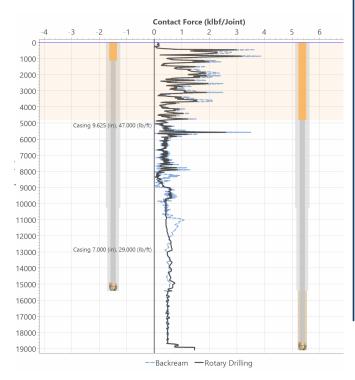
## Stabilized Torque with 25% Reduction with WWT Non-Rotating Protectors

## High Torque Expected While Drilling

An operator was expecting high torque while drilling the 8-1/2" and 6" section on a series of directional wells. WWT performed torque and drag analysis to identify the optimum coverage needed with WWT Non-Rotating Protectors (NRPs) for three similar wells in the same field.

## **High Torque Encountered**

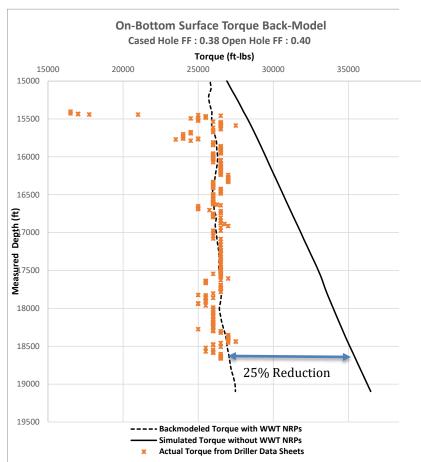
Shallow high DLS dictated that WWT NRP optimal coverage be near the surface. Relatively long bit run lengths meant that NRPs will be outside the critical area at the start of the run. High torque values reaching 27000 ft.lb were recorded at the start of the run.





**Location: Middle East Well Type: Directional** 

Objective: Torque Reduction Solution: WWT SS3-550 NRPs Results: 25% Torque Reduction



## **Torque Stabilized as NRPs Cover Critical Area**

As more NRPs went in hole and reached the recommended coverage areas, torque was stabilized at 25000-28000 ft.lb. Whereas torque without NRPs was expected to increase from 28000 ft.lb to reach 36000ft.lb at TD. This indicates a 25% reduction at the end of run.