

Torque Reduced By 22% After Installing WWT NRPs In Build 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 on the drill pipe to mitigate parasitic effects of buckling such as erratic torque, increased drag, and vibration. A total of 120 SS3-500 NRPs were installed at a frequency of one per joint. The shaded blue area in the projected vertical section plot represents the NRP placement at TD.

Immediate 22% Torque Reduction

A pipe trip was made at approximately 17,200ft MD to install NRPs. There's a clear immediate torque reduction at this depth (yellow line). Estimating about a 22% torque reduction @ TD by comparing the analyzed torque (without NRPs) vs actual torque @ TD.

The increase in torque near the end of the lateral can be attributed to buckling from higher attempted WOB. The WOB increased from approx. 22 kips to 45 kips average with a corresponding increase in torque @ 20,100ft MD.



Location: Permian
Well Type: 2 Mile Horizontal
Objective: Torque Reduction
Solution: WWT SS3-500 NRPs
Results: Immediate 22% Torque Reduction

