



WWT Non-Rotating Protectors

WWT Non-Rotating Protector Provides
Drag Reduction During Completion Operations

WWT NRPS SMOOTH & REDUCE DRAG THROUGH BUCKLED CASING

Executive Summary

- A deepwater offshore well had a highly deviated and buckled production casing throughout most of the wellbore. The contact from pipe to casing resulted in high drag and made completion operations difficult due to high set down weight volatility. WWT installed 594 SS3 model NRPs at 2 per joint, one near the tool joint and one mid span to reduce steel-on-steel contact points. The SS3 NRP exterior contains low friction polymer to slide the drill string smoothly in and out of the hole. The operator confirmed the NRP benefits by running the same drill string to TD twice; one run with NRPs and one without.

High Drag

- Use of NRPs resulted in a **40 kip increase in slack-off** hookload, as shown below.
- Use of NRPs resulted in an **80 kip decrease in pickup** hookload.

High Volatility When Setting Down Weight During Completions

- When slacking off a consistent 40 kips at surface:
 - Without NRPs on string the WOB varied between 39 to 86 kips ($\Delta 47k$)
 - With NRPs on string WOB varied from 74 to 85 kips ($\Delta 11k$)
- Once NRPs were installed, all completion operations were performed successfully.

