

Non-Rotating Protectors Allow Drilling Ahead with High Riser Deflection

Riser Deflection Limits Drilling Window

A semi-submersible rig drilling in 8,125ft (2,477m) of water experienced 110 hours with the lower flex joint (LFJ) differential angle greater than 0.5° and had to stop drilling ahead. Ocean currents caused riser deflection and elevated concern for stress in the riser and LFJ wear.

NRPs Reduce Concern of Wear

Installing SS-658-SC model non-rotating protectors (NRPs) through the deflected lower flex joint or ball joint reduced concern for wear. The NRP sleeve maintains standoff of the drill pipe tool joint. In 110 hours with the differential angle greater than 0.5°, drilling ahead for 43 hours was possible using NRPs. The table below was provided by the operator.

Date	Rotating Hrs.	Hrs. w/ Diff. angle >0.5°	Time Saved Hrs.
11-Feb	0.0		
12-Feb	0.0		
13-Feb	0.0		
14-Feb	0.0		
15-Feb	0.0		
16-Feb	7.0		
17-Feb	24.0	4	4
18-Feb	22.0		
19-Feb	5.0	8	5
20-Feb	0.0		
21-Feb	0.0		
22-Feb	0.0		
23-Feb	0.0		
24-Feb	0.0		
25-Feb	0.0		
26-Feb	2.5	8	2.5
27-Feb	13.5	14	13.5
28-Feb	6.0	12	6
1-Mar	2.0		
2-Mar	20.5		
3-Mar	24.0	24	
4-Mar	4.0	24	4
5-Mar	0.0		
6-Mar	8.0	16	8
Total rotating hours		138.5	
Total hours w/ Differential Angle >0.5°		110	
Total hours operating because of NRPs		43	



Location: North America
Well Type: Deepwater
Objective: Riser Protection
Solution: WWT SS-658-SC NRPs
Results: 43 hours saved while drilling

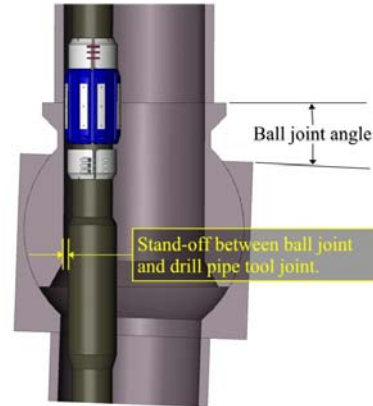


Figure 1. NRPs maintain tool joint standoff to reduce wear.

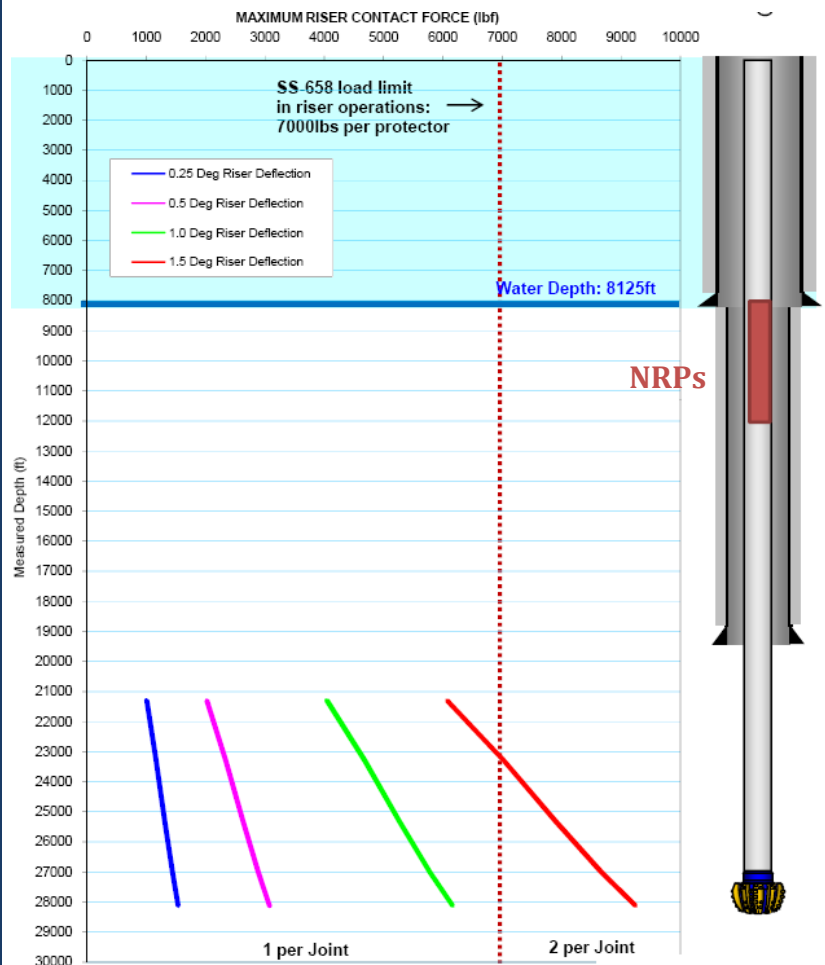


Figure 2. Maximum side force at various lower flex joint differential angles and bit depths.