

BaraShield®-663 and BaraShield®-664 LCM Treatment Help Reduce Losses by 47% in High-Perm Formation

ARGENTINA

CHALLENGE

A high-permeability formation was causing severe to total losses on offset wells.

SOLUTION

A pill formulated with BaraShield®-663 LCM and BaraShield®-664 LCM was pumped before drilling each stand, allowing the operator to avoid elevated rheological properties that could aggravate losses.

RESULTS

Losses were reduced by 47 percent as compared to offset wells, and the well reached total depth with no further wellbore stability issues.

OVERVIEW

The operator had encountered severe lost circulation in the 8-3/4-inch hole section on previous wells. The formation was highly permeable, and elevated rheological properties could contribute to the risk of losses. The goal was to maintain wellbore stability without loading the active oil-based fluid system with a high concentration of lost circulation material (LCM).

OPERATOR CUTS LOSSES IN HALF WITH ENGINEERED PILLS PUMPED AHEAD OF DRILLING EACH STAND

Pumping an engineered blend of BaraShield®-663 LCM and BaraShield®-664 LCM in pill form prior to drilling each stand would help seal the formation without continuously loading the active mud system. BaraShield-663 LCM and BaraShield-664 single-sack LCM options are designed to rapidly seal pores and fractures up to 500 microns and 1,000 microns, respectively. The correct concentration of each multi-modal particulate additive is determined through modeling and testing.

For this case, the Baroid team recommended a 10-kg/m³ concentration of BaraShield-663 LCM and BaraShield-664 LCM for each pill. These sealant pills quickly helped decrease the partial lost circulation that had been observed while drilling.

OPERATOR SAVES US\$36,000 IN MUD COSTS, AND REACHES TOTAL DEPTH WITH NO FURTHER ISSUES

The success of the pill series helped the operator save on the cost of building replacement oil-based fluid at US\$423/m³ (excluding base oil).

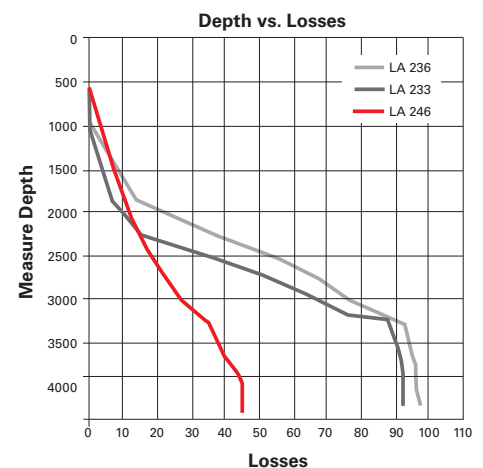
As shown in the Depth vs. Losses plot for this well and offset wells, the LCM pill treatments provided a 47 percent reduction in losses. This saved 50 m³ of drilling fluid and decreased the volume of base oil needed to generate replacement volume.

After subtracting the LCM treatment cost from the savings gained in oil-based fluid, the operator saved US\$36,000. The well reached total depth with no stuck pipe, formation damage, or well control issues.

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Compared to offsets, losses were reduced by 47 percent on the well treated with BaraShield®-663 and BaraShield®-664 LCM pills.