

HYDRO-PLUG® LCM Pill Cures Total Losses in High-Permeability Depleted Zone

LCM PILL SAVES USD 150,000 AND 12 HOURS OF RIG TIME

EAST KALIMANTAN, INDONESIA

CHALLENGE

Reduce total losses in high-permeability depleted zone

SOLUTION

Spot a HYDRO-PLUG® hydratable LCM pill, using “pump-and-pull” method

RESULTS

Circulation was restored, and drilling resumed to TD – ultimately saving USD 150,000 in fluid costs

In 2015, a major operator was drilling through a high-permeability section containing both pressured and depleted zones. Kicks and lost returns had been encountered on offset wells in the same interval. At 2,506 feet (764 meters), the operator experienced total losses of oil-based mud (OBM). Three 50-bbl batches containing 100–120 lb/bbl of resilient graphitic carbon and sized calcium carbonate lost circulation material (LCM) were pumped first in an effort to stop or reduce the loss rate. Additionally, the entire active system was treated with 60 lb/bbl of LCM. However, these treatments had no effect on the loss rate.

SOLUTION

The Baroid team recommended spotting a HYDRO-PLUG® hydratable LCM pill, using a modified pump-and-pull procedure. The team mixed 80 lb/bbl of HYDRO-PLUG LCM with fresh water; then, it was pumped into place through the bottomhole assembly (BHA), including the measurement-while-drilling (MWD) tools, and pulled out of the pill without applying squeeze pressure.

The static loss rate decreased from 78 bbl/hr to 16 bbl/hr, and the dynamic loss rate stabilized at 286 bbl/hr. The operator was able to continue drilling at a controlled flow rate.

RESULTS

The well was drilled to the planned total depth (TD). Stopping the loss helped the operator save approximately USD 150,000 in OBM, base oil, and additives. The HYDRO-PLUG pill also saved 12 hours of rig time by eliminating the need to trip and go back with open tubing for a cement squeeze job.

The customer’s representative commended Baroid for being able to stop the losses so quickly without plugging the MWD tools or disrupting the pulse transmission at 350 gal/min.

“This product worked well to significantly reduce static loss from 78 bbl/h down to 16 bbl/h straight away at the P-62 well,” the customer’s representative said. “Although we had MWD at the bottom when we pumped this LCM, we did not incur a plugging issue and MWD still pulsed well at 350 gal/min.”

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\$150K SAVED
IN FLUID COSTS
in East Kalimantan, Indonesia



The complexity of curing lost circulation depends on the formation type and the rate of fluid loss.