

BARADRIL-N[®] Reservoir Drilling Fluid Delivers Zero NPT on Field's Longest Lateral

WADI LATHAM FIELD, OMAN

CHALLENGES

The operator wanted to drill a horizontal production lateral more than twice as long as any offset well in the area.

- » The reservoir was prone to heavy losses – over USD 70,000 in mud lost in some cases.
- » Differential sticking was an issue on some offset wells.

SOLUTION

An engineered BARADRIL-N[®] reservoir drilling fluid system was specially formulated for effective bridging to minimize risks of lost circulation and sticking.

RESULTS

The 7,074-foot (2,156-meter) lateral was drilled successfully with zero NPT, extending 58 percent farther than offset wellbores, with high ROP.

OVERVIEW

The Wadi Latham field in northern Oman has been extensively developed with advanced techniques, including extended-reach drilling (ERD). Considerable experience has been gained with laterals up to 3,000 feet (914 meters) long.

An operator planned an ambitious target to drill a reservoir lateral in excess of 7,000 feet (2,134 meters) long. The reservoir was a low-pressure limestone that was very susceptible to fractures and losses. Losses in excess of 5,000 bbl had been encountered on previous wells.

The challenge was to provide a fluid that could provide excellent filtrate control and the capability to combat seepage and loss while maintaining minimum density.

CUSTOMIZED BARADRIL-N RESERVOIR DRILLING FLUID OFFERS BARACARB[®] BRIDGING CAPABILITIES

BARADRIL-N[®] fluid is a clay-free, acid-soluble reservoir drilling fluid. The system can be customized to provide effective fluid loss control and reliable wellbore stability by using sized BARACARB[®] bridging solids. BARADRIL-N fluids can be formulated using a variety of common brines, but a freshwater formulation was developed for this application to minimize fluid density. The BARACARB bridging system was optimized for both loading and particle size distribution in order to minimize the risks associated with lost circulation and differential sticking in the sub-pressured formation.

FIELD-RECORD LATERAL LENGTH ACHIEVED WITH ZERO LOSSES AND ZERO STICKING

The well overburden was drilled using a synthetic-oil-based fluid. This was displaced with BARADRIL-N fluid prior to drilling the reservoir lateral. The well was drilled to total depth (TD), including a horizontal lateral 7,074 feet (2,156 meters) long at an average rate of penetration (ROP) of 100 feet/hour (30 meters/hour). This was achieved without delays or issues. Lost circulation and differential sticking issues were completely avoided, with no nonproductive time (NPT) recorded.

The well established a local record for lateral length, and the BARADRIL-N system continues to be used successfully in this field.

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