



WWT Non-Rotating Protectors

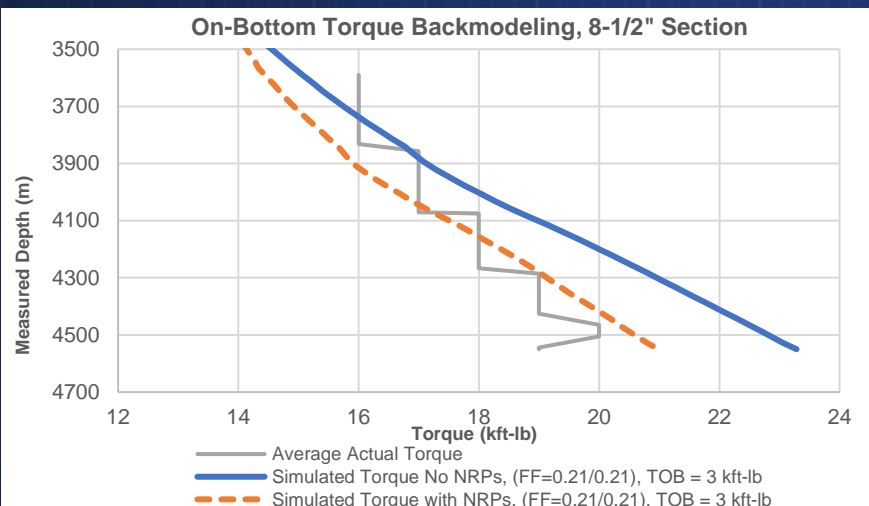
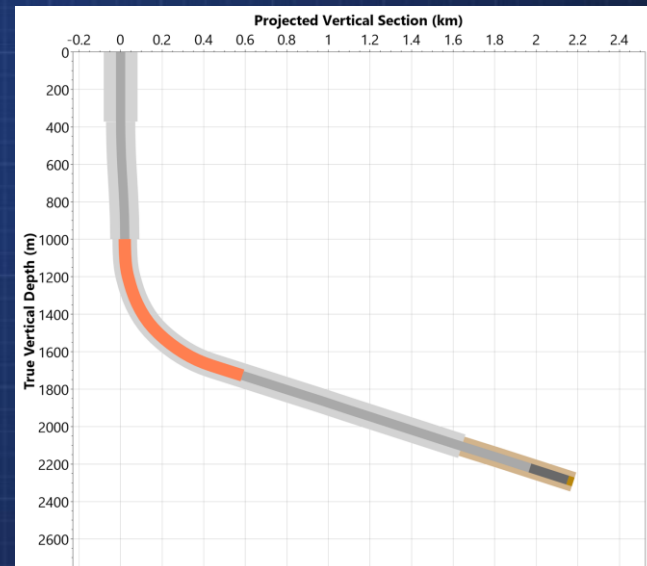
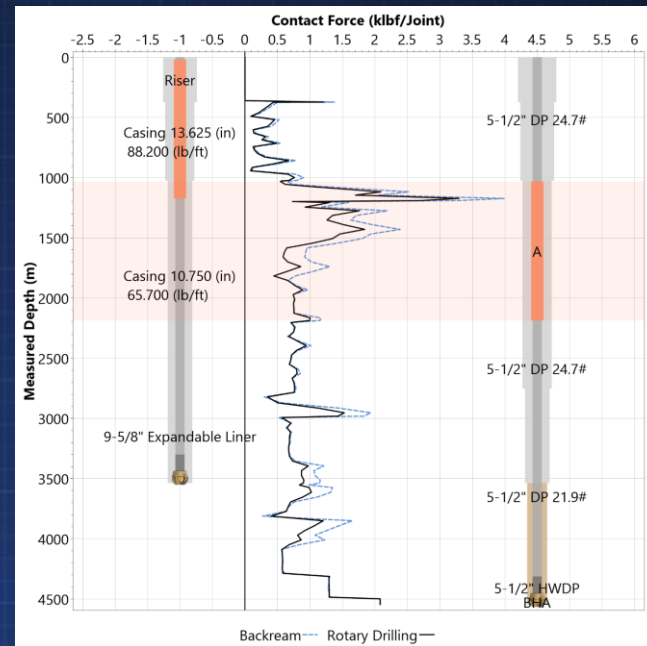
Torque Reduction and Casing Protection

Case History – Asia Pacific – 12828

Torque Reduction and Casing Protection in Unstable Hole Conditions

Executive Summary

A major international operator in Asia Pacific was drilling a directional well in deep water with a high directional angle that raised torque and casing wear concerns while drilling the 8-1/2"x10-1/4" and 8-1/2" sections and sidetracks. Actual operation required milling window and several cement plugs to attempt sidetracking the well until a successful 3rd attempt was achieved. In addition to these unexpected challenges, unstable hole conditions and large cavings were encountered. WWT Non-Rotating Protectors (NRPs) were utilized on the majority of these operations without any issues. 54-60 SS3-550 model NRPs were used while drilling the third sidetrack at a frequency of 1 every other joint.



NRP Performance

Despite encountering unstable hole conditions with cavings, great torque reduction by NRPs was analyzed. Post-job backmodeling indicates a **torque reduction** of:

- **10% at TD for the 8-1/2"x10-1/4" section**
- **13% at TD for the 8-1/2" section.**

NRPs also helped maintain casing integrity by covering the maximum side force of ~3,300 lb/joint while performing all the unplanned rotating operations for more than 1 million revolutions.

