# WWT Non-Rotating Protectors Reduce Torque and Improve ROP

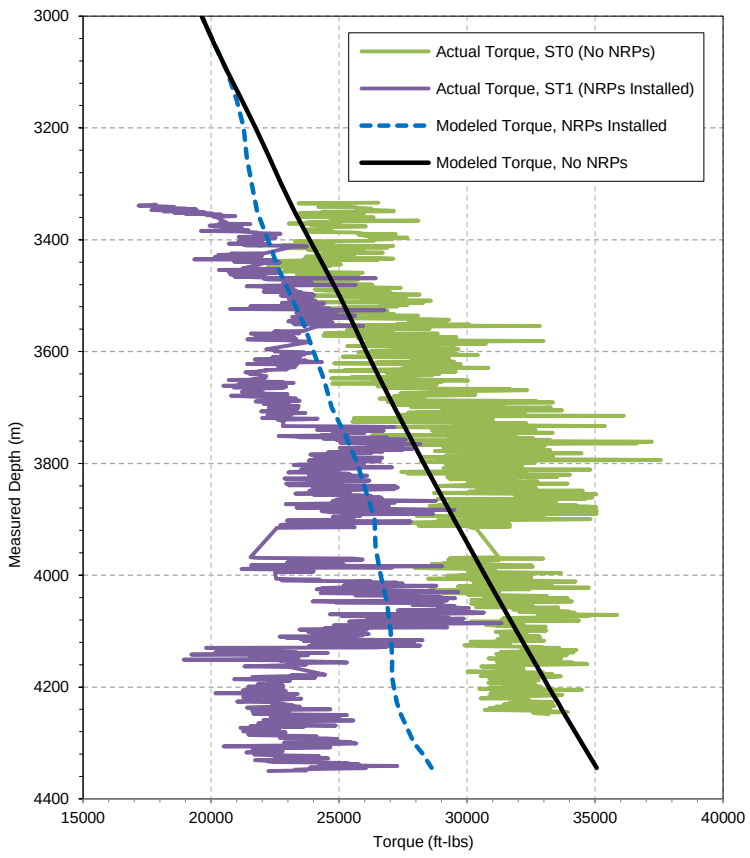
## High Torque on Original Wellbore

Operator experienced high torque while drilling the 8 ½" hole section. Before completion of the well, the BHA became stuck and the operator was forced to side track to reach the intended target, using a near identical well path.

## WWT's NRP Patented Fluid Bearing Reduces Torque

300m of WWT NRPs were installed at the top of the side track which produced a noticeable torque reduction compared to torque while drilling the original wellbore. As drilling continued, additional NRPs were added to the drill string increasing the torque reduction seen at the surface. The torque reduction was estimated by the customer to be greater than 30% at TD, keeping the drilling torque below the make-up torque of the drill pipe.

**Location:** Asia-Pacific
**Well Type:** Directional
**Objective:** Torque Reduction
**Solution:** WWT NRPs
**Results:** Immediate torque reduction upon installation of WWT NRPs




In addition to the torque reduction experienced, the casing was also protected due to the NRPs' ability to eliminate tool joint contact. Side-loads greater than 6,000 lbs/joint were modeled, which creates a high potential for casing wear. The increased risk of wear, due to the additional rotating hours for the sidetrack, was greatly reduced through the use of NRPs.

## Cost Savings

The well was successfully completed to TD while staying within rig and drill pipe torque capabilities. The availability of excess torque at the surface, due to NRPs, allowed the WOB to be increased which resulted in an improvement in ROP. Casing integrity was also maintained protecting the high side load areas with NRPs.