

Case study: Reeves County, Texas (Permian Basin)

Navi-Drill Ultra HP XXL/VS motor bested rival motors, completed intermediate section in one run

An operator in Reeves County, Texas, needed to drill a 12¼-in. intermediate section through the various and difficult lithologies of the Permian Basin. The operator deployed a mix of third-party motors of various sizes (8-in., 9½-in., and 9⅝-in.) and each instance resulted in multiple runs. Frustrated with the delays, the operator challenged Baker Hughes to drill the intermediate section with a conventional bottomhole assembly (BHA) in one run.

Baker Hughes accepted the challenge and recommended the new 9½-in.

Navi-Drill™ Ultra™ HP XXL/VS motor.

The latest addition to the Baker Hughes motor fleet, the HP XXL/VS motor introduces a power section that applies this motor technology in extended lengths to elevate the performance in differential pressure and torque production of the previous iterations of this motor. Using a lower bit speed motor effectively manages vibration and allows a longer bit life drilling through the various lithologies. Additionally, the high performance (HP) elastomer has an improved oil-based mud resistivity, increasing performance in harsh conditions and extending run length.

Field personnel tripped the BHA, anchored by the Navi-Drill HP XXL/VS motor, into the 12¼-in. wellbore and drilled 8,482 ft (2585 m) in 124 circulating hours and 108 drilling hours. The average on-bottom rate of penetration (ROP) was 79 ft/hr (24 m/hr). The intermediate section was drilled in one run with no motor stalling being reported during the deployment.

By managing the drilling parameters through the various lithologies, Baker Hughes enabled longer bit life. The Navi-Drill Ultra HP XXL/VS motor deployment saved 2.8 days for the operator.

Challenges

- Drill 12¼-in. intermediate section with conventional BHA in one run
- Overcome various lithologies associated with the region

Results

- Drilled to a total depth of 8,482 ft (2585 m) in one run
- Saved 2.8 days
- Experienced no health, safety and environmental (HSE) issues or nonproductive time (NPT)