

WWT Non-Rotating Protectors Reduce Torque 34% in Delaware Basin

Solutions to Reduce Torque & Drag

Operator was interested in solutions to reduce torque and drag on 2 mile horizontal wells in the Delaware Basin. WWT analyzed the operator's well and proposed a Non-Rotating Protector placement program to achieve the desired results.

NRP Recommendation

WWT Non-Rotating Protectors (NRPs) were recommended to reduce rotary torque and prevent casing wear due to a 5 deg/100ft dog-leg present in the shallow vertical section. NRPs were installed mid-span on the drill pipe to mitigate parasitic effects of buckling such as erratic torque, increased drag, and vibration. A total of 147 SS3 model NRPs were installed at a frequency of every other joint.

34% Torque Reduction

A pipe trip was made at approximately 12,000 ft MD to install NRPs per WWT's recommendation. The sensitivity friction factor (FF) plot suggests overall FFs exceeding 0.25 prior to NRP installation. The torque trend decreased to around 0.15 FF as NRPs were continuing to be added from surface while drilling to TD.

Comparing torque @ TD with FFs of 0.25 vs 0.15 suggests up to a 34% torque reduction with WWT NRPs. The sudden increase in torque near TD is because placement of HWDP resulted in NRPs to be approximately 1,200ft below the KOP.



Location: Delaware Basin (New Mexico)
Well Type: 2 Mile Horizontal
Objective: Torque Reduction
Solution: WWT SS3 NRPs
Results: 34% Torque Reduction

