



WWT NRPs Replace Steel Protectors in GoM Well

Executive Summary

After experiencing slipping and detachment issues with a competitor's clamp-on steel protectors in a previous section, WWT's Non-Rotating Protectors (NRPs) were deployed for the 12-1/4" section in conjunction with the competitor's sub-type steel protectors as a solution to mitigate casing wear and reduce torque. All 439 NRPs remained secure on the pipe providing proper drill pipe standoff mitigating casing wear and reducing torque by 46%.

NRP Performance

To provide complete stand-off for every tool joint, WWT's 5-7/8" SS3-578 NRPs were used in conjunction with a competitor's sub and clamp-on steel protectors for the 14-1/2" x 16-1/2" section. After slippage and detachment of the competitor's clamp-on protectors caused Non-Productive Time (NPT) and Damaged Beyond Repair (DBR) equipment, WWT's 6-5/8" S4-658 NRPs replaced all competitor clamp-on protectors for the subsequent section (12-1/4") as shown in Image 1.

All 439 WWT NRPs remained secure on the pipe with marginal wear throughout a maximum duration of 40 days cumulative downhole. Image 2 illustrates that actual torque for the 12-1/4" section closely aligned with the predictions resulting in a 46% reduction in torque. Deviation from the predicted torque primarily from a worn bit while milling casing shoe tracks and lost in hole (LIH) clamp-on steel protectors.

WWT NRP Summary of Benefits:

- 46% torque reduction
- 27% faster tripping speed
- Casing protection
- Robust design
- Easily drillable materials
- Faster installation and removal

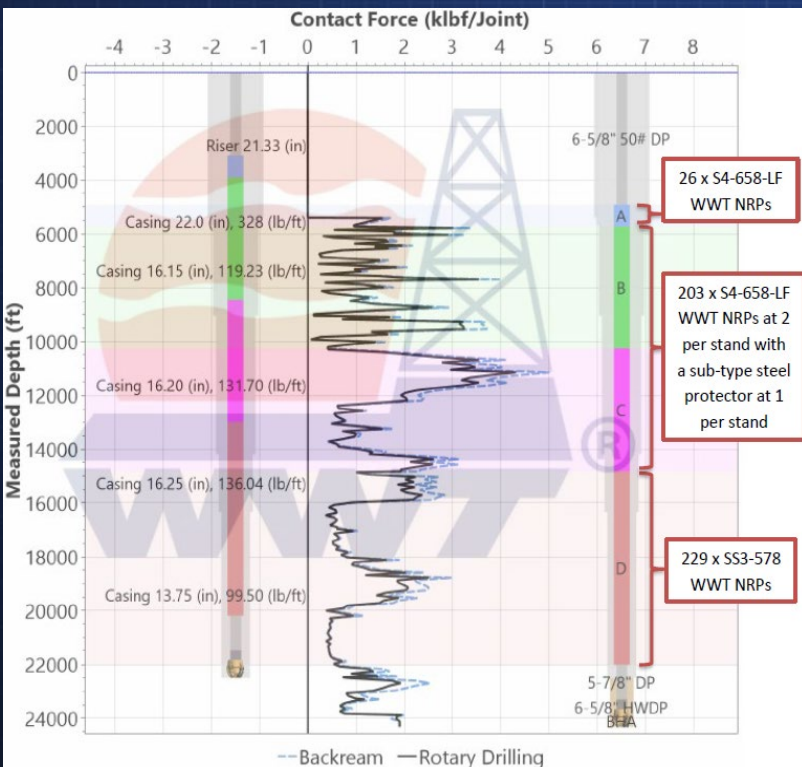


Image 1: Protector Placement with Sub-type Steel Protectors

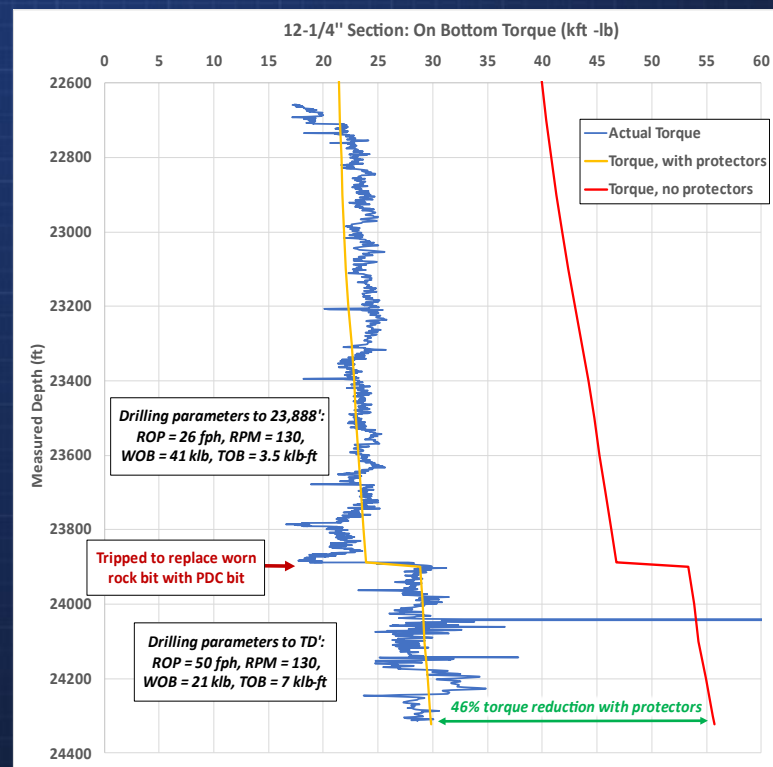


Image 2: On Bottom Torque Reduction by 46% Using WWT NRPs