

Paradigm Runner® Subs Reduce Torque and Improve ROP, delivering Outstanding Drilling Performance.

Overview

An operator in the Arabian Gulf had a 4 development well drilling program, with 8½" hole sections ranging 800-950 meters in length, with final inclinations up to 65 degrees and drilled to a total depth of approximately 5000 meters.

Challenge

Previous experiences were characterised by erratic and high drilling torque. The erratic torque effectively decreased drilling efficiency by reducing the ability to apply weight and consequently decreasing ROP. Maximum torque was limited by the rig top drive system at 35klb/ft and the erratic torque caused the TDS to repeatedly stall while drilling.

Solution

A torque and drag analysis identified the optimal placement of Runner® subs to reduce and stabilise torque requirements. As problems were experienced, 50 Runner® subs were placed in the BHA along the critical zones in the wellbore.

Result

- On two wells, halfway into the 8½" section, the torque exceeded the limits of the Top Drive. Introduction of Runner® provided immediate torque reduction of 25-40% and allowed both wells to reach TD with increased ROP.
- In the other two wells final torque was reduced by 11% and up to 40% along the build section
- The average ROP for all four wells increased by 36%. In one well 85 ft/hour ROP was achieved, a 73% improvement over the best offset well
- Lubricant use was cut by 50% in all 4 wells.
- The same tools were run over all four sections, including the logging and liner runs, for a total of 440 rotating hours.

Value to Client

- The Runner® solution enabled the four well campaign to be completed to planned TD with reduced torque and greater directional control.
- The average ROP improvement of 36% saved the operator significant rig time.



The Runner® are designed to reduce parasitic torque and vibration in high angle and horizontal wells. They also protect the casing against wear.

Paradigm utilises Sysdrill® and when provided with the proposed well data and trajectory can optimise numbers and placement of Runner® subs.

Main Features / Benefits

- Minimises torque and vibration
- Minimises casing wear
- Enhances drilling efficiency

