

CHALLENGES

- » Achieve successful cementing of a production liner in highly permeable, depleted sandstone sections of the formation
- » Prevent losses that are typically encountered in the high-permeability reservoir sections of this well
- » Provide an effective cement spacer that would mitigate lost circulation and maintain wellbore stability while also preparing the wellbore to receive cement

SOLUTIONS

- » Tuned® Defense™ cement spacer to reduce formation permeability, prevent lost circulation, and maintain wellbore stability while preparing wellbore to receive cement
- » HalCem™ cement to meet requirements for increased compressive strength and low fluid loss

RESULTS

- » Achieved excellent rheological behavior of the fluid to maintain hierarchy
- » Circulated cement at the top of the liner after performing the cementing operation
- » Received logging results validating that zonal isolation had been achieved
- » Eliminated need for remedial squeeze job, resulting in estimated cost savings of USD 348,000

ESTIMATED COST SAVINGS OF
USD 348K



New Tailored Cement Spacer System Improves Barrier Dependability and Eliminates Requirement for Remediation

FIRST APPLICATION OF TUNED® DEFENSE™ CEMENT SPACER IN THIS FIELD ACHIEVES TOP OF CEMENT AND EXCELLENT CEMENT LOGGING RESULTS

COLOMBIA

OVERVIEW

Lost circulation can be a costly problem that increases non-productive time, particularly in the high-permeability reservoir sections of a well. Preventing lost circulation with conventional methods is often ineffective in formations classified as unpredictable, or in areas with a history of losses ranging from seepage to severe. New tailored cement spacer fluid systems are required to effectively mitigate lost circulation while preparing the wellbore to receive cement.

CHALLENGE

A major operator in Colombia was concerned about cementing across a 5½-inch production liner in a formation with a history of lost circulation. Operations in the highly permeable, depleted sandstone sections of the formation had experienced a range of losses, including severe to total losses in the production zone. Previous attempts to manage losses with multiple conventional lost circulation material (LCM) treatments could not fully cure the losses and managed pressure drilling (MPD) was required to help mitigate losses. The operator asked Halliburton Cementing to deploy a new solution that would help achieve cement coverage at the top of the liner, provide the required zonal isolation, and be validated by good cement integrity log results.

SOLUTION

Halliburton Cementing applied its Tuned® Defense™ cement spacer to prevent lost circulation and maintain wellbore stability while preparing the wellbore to receive cement. The spacer was designed to optimize cementing jobs where losses are observed, and, in this case, Tuned Defense cement spacer was used to prevent lost circulation without incorporating additional LCMs. The operator pumped 45 bbl of Tuned Defense cement spacer at a density of 11 lb/gal, followed by 50 bbl of 16.2 lb/gal HalCem™ cement slurry designed to meet requirements for increased compressive strength and low fluid loss.

RESULTS

Tuned® Defense™ cement spacer exhibited excellent rheological behavior to meet and maintain hierarchy requirements. Cement was circulated to the top of the liner after performing the cementing operation, and cement bond log (CBL) and variable density log (VDL) results confirmed that the zonal isolation objectives were achieved. Previous wells in the same field had required remedial squeeze jobs in order to be completed, and the use of Tuned Defense cement spacer helped the operator eliminate the need for remediation, resulting in estimated cost savings of USD 348,000.

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