BRINEDRIL-N® High-Density Brine-Based Drill-In Fluid Helps Eliminate Stuck in Pipe Issues
Location: Saudi Arabia

OPERATOR’S CHALLENGE – An operator in Saudi Arabia created a series of wells in a naturally fractured carbonate formation. These wells involved drilling long horizontal sections through the reservoir. The operator encountered frequent issues with differential sticking and poor rates of penetration. Halliburton Baroid was asked to suggest a solution to help improve drilling performance.

HALLIBURTON’S SOLUTION – An examination of offset well data indicated the use of sodium chloride based polymer drilling fluid. In order to achieve the required density, without the use of damaging solids, the fluid required a very high loading of bridging materials. The high concentration of these solids can create a thick, poor quality filter cake. This can be a major contributor to differential sticking events.

Following the Technical Process, Baroid designed and introduced BRINEDRIL-N® high density, non-damaging reservoir drilling fluid. The use of a higher density brine base reduced the reliance on bridging materials to achieve the required fluid density. Using the BRINEDRIL-N system the solids loading in the fluid was reduced by more than 30%. This fluid met all of the required specifications and produced a much thinner, less permeable filter cake.

The fluid was designed for optimum bridging with the inclusion of non-damaging additives. The laboratory testing also included downhole loss scenarios, which allowed for engineered lost circulation treatments. The use of Baroid’s Drilling Fluid Graphics (DFG™) with DrillAhead® Hydraulics Modeling Software during planning and execution of the well helped ensure efficient hole cleaning and wellbore stability.

The application of the BRINEDRIL-N fluid resulted in the elimination of differential sticking, fewer stoppages and increased rate of penetration (ROP).

ECONOMIC VALUE CREATED – Following the Baroid Technical Process, simulating downhole conditions during planning and monitoring the well while drilling all contributed to improved ROP. Using the BRINEDRIL-N system the operator was able to drill and complete the well ahead of the planned schedule, saving the operator $50,000 US dollars. The BRINEDRIL-N system continues to be selected and used when higher fluid densities are required during reservoir drilling.