WWT International

Reach Farther
with unrivaled products
and engineering services.

Case study

NRPs Improve Drilling Efficiency by Reducing Mechanical Specific Energy

Across several wells and operators, WWT's Non-Rotating Protectors (NRPs) demonstrated strong performance in reducing energy consumption and improving drilling efficiency.

Mechanical Specific Energy

Mechanical specific Energy (MSE) refers to the amount of energy needed to remove/drill a certain volume of rock. While different sources use varying formulas to calculate the MSE from surface parameters, the value is an indicator for drilling efficiency. A lower MSE value indicates that less energy is required to drill an equivalent volume of formation, reflecting higher overall drilling efficiency.

Case Studies

MSE with different torque reduction tools in SEA:

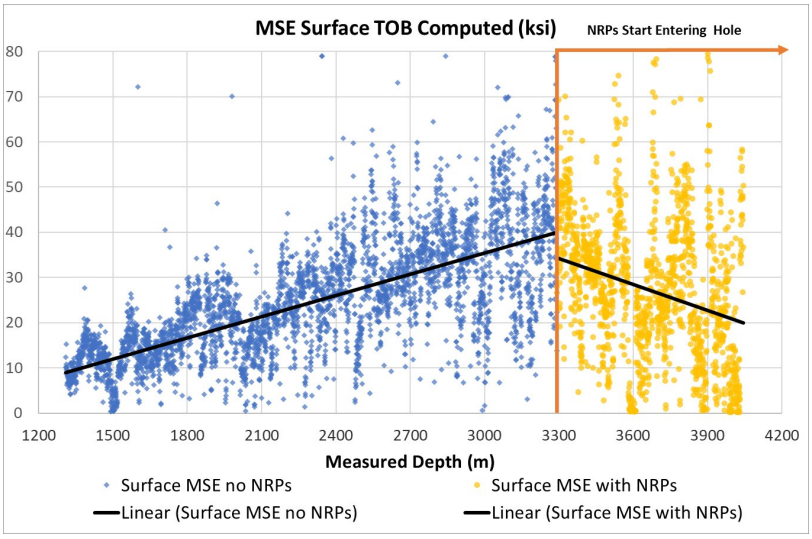
WWT NRPs performance was compared to other torque reduction tools on similar offset wells in the same field. WWT NRPs were superior on all fronts, including a lower overall MSE.

MSE drop between runs with and without WWT NRPs in the ME:

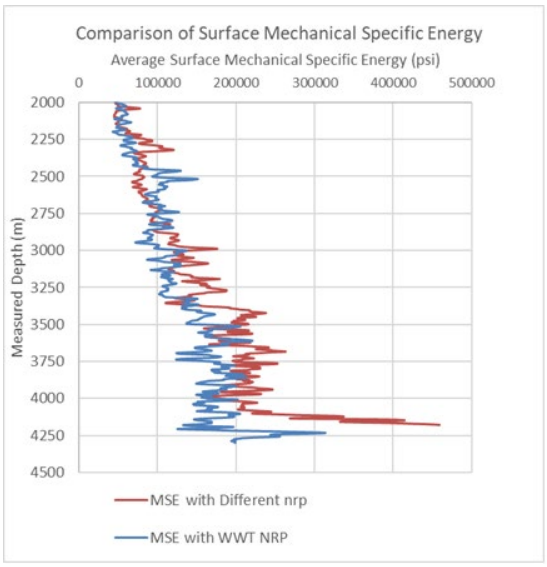
High MSE values averaging around 1500 psi were recorded on a first drilling run without WWT NRPs. A significant drop in MSE was recorded when WWT NRPs were used on the second run, averaging around 500 psi throughout the run.

MSE decrease as WWT NRPs gradually enter hole in SEA:

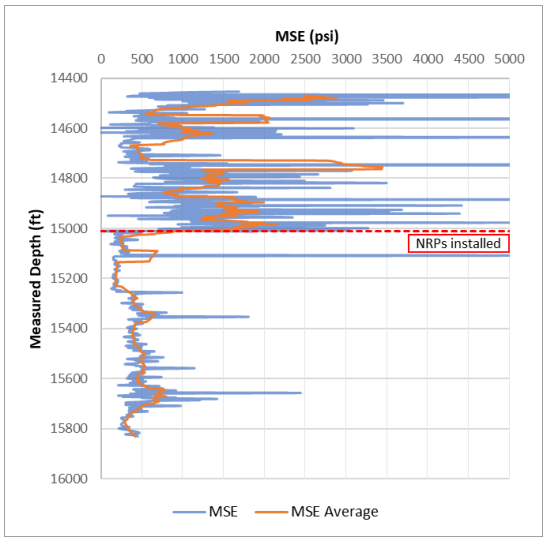
As WWT NRPs start entering the hole at around 3,300m, a shift in MSE trend was recorded. Overall MSE decreased as NRPs covered the critical areas despite reaching a deeper section where drilling usually becomes more difficult.



MSE trend shift as NRPs enter the hole in Southeast Asia



MSE with WWT NRP and different torque reduction tool in Southeast Asia



MSE before and after NRPs in the Middle East