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Bed Boundary Mapping Keeps 82.3% of Well in 11-ft Sand

Case study: West Texas operator maximizes production by using proactive steering to put Permian Basin horizontal section in best place in less time

Challenge

Improve well placement and reduce drilling time in 11-ft-thick reservoir sand with variable dip and minor faulting.

Solution

Steer well proactively using PeriScope* bed boundary mapper and PowerDrive X5* rotary steerable system.

Results

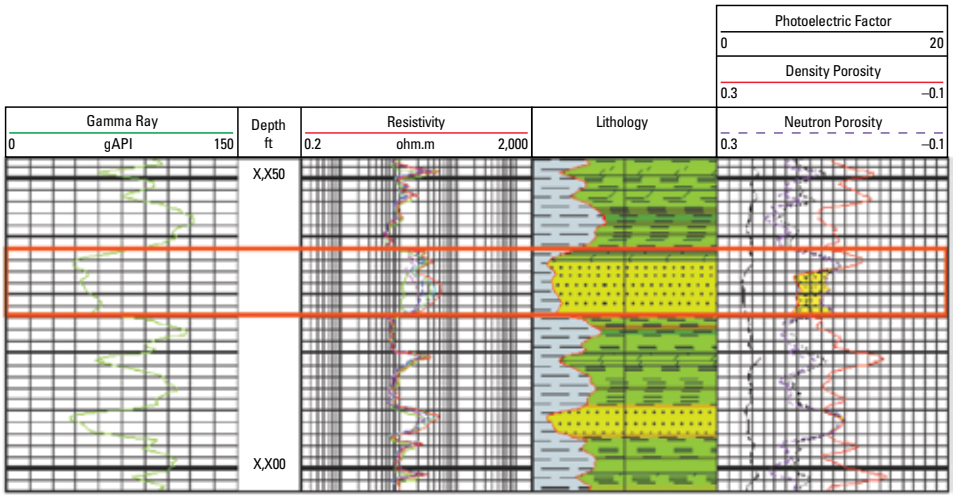
Maximized production by keeping 82.3% of horizontal section within target sand. Cut well cost by reducing drilling time 50%.

Stay in the zone

An independent operator in West Texas wanted to maximize reservoir contact and reduce drilling time for a well targeting an undulating 11-ft-thick sand in the Permian Basin. Due to the sand's variable dip and minor faulting, previous drilling had resulted in low well footage placed within the target, and the exits from the sand had slowed ROP.

Steer proactively

The operator improved both reservoir contact and ROP, compared to previous wells, by using a BHA with a PeriScope bed boundary mapper and a PowerDrive X5 rotary steerable system (RSS) to proactively steer the horizontal reservoir section. Because the PeriScope mapper's deep, directional measurements gave early warning when the wellbore approached the reservoir's boundaries, the drilling team was able to avoid exiting the 11-ft target zone and maintain a high ROP.



The well targeted the 11-ft-thick sand delineated by the red lines on this pilot well log.

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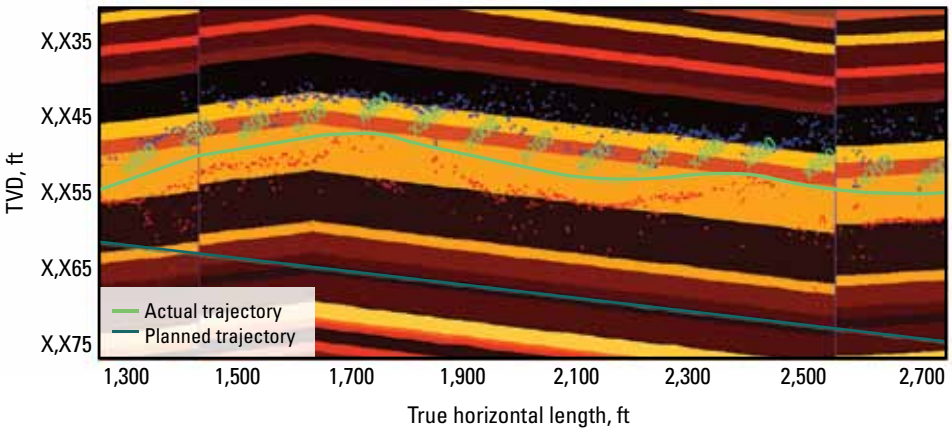

Real-time PeriScope bed boundary mapping enabled the operator to place 82.3% of the horizontal section within the 11-ft-thick target sand—despite structural dips and faults.

Using the PeriScope bed boundary mapper and PowerDrive X5 RSS to proactively steer the well enabled the operator to place 82.3% of the horizontal section within the target zone and reduce drilling time 50%.

Reservoir exposure

Proactive steering using the PeriScope bed boundary mapper and PowerDrive X5 RSS enabled the operator to maximize production by placing 82.3% of the horizontal section within the 11-ft-thick target sand—despite encountering dips and minor faulting. In addition, the higher ROP achieved by avoiding reservoir exits cut drilling time 50%, compared to previous wells, which significantly reduced well cost.

Contact your local Schlumberger representative to learn more.

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