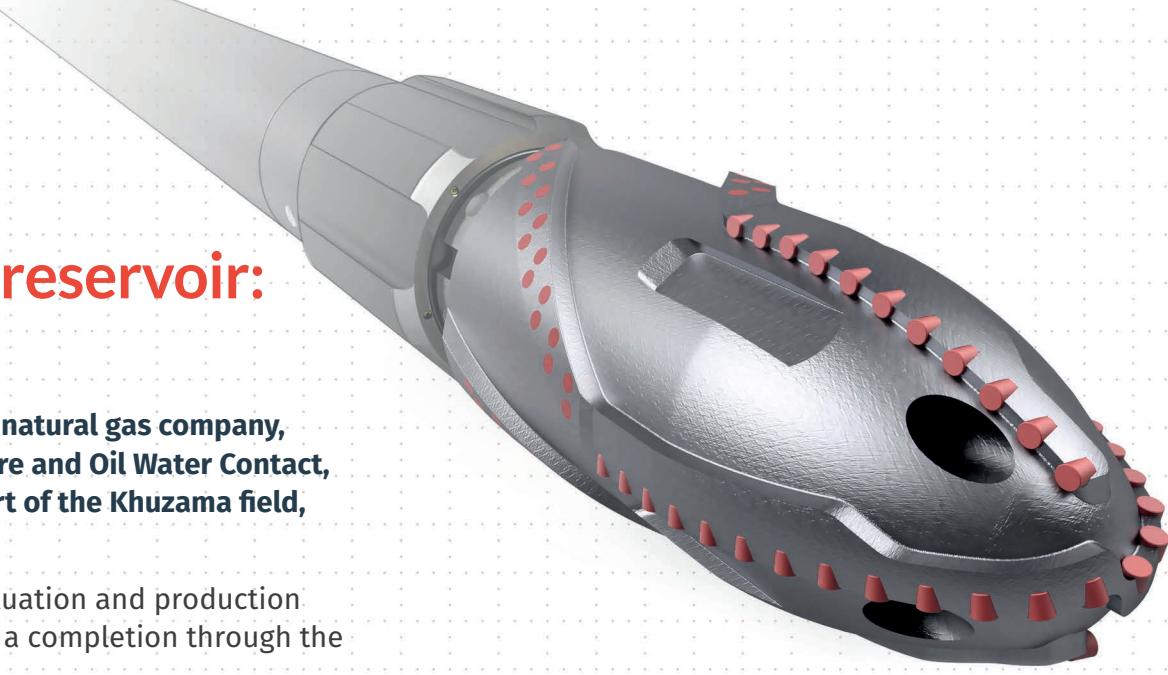


Saudi Aramco Unza reservoir: First Lateral

Saudi Aramco, a national petroleum and natural gas company, planned to confirm the reservoir structure and Oil Water Contact, using a well located in the northwest part of the Khuzama field, near Riyadh.

The KHZM-3 is a dual lateral well for evaluation and production purposes. Saudi Aramco intended to run a completion through the pilot hole for this well.



THE CHALLENGE

To reach Target Depth, in the first lateral, with the lower completion.

After drilling Lateral-1 to a depth of 11,091 ft MD, Saudi Aramco attempted to run the lower completion, and established it was not possible to reach the bottom.

To facilitate achieving further depth, they decided to Pull Out of Hole, and attempted to condition the hole by running with a stiff Bottom Hole Assembly. However, this only allowed access to a depth of 10,458 ft.

During this stage, many tight spots were encountered, and six days were spent reaming.

THE SOLUTION

Saudi Aramco now required alternative reaming to get to Target Depth, and selected the TurboRunner™ from Deep Casing Tools.

It was not possible to run with a conventional reamer shoe, due to the design of the lower completion. Saudi Aramco needed an innovative reaming approach to successfully run their completion.

String rotation was not an option and deploying the TurboRunner™ meant the washing and reaming of the tight spots could be achieved without any rotation.

THE RESULT

The TurboRunner™ successfully allowed the completion to reach Target Depth.

The tool was operated at various intervals and allowed Target Depth to be achieved first time. The tight spots were easily navigated past, because the TurboRunner™ effectively washed and reamed past any obstructions.

Significant cost savings were achieved, because no further hole conditioning or wiper trips were required.

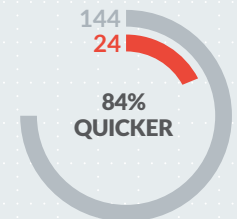


IN NUMBERS

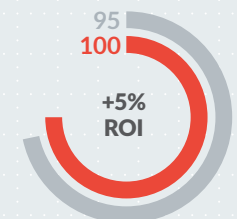
- Conventional Technology
- TurboRunner™



ACHIEVED TD FIRST TIME
Removing the need for any further hole cleaning and wiper trips with conventional technology.



120 HOURS SAVED
on additional runs to achieve TD. Saved \$85,000 additional rig and wiper trip costs.



ADDITIONAL PRODUCTION
Ensured ROI by delivering the required final 633ft to TD the well.