

Operator Mitigates High Torque and Drag via High-Performance Lubricant, Saving USD 132,000

BARALUBE® W-933 LUBRICANT ENABLED COST-EFFECTIVE, ENVIRONMENTALLY SAFE DRILLING TO OVER 28,000 FT IN EXTENDED REACH EXPLORATION WELL

OFFSHORE QATAR

CHALLENGE

- » Drill an ERD well through a carbonate reservoir
- » Expected high torque and drag in the 12¼-in. and 8½-in. intervals
- » Find a cost-effective solution

SOLUTION

Halliburton Baroid technical team provided:

- » Extensive qualification testing (performance and contamination)
- » Recommendation of BaraLube® W-933 lubricant

RESULTS

- » Successfully drilled the 12¼-in. and 8½-in. sections to target depths
- » Drilled an 8½-in. sidetrack to a measured depth of over 28,000 ft (8,534 m)
- » No HSE incidents reported
- » Saved operator USD 132,000 compared to previously used third-party lubricant

OVERVIEW

A major operator wanted to apply a high-performance and environmentally acceptable lubricant for extended reach drilling (ERD) of an exploration well, located in a newly acquired block offshore Qatar. The well was to be drilled with water-based mud (WBM) through a carbonate reservoir. The operator previously used a third-party lubricant for drilling highly deviated wells, but failed to reach target depths due to high torque and drag experienced while drilling.

SAVED USD
132,000

CHALLENGE

During the planning phase, high torque and drag were identified as key risks for achieving well objectives. Halliburton Baroid was challenged to mitigate the potential risk of high torque and drag by proposing a high-performance lubricant suitable for the planned well. Extensive qualification testing was performed by Baroid's technical team to evaluate the efficacy of candidate lubricants for use in this demanding application.

SOLUTION

Based on performance and contamination testing, the BaraLube® W-933 lubricant was found most effective for deployment in the 12¼-in. and 8½-in. sections of the well. A 3% v/v addition of BaraLube W-933 to the 1.05 sg low-solids, non-dispersed (LSND) fluid planned for the 8½-in. section exhibited a 28% reduction in the coefficient of friction (CoF), as compared to the untreated fluid. Results of the laboratory tests were shared with the operator, and the BaraLube W-933 lubricant was approved for deployment.

PROJECT DETAILS

The intermediate section and reservoir sections were drilled to target depth and torque values observed were lower than the operator's simulations. The 12¼-in. section of 7,633 ft was drilled at a 90° inclination to total depth (TD), with 1.05 sg LSND treated with 3% v/v BaraLube W-933.

The 8½-in. lateral section was drilled to over 27,000 ft measured depth (MD), with 1.15 sg LSND fluid treated with 3% v/v BaraLube W-933. An isolation liner was run, and the main wellbore was sidetracked. The 8½-in. sidetrack was drilled to section TD at over 28,000 ft MD, with a 1.15 sg LSND fluid dosed with 2.5% v/v BaraLube W-933. Good hole conditions were reported during drilling and tripping operations.

RESULTS BRING ECONOMIC VALUE

The use of BaraLube W-933 in the intermediate section and two 8½-in. sections supported the operator in achieving their exploration well objectives. This solution also resulted in a savings of USD 132,000 when compared to the third-party lubricant previously used by the operator for drilling ERD wells. Due to the successful deployment of BaraLube W-933 for this job, the operator plans to use the proven, high-performance Baroid lubricant for future wells in this region.

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