



# WWT Non-Rotating Protectors

WWT Case History – North America  
JOB # 10517 20 NRPS

## Reduced Drill Pipe Wear with WWT Non-Rotating Protectors in Lateral Wells

**Location:** Permian  
**Well Type:** Lateral  
**Objective:** Reduce Drill Pipe Wear  
**Solution:** SS3 NRP's  
**Results:** Reduced drill pipe wear and torque

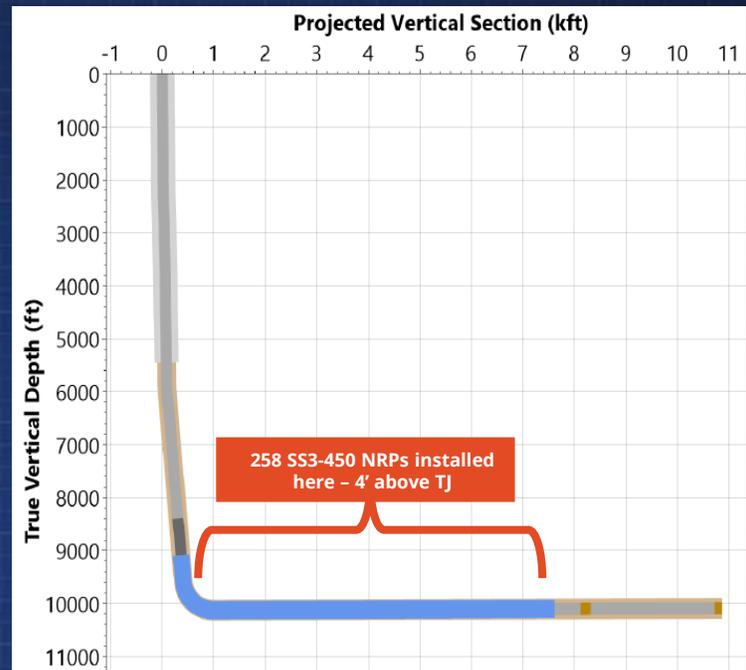
### Operator Concerns

The operator observed significantly worn drill pipe while drilling their 2-mile lateral Permian wells. The majority of drill pipe in open hole was downgraded or required re-hardbanding. For subsequent wells, WWT's Non-Rotating Protectors (NRPs) were deployed as a solution to prevent drill pipe wear by eliminating steel-to-formation contact between the tool joint and the open hole wellbore, while reducing torque and allowing WOB to be maintained

### NRP Performance

Standard NRP placement in laterals and open hole applications is to place NRP's mid-span of the drill pipe tube to provide a centralizing effect for buckling mitigation. However, for this application WWT installed 258 4-1/2" SS3 model NRPs 4ft above the tool joint to provide standoff to eliminate tool joint wear. Since the NRPs were near the tool joint, pipe body contact became a concern because gravity would sink the middle of the pipe while laying horizontally in the lateral. WWT analyzed the pipe body contact loads to be less than 200lbf, as the NRPs would endure most of the force per joint. After reaching TD, the joints were inspected at mid span due to observing some polishing. However, as WWT predicted, no wear occurred and the exact nominal value was measured. Furthermore, 100% of the NRP protected joints were in good condition after drilling the well. The unprotected pipe resulted in polished/smear tool joints requiring re-hardbanding.

WWT NRPs will be continually utilized to prevent pipe wear for similar wells going forward. The cost associated with NRPs were a fraction of the cost compared to damage charges and re-hardbanding tool joints. In addition, NRPs provided up to 29% torque reduction, while also mitigating drag, and vibration as supplementary benefits.



### With NRPs installed:

Hardbanding still pronounced and in similar condition prior to drilling lateral



### NO NRPs installed:

Hardbanding worn flush; removing tool joint wall

