

SPIRO-TORQ® CASE HISTORY #2

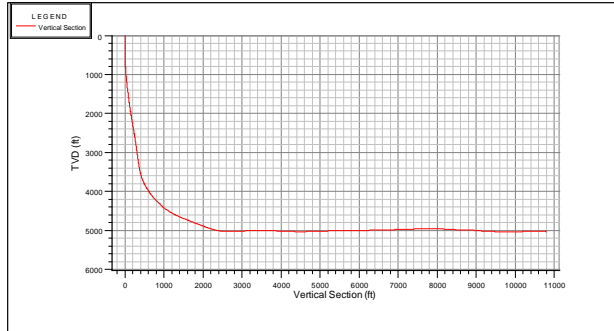
Development Well

Middle East

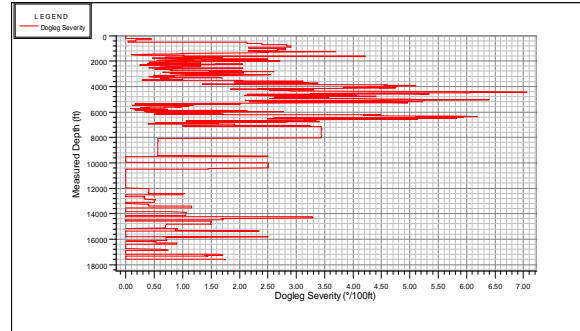


- Predicted Torque at TD higher than the make-up torque of the drillpipe (5" DP with NC-50 (4-1/2IF) connections).
- Limiting factor for the operation: the relatively shallow setting depth of the casing shoe (@ 6,190ft MD).
- To attain maximum torque reduction, the Spiro-Torq®s were run to provide full casing coverage at TD.
- Comparison of the actual torque data versus the expected increase in torque as the well was drilled (due to increased amount of drillpipe in the hole and all other factors remaining constant): the gradual introduction of Spiro-Torq®s resulted in a gradual increase in torque reduction as a percentage of the predicted total torque. This is in line with expectations- more Spiro-Torq®s added to the cased hole section, more torque reduction.

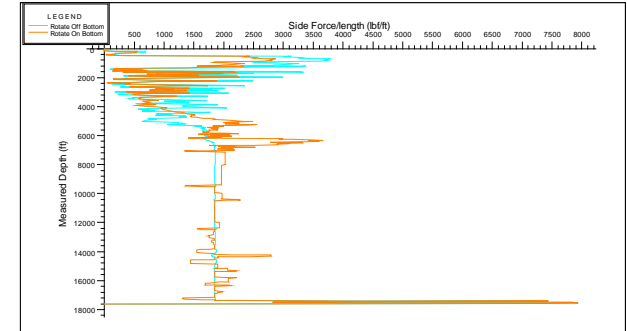
Vertical Section



Dogleg Severity



Side Forces



Torque versus Depth

