BaraBlend®-665 and BaraLock®-666 LCM Pills Stop Severe Losses in Highly Fractured Formation

EFFECTIVE LCM STRATEGY SAVES 30 DAYS AND USD 1.5 MILLION
KADANWARI FIELD, PAKISTAN

CHALLENGE
Reduce or stop partial to severe lost circulation encountered in a highly fractured limestone formation

SOLUTIONS
Engineered, composite BaraBlend-665® and BaraLock®-666 LCM pills designed to seal and plug a wide range of fracture widths

RESULTS
» Stopped losses completely in 12-1/4-inch interval
» Drilled interval to target total depth with full returns
» Saved 30 days and USD 1.5 million, compared to offset wells

ENGINEERED, COMPOSITE LCM PILLS COMBAT MULTIPLE FRACTURE SIZES
As a first line of defense, the active drilling fluid system was treated with a combination of LCMs. This background treatment was designed to help control seepage and to seal off microfractures. However, while drilling the 12-1/4-inch interval through the Sui Main limestone, the operator encountered complete losses (zero returns) and had to drill blindly, using viscous water.

The next two treatments were applied in pill form. The formulation had been tested for effectiveness in Baroid’s regional laboratory in Cairo and was designed to seal fractures more than 25,000 microns wide. These pills contained three types of engineered, composite LCM: 80 ppb of BaraBlend®–665 LCM; 0.25 ppb / 0.5 ppg of BaraLock®-666 medium and coarse LCMs, respectively; and 50 ppb of STOPPIT® LCM. The pills also contained calcium carbonate bridging material in varying particle sizes.

BaraBlend-665 LCM helps reduce or stop partial to severe lost circulation encountered from small natural or induced fractures. Low concentrations of BaraLock-666 LCM supplement BaraBlend-665 and other LCM types, helping to reduce costs by limiting the amount of material required to stop the most challenging lost circulation events.

COMBO LCM PILL ENABLES DRILLING TO RESUME AND CASING TO BE SET AND CEMENTED
The first BaraBlend/BaraLock pill was set in place to create a base for a subsequent FLO-CHEK® cement plug provided by Halliburton Cementing. The FLO-CHEK plug was set successfully and drilling resumed with full returns. However, another encounter with total lost returns required spotting a second pill in the 12-1/4-inch interval. This treatment was allowed to soak for four hours.
This effective LCM strategy has been introduced to multiple operators for use field wide.

Drilling then resumed with full returns throughout the remainder of the section, allowing the operator to reach the interval total depth and to run and cement casing across the loss zone.

Compared to offset wells, the success of the two engineered, composite pills saved approximately 30 days of rig time valued at USD 1.5 million. Mud costs also decreased as the need for building replacement volumes was eliminated. This effective LCM strategy has been introduced to multiple operators for use field wide.

**Depth vs. days plot:** Spotting BaraBlend®-665 and BaraLock®-666 LCM pills saved approximately 30 days compared to the offset wells.