

# WWT Non-Rotating Protectors Reduce Torque in Directional Well

## High Torque with WBM

Operator predicted high torque while planning to drill a directional well with water based mud (WBM). Thus torque reduction solutions were reviewed and selected prior to spudding the well.

## WWT's NRP Patented Fluid Bearing Reduces Torque

The intermediate casing shoe was set at approximately 5,100ft MD and rotary torque started approaching the limit of 5" S135 drill pipe when the decision was made to pull out of hole at 7,100ft MD to install NRPs. WWT Non-Rotating Protectors (NRPs) installed in the build and tangent sections reduced wellbore friction providing an immediate torque reduction. WWT's service hand continued installing NRPs at surface while drilling ahead to maintain torque within desirable limits and successfully TD the well.

## Operator Satisfied With the Results

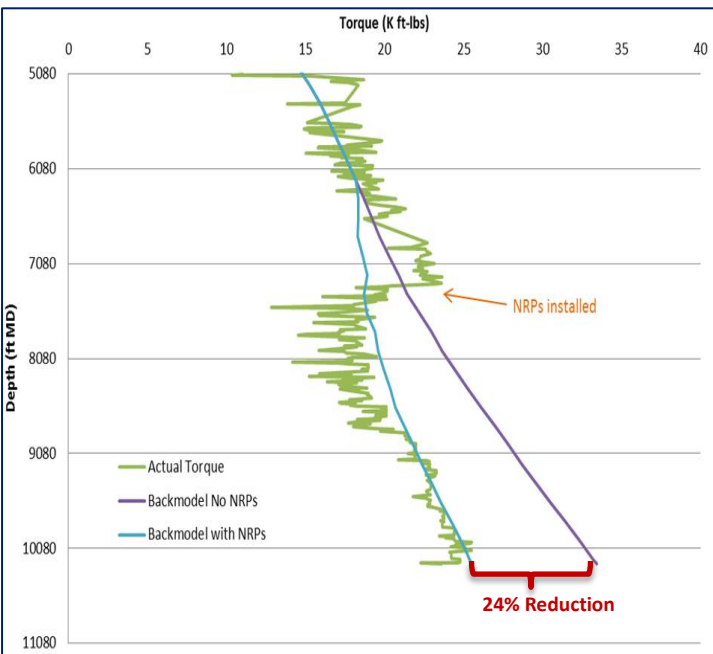
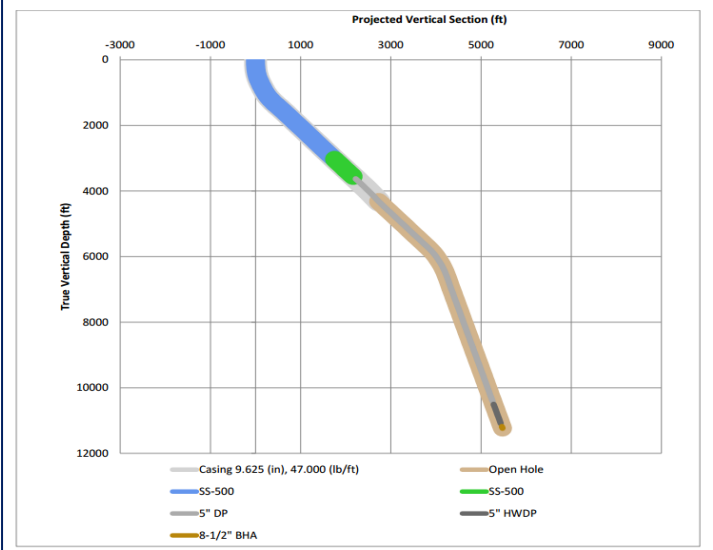
Torque was immediately reduced from approximately 25k ft-lbs to 17k ft-lbs upon installation of NRPs. The company man was very pleased with the performance of WWT's product commenting, "We would have never made it this far without WWT's NRPs".



**Location:** North America  
**Well Type:** Directional  
**Objective:** Torque Reduction  
**Solution:** WWT NRPs  
**Results:** Immediate 32% torque reduction upon installation of WWT NRPs

Vertical Section Graph @ End of 2000ft Run

Area of Concern Zone	Placement MD: Start of Run			Placement MD: End Of Run			Protectors Per Joint	Protector Quantity	Model
	Top	Bottom	Joints	Top	Bottom	Joints			
A	0	1500	48	0	3500	113	2	226	SS-500
B	1500	2300	26	3500	4300	26	1	26	SS-500



WWT Non-Rotating Protectors  
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