Surge-Reduction Technology and SSR Plug Locator System

Help To Run and Cement Four Primary Strings With Zero Losses

Objectives

- Run and cement multiple-size casing strings in a well with a close-tolerance casing design and a strong likelihood of high surge, lost circulation, and wellbore instability.
- Eliminate losses during casing-running and cementing operations, which include circulating the well.
- Use mud weights and maintain an equivalent static density (ESD) and equivalent circulating density (ECD) within the acceptable range because of the narrow pore-pressure and fracture-gradient window.

Our Approach

- Weatherford deployed the SurgeMaster® II diverter tool, autofill float collars, and large-bore subsurface-release (SSR) casing wiper plugs for running and cementing the 18-, 16-, 14-, and 11 3/4-in. casing. The team also deployed the plug locator system and large-bore SSR casing wiper plugs with the locator ring on the top plug for all sizes but the 18-in. casing.
- The team tripped into the well with casing on the landing string. The SurgeMaster II diverter tool enabled them to break circulation without conversion of the autofill float equipment, which reduced mud gel strengths and lowered annular friction and pressures at the casing setting depths.
- The mud weights and the ECD remained within acceptable limits and below the fracture gradient. Mud weights ranged from 10.6 lb/gal (79 kg/m^3) for the 18-in. casing to 14.0 lb/gal (105 kg/m^3) for the 11 3/4-in. casing. The ECD remained within a margin of 0.05 to 0.10 lb/gal (0.4 to 0.7 kg/m^3).
- The team ran more than 25,000 ft (7,620 m) of casing and reached the desired setting depths with no mud losses. Running speeds averaged between 25 and 35 ft/min (7.6 to 10.7 m/min).
- The SSR plug system and the plug locator system performed as intended with the applicable casing sizes. Cement was displaced with pressure indications observed as the top plugs passed through the plug locator collar and the SSR top wiper plugs bumped on the respective float collars.
- The jobs were completed without personal injuries or operational incidents.

Weatherford SSR plug systems are designed for use with Weatherford autofill float equipment and SurgeMaster diverter tools, which are run to reduce surge pressures and increase running speeds.

LOCATION
Gulf of Mexico

WELL TYPE
Offshore, deepwater, exploration

CASING SIZES
18, 16, 14, and 11-3/4 in.

PRODUCTS/SERVICES
- Large-bore autofill float collar
- Large-bore guide shoe
- Integral bow-spring centralizer sub
- Large-bore SSR casing wiper plugs with top plug locator
- Plug locator collar
- SurgeMaster II diverter tool
- Top-drive cementing head (TDH)
- Tubular running services

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Surge-Reduction Technology
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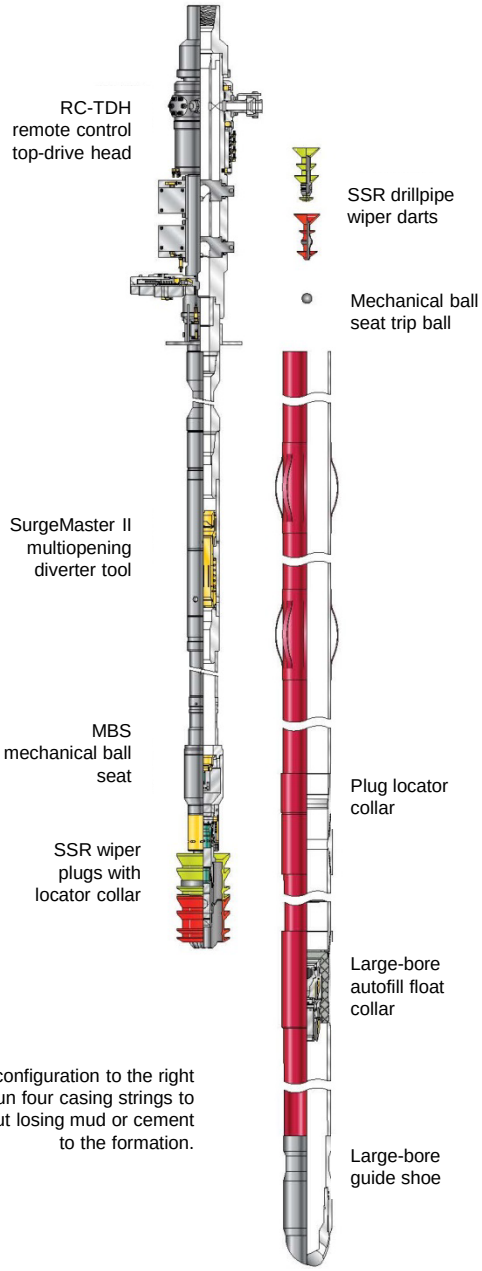
Value to Client

- The SurgeMaster II diverter tool enabled running four sizes of primary strings totaling more than 25,000 ft (7,620 m) to the desired depth in a close-tolerance casing design without creating surge-induced stresses or compromising formation integrity, which could have resulted in losing thousands of barrels of mud.
- Surge-reduction technology, SSR casing wiper plugs, plug locator collars, and centralizers with placement modeling provided the means not only to run multiple casing strings with no losses, but also to circulate, condition, and execute primary cementing operations that eliminated the need for subsequent remediation.



The surge-reduction configuration to the right enabled the operator to run four casing strings to the desired depth without losing mud or cement to the formation.

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