

# WWT Non-Rotating Protectors Reduce Torque in Directional Well

## Rig Approaching Top Drive Limit

An operator drilling a shallow, directional land well experienced high torque, approaching the limit of the top drive, with 500 meters left to drill in the 8.5" section. The operator was preparing a contingency plan to run a 7" liner and complete the well with a 6.125" hole section.

## Operator Runs WWT NRPs to Avoid Running 7" Contingency Liner

WWT submitted a technical proposal, predicting a sufficient torque reduction that would allow the operator to reach planned TD without running the 7" contingency liner. WWT was able to quickly mobilize equipment and a service technician.



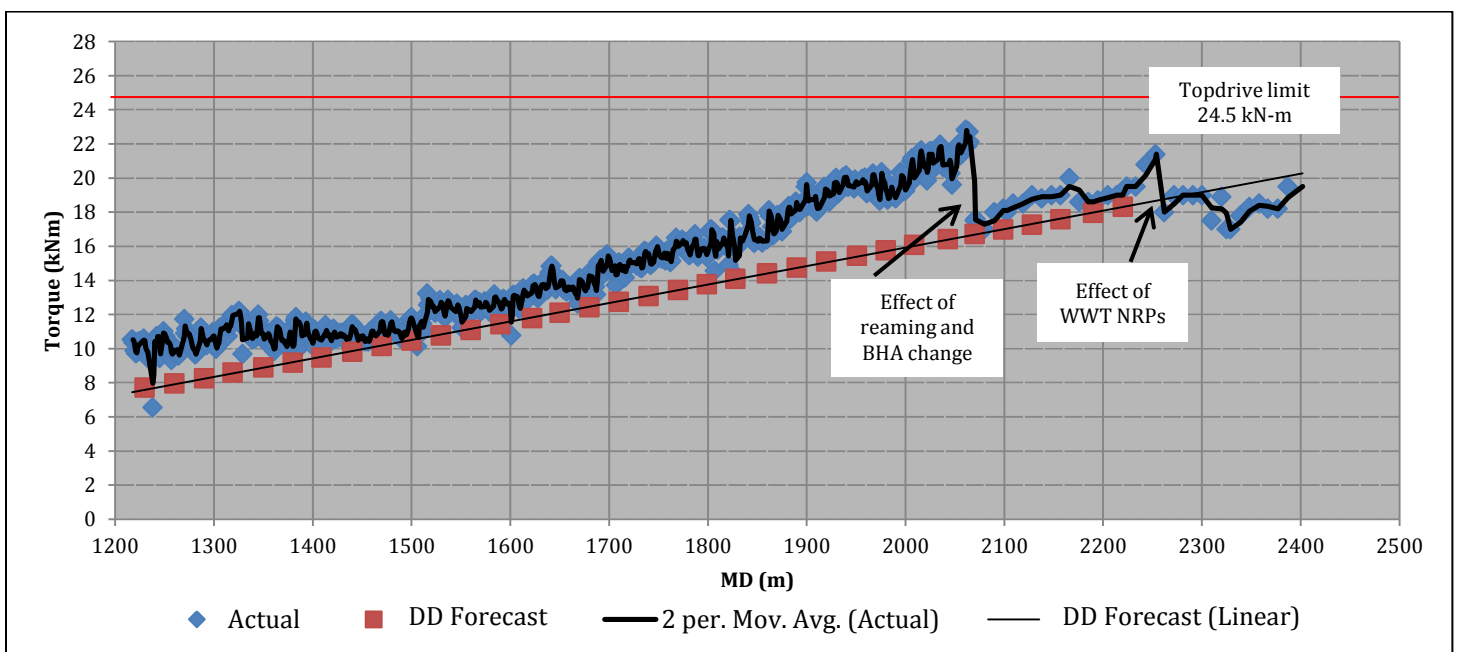
**Location:** Continental Europe  
**Well Type:** Directional  
**Objective:** Torque Reduction  
**Solution:** WWT NRPs  
**Results:** Immediate torque reduction upon installation of WWT NRPs.

## Open Hole SS3 Application

WWT recommended installing 90 Non-Rotating Protectors with NRPs installed from 479m to 1,340m MD at TD. This was the first open hole NRP application in Europe, but there have been over 100 successful open hole applications worldwide since SS3 model NRPs were first run in open hole in 2010.

## Torque Reduction Results, Operator Cost Savings

WWT NRPs reduced torque by 17% at TD, and the operator successfully avoided running a 7" contingency liner. Once NRPs were installed, actual torque was less than predicted torque modeled by the directional drilling company.



WWT Non-Rotating Protectors  
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