestricted fullbore ID after tool closure

RESULT

- Achieved running speed KPI expectations
- Clear indication of diverter closure and shattered glass at nominal pressure
- Successfully performed initial cement operations
- Performed nine additional successful operations

Overview

Running liner string within a narrow operational window and close-clearance annulus can be challenging in shallow-water operations in Mexico. Common outcomes in this scenario include induced circulation losses, low casing running speed, and inability to reach planned depth.

Challenge

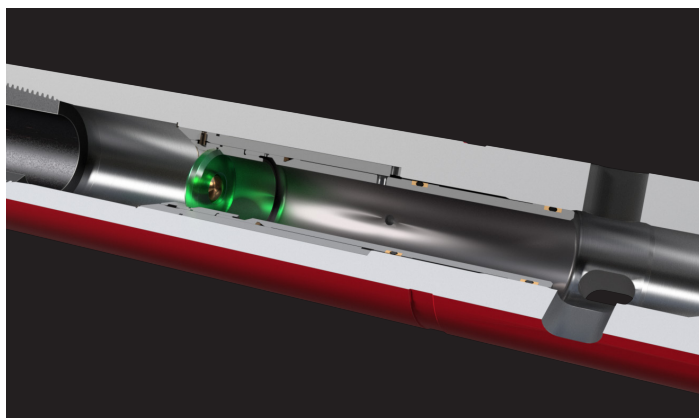
During cement operations in a shallow-water GOM well, successful liner installation was at risk because of anticipated formation damage attributed to surge pressure while RIH casing in a tight annular clearance and operational window. Run speed KPIs and premature induced lost circulation were of further concern.

Conventional diverter systems in this situation could hinder the successful deployment of cement plugs and liner hanger systems because of the restricted IDs of such diverter tools.

Solution

To help reduce surge pressure without increased risk to the SSR® (sub-surface released) cement plug and liner hanger system deployment, Halliburton recommended the SuperFill™ II diverter. This innovative tool can minimize fluid frictional pressure inside the landing string and provide an unrestricted ID that allows safe passage of operating balls and SSR plug-releasing darts.





The SuperFill™ II diverter glass ball seat leaves no debris after activation, which enables fullbore access that provides universal compatibility with subsurface release plug systems, liner hangers, and other downhole tools.

The diverter tool operates with pressure applied to the seated ball and increased pressure causes the innovative glass seat to disintegrate into fine, sand-like particles that flow down the pipe with the ball after tool closure. The glass seat leaves no debris after activation for fullbore access. This feature also increases the compatibility of the tool with subsurface released plug systems and other downhole tools, which addressed the operator's concerns with RIH and diverter compatibility with liner hanger and SSR cement plug systems.

Result

The SuperFill II diverter system was successfully deployed on 9 5/8-in. liner and met the operator's KPI for RIH speed and formation protection from surge pressure. At a predefined depth, the SuperFill diverter's closing ball was dropped and clear pressure indication was observed at the surface once the string was pressurized to close the diverter tool and shatter the glass ball seat, which occurred within the tool's operational range at 1,850 psi.

Throughout the cement operation, the SSR plugs were properly released with operating darts and no pressure indication as they traveled through the diverter system as expected. The expandable liner hanger was set with its surface ball dropped, which traveled through the diverter system with no interference.

Additionally, the proven performance of the SuperFill II diverter helped the operator achieve successful zonal isolation during nine subsequent cement operations, with an average estimated savings of 20% reduced rig time and up to 25% reduced mud loss during casing running activities.

SuperFill™ II diverter provided surge reduction and full compatibility with subsurface systems to optimize casing run speed and save rig time.



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