DRIL-N-SLIDE™ lubricant eliminates excessive torque and improves rate of penetration in S-shaped well

Lubricant eliminated top-drive stalls and tripping related to excessive torque, thus saving rig time and costs

Location: South Iraq

Overview

While drilling an S-shaped wellbore, the operator encountered excessive torque that reached the drillpipe limit of approximately 22,000 ft-lbf. The top drive stalled several times at 4,079 m, and a trip was required to change the bottomhole assembly (BHA). Ultimately, the operator was unable to reach total depth on this well.

The next well, also S-shaped, required a sidetrack in the 8.5-in. interval. The torque and drag simulation indicated a maximum torque of 24,700 ft-lbf. However, at a depth of 4,020 m, the actual torque value had already reached 23,000 ft-lbf, despite the addition of a concentration by volume of chemical lubricant to the drilling fluid.

The operator asked for an engineered fluid solution that would keep the torque at a manageable level so that the sidetrack could reach total depth successfully.

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| • Eliminate excessive torque for an operator in south Iraq | • Apply a 3% concentration by volume of DRIL-N-SLIDE™ lubricant | • A 10% improvement in ROP compared to the previous well  
• Successful setting and cementing of liner at the planned total depth  
• Elimination of top-drive stalls and tripping related to excessive torque, enabling the operator to save a total of 36 hours of rig time, at an estimated value of US$393,750 |
**Halliburton solution**

The Baroid team recommended adding a 3% concentration by volume of DRIL-N-SLIDE™ lubricant. Initially, the operator agreed to add 2%, which resulted in an immediate torque reduction from 23,000 to 18,000 ft-lbf. Drilling continued to total depth at 4,080 m with a maximum torque of 21,000 ft-lbf, 6% less than the predicted torque. In addition, the operator observed a 10% improvement in the ROP compared to the previous well.

Prior to running the production liner, the fluid was treated with an additional 1% DRIL-N-SLIDE lubricant. The friction factor decreased to 0.2 as compared to 0.35 on previous wells, and the liner was set and cemented successfully at the planned total depth.

**Economic value created**

Eliminating top-drive stalls and tripping related to excessive torque allowed the operator to save a total of 36 hours of rig time, at an estimated value of US$393,750. More importantly, the production liner was set successfully at the planned total depth. The operator plans to implement DRIL-N-SLIDE lubricant on future wells in the area.