



BaraShield®-664 LCM Helps Deepwater Operator Drill with Zero Losses

OPERATOR GAINS FULL ACCESS TO PAY ZONES AND SAVES RIG TIME

GREEN CANYON, GULF OF MEXICO

CHALLENGE

- » Prevent severe lost circulation in three sub-pressured sands located in two adjacent intervals
- » Enable wellbore to withstand expected overbalance pressures, as overbalanced mud weight was needed to stabilize shale

SOLUTIONS

- » WellSET® wellbore strengthening analysis to determine optimal LCM
- » Multi-modal, single-sack BaraShield®-664 LCM to seal fractures up to 1,000 microns

RESULTS

- » Drilled all three sands with zero losses
- » Set and cemented liners with zero losses
- » Eliminated three days of rig time, saving approximately USD 3 million

OVERVIEW

An operator in the Gulf of Mexico planned to drill and produce three sub-pressured sands located in close proximity to each other in a Green Canyon deepwater well. The formation pressures ranged from 529 psi to 3,777 psi. The overbalance while drilling ranged from 2,135 psi to 4,043 psi, as relatively high mud weights were required to maintain shale stability.

**SAVED THREE DAYS
OF RIG TIME AND
US 3 MILLION**

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CHALLENGE

The operator planned to drill and produce three sub-pressured sands located in two adjacent intervals, where there was a high risk of severe lost circulation. Preventing this lost circulation in the depleted zones was a critical goal, and the operator wanted the most efficient method of preparing the wellbore to withstand expected overbalance pressures.

SOLUTION

The Baroid team used the WellSET® wellbore strengthening module of its DFG™ modeling software to identify the optimal particle size distribution for lost circulation material (LCM). A rock mechanics analysis was performed for each sand.

The fact that the three zones of interest were located close together made it possible to select a multi-modal, one-sack LCM solution, rather than adding several conventional materials. This eliminated the need to strip LCM from the active system and/or make a full system displacement between intervals.

BaraShield®-664 LCM is a proprietary, engineered particulate formulation designed to rapidly seal fracture widths up to approximately 1,000 microns.

When added to the active mud system, it provides an effective continuous treatment to remediate losses typically occurring in unconsolidated sand or gravel, along with small natural fractures or small induced fractures.

The one-sack approach simplified maintaining the LCM treatment while drilling the depleted zones. The BaraShield-664 LCM was replenished from the rigsite inventory of bulk bags, which reduced handling and crane lift requirements.

The 12.25-inch and 9.875-inch intervals – including the three sands – were drilled with no losses. The liners for each interval – 9.875 inches and 7.75 inches, respectively – were set and cemented with no losses. The operator successfully accessed primary and secondary objectives with no issues and minimal with modifications to the drilling program.

ECONOMIC VALUE CREATED

Without the successful application of BaraShield-664 LCM, the overbalanced mud weight that was ultimately needed in these intervals would have caused severe losses and potentially a sidetrack operation.

Approximately three days of rig time were saved, for an estimated US 3 million in reduced costs. The effectiveness of the BaraShield-664 LCM treatment has had a positive impact on future drilling plans. When similar conditions are encountered on subsequent wells, they can now be handled with reliable WellSET analysis and single-sack solutions.

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