



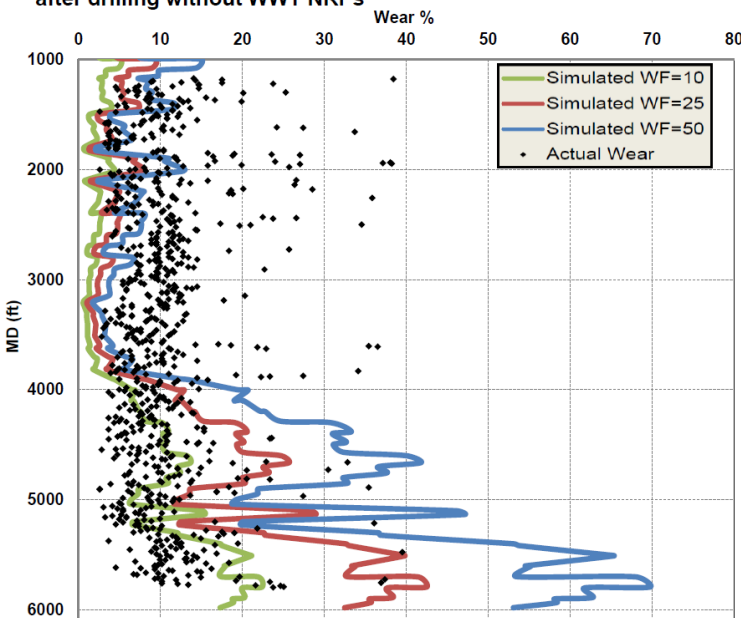
- **LOCATION:** Middle East
- **WELL TYPE:** Horizontal
- **OBJECTIVE:** Casing Protection
- **SOLUTION:** WWT NRPs
- **BENEFIT:** 7" liner protected from KOP to liner shoe throughout bit run

### Executive Summary

- A series of similar horizontal wells in the Middle East were drilled and showed significant wear on the 7" liner from kick off point (KOP) to liner shoe after drilling 6-1/8" sections without NRPs installed.

#### Casing Wear Analysis

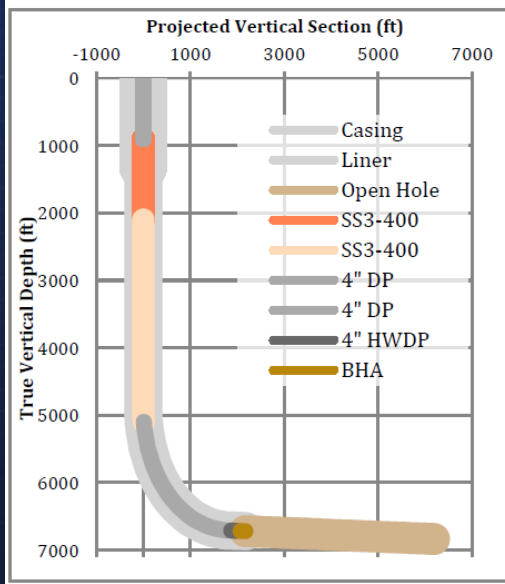
Actual wear and simulated back models of wear on the 7" liner after drilling without WWT NRPs



### Results

- NRPs were installed on the pipe racks prior to picking up the drill pipe. When drilling started, the bottom NRP covered the KOP region. The section was drilled in one 4,000 ft bit run and at the end of section, NRPs covered from KOP to liner shoe with the bottom NRPs going into open hole. Wear logs indicated casing wear with NRPs was lower than the previous wells at the KOP and build.
- After POOH the NRPs used in open hole showed no signs of damage or abnormal wear. The section was drilled in one run while protecting the area of concern without the need to reposition NRPs due to the ability to go into open hole.

#### Start of Run



#### End of Run

