

ACTive Services and Neyrfor TTT Turbodrill Increase ROP by 200% During CT Drilling Operation

Combined technologies lower costs for Wintershall by improved ROP while reversing production decline in sour fractured carbonate reservoir

CHALLENGE

- Improve efficiency of CT drilling while preserving sour fractured carbonate reservoir.
- Compare performance of positive displacement motor (PDM) with proposed technological solution.

SOLUTION

Optimize drilling performance by combining ACTive* family of live downhole coiled tubing services, Neyrfor TTT* thru-tubing turbodrill, and a 2.28-in Kinetic* diamond-impregnated bit in real time.

RESULTS

Tripled average ROP using combined technologies when compared with conventional PDM drilling.



Wintershall needed to enhance production in sour fractured carbonate reservoir

Conventional workovers or sidetracks in depleted wells are often not economically viable. In addition, killing a heavily depleted well can cause formation damage and decrease productivity. CT drilling techniques can significantly lower costs per drilled footage and enable the ability to work in a live well, which can make drilling in depleted wells economically attractive.

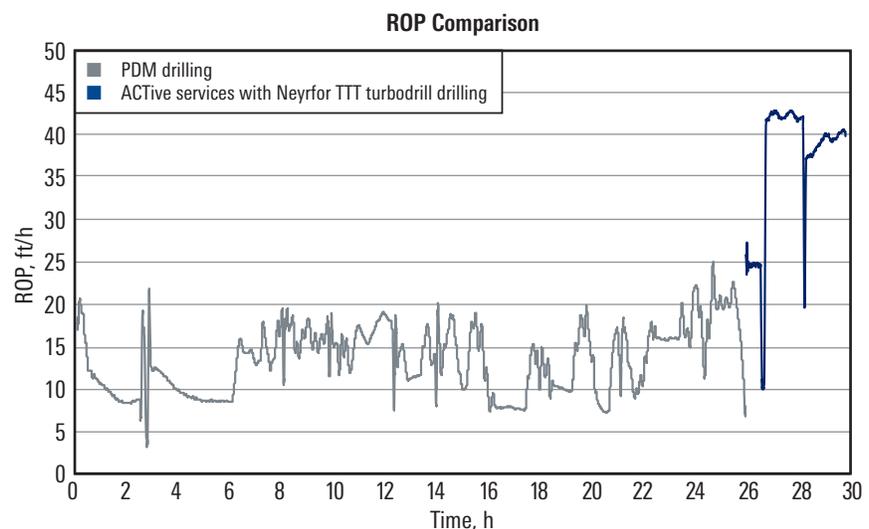
Real-time CT with turbine enabled improved drilling operation

The ACTive PTC* live CT pressure, temperature, and casing collar locator tool and ACTive TC* live CT tension and compression tool combined with the 2.125-in Neyrfor turbodrill and the 2.28-in Kinetic bit were run as part of the drilling BHA. Real-time downhole weight and torque monitoring was key to optimize drilling performance.

The 2 $\frac{1}{8}$ -in-OD Neyrfor TTT turbodrill has an all-metal construction, providing efficient, high-speed drilling capability with greater durability to avoid additional trips out of hole. The turbodrill also drills a smooth borehole and less weight on the bit is required to drill, which ultimately increases drilling length before CT buckles.

Combined technologies improved production and cost efficiencies

The BHA helped Wintershall triple ROP compared with previous PDM drilling on CT. This technique reduced drilling time and costs, increased versatility toward drilling fluids, and enhanced reservoir knowledge through the use of distributed temperature sensing postdrilling.



The ROP using ACTive services combined with Neyrfor TTT thru-tubing turbodrill (blue) is on average three times higher than that using a PDM.