

Losses Cured with Blended BaraBlend®-665 and BaraLock®-666 LCM Pill, Resulting in Casing Run with 100 Percent Returns

LCM BLEND STOPS SEVERE LOSSES IN ONE TREATMENT

VOLGA-URALS AREA, RUSSIA

CHALLENGE

- » Chronic, severe losses had to be stopped before attempting to run casing, but all competitor treatments failed over a period of 30 days.

SOLUTION

- » Baroid personnel proposed spotting an engineered LCM blend pill (BaraBlend®-665 and BaraLock®-666 LCMs) across the loss zones.

RESULT

- » The blended BaraBlend-665 and BaraLock-666 LCM pill restored full circulation in one treatment, allowing for a successful casing operation.

OVERVIEW

A local mud company was providing the drilling fluid service on Bashneft's Well 5 in the Sukhoyazskoye field. While drilling from 420 meters to 921 meters (1,378 feet to 3,022 feet), three lost circulation zones were encountered in the naturally fractured limestone formation. However, the operator was able to continue drilling the interval to the planned total depth (TD) despite ongoing losses.

Before running casing, the operator required a reduction in the loss rate to $\leq 3\text{--}4\text{ m}^3/\text{hr}$ (19–25 bph). The local mud company used various methods to cure the losses, with no results. After 30 days of unsuccessful attempts, Bashneft contacted Baroid for assistance.

SOLUTION

After analyzing the interval lithology and the types of lost circulation materials (LCMs) used previously, the Baroid team recommended a blend of BaraBlend®-665, BaraLock®-666.M, and BaraLock-666.C LCMs.

BaraBlend-665 LCM can reduce or stop partial to severe lost circulation in small natural or induced fractures. The pre-mixed particulate-and-foam composition in a single sack provides an easy-to-deploy solution that effectively remediates losses in any formation, including unconsolidated sand or gravel formations, rubble zones, and naturally fractured formations.

BaraLock-666 supplemental LCM is a highly compressible and resilient foam material available in fine, medium, and coarse grades. It can be added to any LCM pill to enhance plugging and eliminate the need for specialty cross-linkable sealants or long synthetic fibers.



Rig for Bashneft Sukhoyazskoye Well 5

Baroid personnel proposed pumping a 14.5-m³ (91-bbl) engineered pill formulated as follows:

	kg/m ³	ppb
BaraBlend®-665	280.0	98.0
BaraLock®-666.M	0.72	0.25
BaraLock-666.C	0.57	0.20

Sodium-chloride brine was used to achieve the required pill density of 1.15 SG. The pill was added to the Halliburton batch mixer at 60 rpm through the manhole screen under rotating mechanical mixers and pumped at 12 liters per second through an open-ended drillstring and spotted across the loss zones.

RESULT

While pumping the last 2.5 m³ of the pill, the crew observed 100 percent returns. The blowout preventer (BOP) was closed, and 20 atm pressure was applied to the wellbore for one hour. There were no static losses during this time. When circulation resumed after two hours, 100 percent returns were observed. Casing was run successfully per plan.



Halliburton batch mixer used to mix LCM pill

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