

WWT Non-Rotating Protectors Reduce Torque in Challenging Well

High Torque with WBM

Operator predicted high torque based on offset data while planning to drill a horizontal well with a 10,500ft step out. Pre-spud torque and drag models analyzed torque approaching the torsional limit for 4" drill pipe. WWT Non-Rotating Protectors (NRPs) were chosen as solution to reduce torque.

Well Analysis and NRP Proposal

The well had a shallow build and turn starting at approximately 500ft MD with a planned rate of 3.0 deg/100ft. WWT recommended installing 115 SS3-400 NRPs in cased hole at a frequency of one per joint through the build and tangent sections. In addition, 45 SS3-400 NRPs were also recommended through the curve and out into open hole to further reduce torque and drag. The projected vertical section graph to the lower right represents cased and open hole zones by yellow and green shaded regions respectively.

Greater Than 25% Torque Reduction

A pipe trip was made at 10,200ft MD to install NRPs per the recommended program. Back-modeling suggested overall friction factors of 0.30 prior to NRP installation. Friction factors steadily decreased to less than 0.20 once all NRPs were installed.

Comparing the torque trend prior to NRP installation to friction factors at TD suggests torque was reduced more than 25%.



Location: North America
Well Type: Horizontal
Objective: Torque Reduction
Solution: WWT NRPs
Results: Reduced torque more than 25% @ TD

