

Case study: Middle East

# Remote operations supported introduction of new drilling motor, drove operational efficiency, consistency

A large Middle East operator was experiencing difficulty maintaining steering control and build-up-rates (BUR) while drilling a curve section through an interbedded formation. In addition to the curve's challenges, extensive Anhydrite deposits impacted the field's overall rates-of-penetration (ROP) and compromised steering control elsewhere.

Baker Hughes proposed the deployment of a new motor—the **Navi-Drill™ DuraMax high-performance downhole motor**—for increased horsepower, torque, and durability. The company also recommended an optimized bent housing to ensure the operator could achieve the required BUR while reducing the number and duration of slide intervals.

Following the company's new product introduction process, which dictates the access to specialized expertise for initial deployments of new technology, Baker Hughes determined that these applications would benefit from **Remote Operations Services (ROS)** oversight.

Baker Hughes ROS provided real-time, 24/7 monitoring and optimization from a support center in the region. The ROS team collaborated with the operator and the wellsite personnel to drill the

2,506 ft (764 m) curve section with an average of 36.75 ft (11.2 m) per hour. This represented a 30% improvement in the field's average ROP for that section. The ROS team also played a critical role in making sure the wellsite crew could safely apply up to a 1,000 psi (6.9 MPa) differential pressure while rotating.

The teams worked together to ensure that the new motor/housing combination could achieve the desired BUR of >13°/100 ft (31 m) which was significantly higher than possible with the earlier-generation tools. The teams were also able to leverage the new technology to reduce sliding intervals by 18% while maintaining the same dogleg requirements as the offset wells. In addition, the new motors also improved instantaneous ROP by 64% across the formations containing the interbedded Anhydrite.

Every day, Baker Hughes ROS teams collaborate with our customers to deliver flawless, real-time execution of jobs while ensuring proper pre- and post-well planning—accelerating learnings and the adoption of best practices. And now, Baker Hughes is delivering an ever-increasing number of services remotely to ensure high-quality, efficient, and consistent performance everywhere it operates.

## Challenges

- Improve ROP across curve section
- Mitigate interbedded formation affecting steering and BUR in curve
- Increase overall ROP and steering control
- Minimize health, safety and environmental (HSE) risks

## Results

- Drilled 2,506 ft (764 m) curve section with average ROP of 36.75 ft/hr (11.2 m/hr)
- Increased ROP in the curve section by 30%
- Achieved BUR >13°/100 ft (31 m)
- Reduced sliding intervals by 18%
- Recorded 64% improvement in instantaneous ROP across Anhydrite-laden formations
- Improved field average ROP by 30%
- Achieved superior HSE results