

Case study: Middle East

AutoTrak eXact RSS enabled optimum wellbore placement, record drilling performance in thin reservoir layer

A major operator in the Middle East was drilling a 6 1/8-in. hole in a reservoir that was only 5 ft (1.5 m) thick at true vertical depth (TVD). Drilling into such a thin reservoir layer requires precise navigation and wellbore positioning.

To meet this challenge, Baker Hughes deployed the 4 3/4-in. **AutoTrak™ eXact high-performance rotary steerable system (RSS)**, a system that combines the ability to provide advanced logging-while-drilling (LWD) services with the ability to drill high buildup rates (BUR), eliminating the need to compromise between the two. The AutoTrak eXact RSS also supports the full suite of Baker Hughes’s advanced LWD services, ensuring informed geosteering decisions and enabling real-time formation evaluation (FE).

The bottomhole assembly included the **LithoTrak™ bulk density and neutron porosity** and the **StarTrak™ high-resolution electrical imaging services**,

providing real-time, high-resolution bulk density and neutron porosity along with high-definition resistivity imaging.

Drilling in this formation commonly causes high torque and torsional stick/slip. To reduce drilling torque, mitigate destructive drilling vibrations, and enable unrestricted drilling parameters, the drilling fluid was treated with the Baker Hughes **TEQ-LUBE™ II environmentally acceptable lubricant** for water-based drilling fluid.

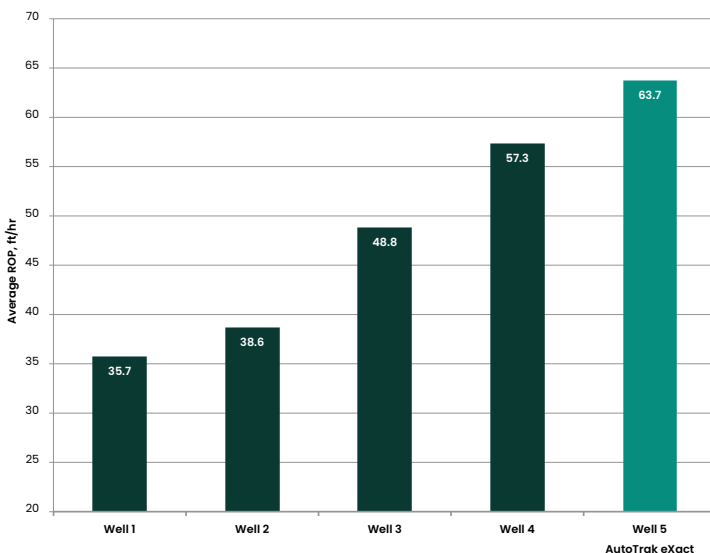
The well was landed precisely in the thin reservoir layer before drilling a 2,896-ft (883-m) long lateral section in one run to total depth (TD). The use of the AutoTrak eXact RSS enabled the operator increase the rate of penetration (ROP), exceeding the previously established field speed record by 11%.

Challenges

- Land and geosteer the well within a thin reservoir layer
- Mitigate high torque and torsional stick/slip

Results

- Drilled 2,896-ft (883-m) lateral section in one run to TD
- Geosteered successfully within a narrow TVD window
- Landed well precisely in a 5-ft (1.5-m) thin reservoir layer
- Exceeded ROP field record by 11%
- Delivered a high quality wellbore in record time



AutoTrak eXact RSS enabled operator to increase ROP by 6.4 ft/hr (1.9 m/hr), exceeding the ROP field record by 11%.