

BaraBlend™-665 Wellbore Strengthening

Plugging Unknown Fractures and More

Customer Challenge

A major international oil company frequently encounters lost circulation in its shale gas development project in Oklahoma, USA as a result of a depleted, naturally fractured formation. The losses often require a great deal of time to cure with multiple applications of various conventional LCMs. Because of the existence of such a challenging formation and a potentially greater cost arising from lost circulation, oil-based muds cannot be used to stabilize a water-sensitive shale zone. Wellbore instability is often experienced, which results in stuck pipe and other downhole issues.

BaraBlend-665 Solution

After a complete mud loss was encountered, an 80 bbl, 9.6 ppg BaraBlend-665 pill was prepared with rig mixing facilities; the total mixing time required was 105 min. The open-ended drillpipe with a stinger was set right at the bottom. The pumping process used 5 bbl of drill water, followed by 61 bbl of the BaraBlend-665 slurry, and 20 bbl of drill water after the slurry. The pill then was displaced three times with mud volumes of approximately 10 to 15 bbl, followed by a 15 min shut-down period to simulate a hesitation squeeze process. Then 11 stands of pipe were pulled out of hole, and returns were gained after 25 bbl of additional WBM was pumped into the well. The wellbore was then squeezed to 10.2 ppge to ensure it reached required wellbore pressure containment.

After the mud was circulated and conditioned, the loss zone was washed through. The BaraBlend-665 leftovers were disposed of directly to the reserve pit. To the TD of the well including casing running and cementing, no additional mud losses were observed after the treatment.

A detailed analysis indicates that the loss was cured after 8 bbl BaraBlend-665 slurry flowed into the fractures at a pump rate of 10 BPM. It took less than one minute for BaraBlend-665 to cure the loss dynamically at the very initial pumping-in stage. Based on the PWD data, the loss zone could only hold pressure of 7.0 ppge before the treatment. With the BaraBlend-665 treatment, the wellbore was strengthened by approximately 3.2 ppge.

Contact

For additional information about our premium products and engineering, contact Max Wang by phone at 281-450-4944 or by email at max.wang@sharp-rock.com or go to www.sharp-rock.us.

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