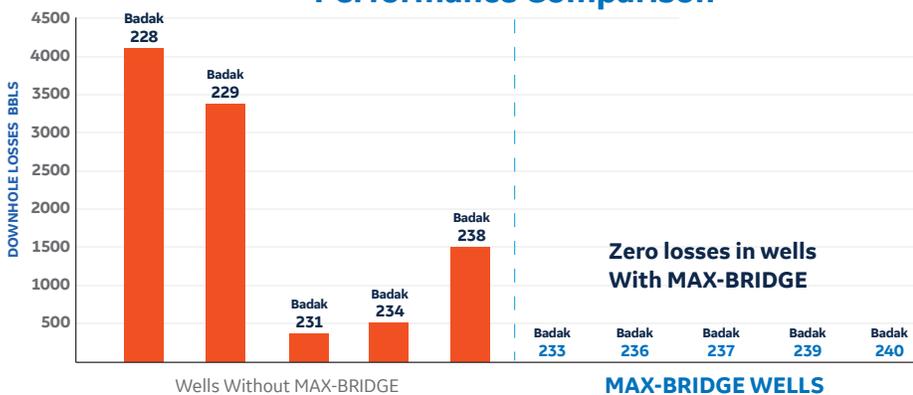


LOCATION: EAST KALIMANTAN, INDONESIA



MAX-BRIDGE bridging solution improved wellbore stability on historically troublesome wells

Performance Comparison



In a mature field in East Kalimantan, Indonesia, an independent operator experienced massive losses in a series of wells, along with wellbore instability-related problems. The extremely low pore pressure typically found in these types of mature fields is problematic because the low pressure requires having enough drilling fluid density to stabilize the wellbore.

After several unsuccessful attempts using conventional lost circulation material (LCM) that contained up to 60 ppb of CaCO₃ fine/medium and cellulosic materials in the active system, in addition to previous treatments with a competitor's synthetic graphite, the operator decided to conduct additional analysis of the situation. The analyses involved using Baker Hughes, a GE company (BHGE),

BRIDGEWISE™ engineering software and extensive lab tests using the BHGE **MAX-BRIDGE™ advanced bridging solution.**

MAX-BRIDGE meets multiple challenges posed in wells where the fine line between wellbore stability, differential sticking, and mud losses exist. Composed of a patented deformable sealing polymer in conjunction with highly resilient graphite additives, MAX-BRIDGE is a custom-designed solution to reduce pore-pressure transmission and seal-and-plug micro-fractures in shale and low porosity sands.

In the client's wells, MAX-BRIDGE created a synergistic coating effect provided by two of its components: the **MAX-SHIELD™ deformable sealing polymer**, which seals pores and fractures; and the **LC-LUBE™ synthetic graphite**, which strengthens the wellbore.

Results

- Downhole losses reduced from an average of 2,200 bbls per 12¼ in. section to zero losses
- Reduced overall NPT by eliminating differential sticking and decreasing drilling torque
- Wellbore stability increased by allowing higher fluids density up to 0.4 ppg

Challenges

- Historically troublesome 12¼ in. section
- Highly depleted formation
- Wellbore instability
- Unsuccessful attempts with several advanced LCM applications

BHGE solution

- The MAX-BRIDGE advanced bridging solution designed a system to isolate the transmission of fluid and pressure
- Maintained the system despite overbalance conditions up to 5,000 psi (433.73 bar) during the operation

After application of the MAX-BRIDGE solution, all five wells showed minimum to zero downhole losses while handling up to 5,000 psi (433.73 bar) overbalance pressure at the same time. The system minimized downhole losses by sealing off the depleted zones. Previously the average downhole loss was 2,200 bbls per 12¾ in. section in five wells, compared with no losses on five subsequent wells after the application of the MAX-BRIDGE solution. The system increased wellbore stability by allowing higher fluids density up to 0.4 ppg, and eliminated differential sticking. It also lowered torque and reduced overall nonproductive time (NPT).



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