

Torque Reduced By 14% After Installing WWT NRPs In Lateral Section

High Torque While Drilling Ahead

Operator experienced high torque within the first half of drilling a two mile lateral. The increasing trend suggested that torque would be above the torsional limit for 5" DP before TD. WWT provided a complimentary well analysis to identify critical areas where frictional torque was occurring.

NRP Recommendation

WWT Non-Rotating Protectors (NRPs) were recommended through the build and start of the lateral with the goal of significant torque reduction. NRPs were installed 5ft above the tool joint on the drill pipe, to mitigate parasitic effects of buckling such as erratic torque, increased drag, and vibration. A total of 152 SS3-500 NRPs were installed at a frequency of one per joint. The shaded green and blue areas in the projected vertical section plot, represents the NRP placement at TD.

Immediate 14% Torque Reduction

At 16,500ft MD, NRPs were installed per WWT's recommendation. Back-modeling suggests overall friction factors up to 0.45 prior to NRP installation, which indicates possible buckling. Friction factors immediately decreased to 0.35 after installing NRPs, and remained around 0.30 while drilling to TD.

Torque was 31k ft-lbs @ 16,500ft without NRPs installed. Torque immediately dropped approximately 14% to 27k ft-lbs after installing NRPs to drill the open hole. The operator was able to maintain WOB for the remainder of this lateral. Comparing the torque trend prior to installing NRPs to the actual torque suggests a 22% torque reduction at TD.



Location: Permian
Well Type: 2 Mile Horizontal
Objective: Torque Reduction
Solution: WWT SS3-500 NRPs
Results: Immediate 14% Torque Reduction

