AutoTrak Curve RSS drilled over 4 miles in 4 days in the DJ Basin

An operator in Colorado’s DJ Basin in Weld County wanted to drill an 8.75-in. monobore with a 21,900 ft interval in one run. Monobore wells in the DJ basin are defined as drilling the vertical, curve and lateral sections in one hole size starting below the surface casing. This long monobore would enable a 15,000 ft lateral section in the Niobrara shale, significantly expanding the reservoir contact compared to previous wells. The previous record for a single run in the area was 18,960 ft.

Building on steady gains in drilling performance in the BJ Basin, the Baker Hughes, a GE company (BHGE), team combined its prewell planning and drilling optimization expertise, remote drilling capabilities and the proven AutoTrak™ Curve high build rate rotary steerable system (RSS) to achieve precise wellbore placement and drill a 21,954 ft high-quality wellbore in one run.

The AutoTrak Curve RSS with its continuous proportional steering method overcomes the inefficiencies of conventional motor bottom hole assemblies (BHA) that generate high torque and drag due to their slide-rotate steering mechanism. Continuous proportional steering maintains superior control and delivers a smooth, in-gauge hole, resulting in fast, trouble-free runs.

The AutoTrak Curve RSS drilled the vertical section, maintaining an average of 0.12° inclination. The curve section was drilled with a 12.4°/100 ft build rate. The lateral section was drilled to a total length of 15,408 ft (4785 m) and stayed within a 10 ft target window. The total run length of 21,954 ft (6.7 km or 4.1 mi) was drilled in 93 hours.

The BHGE drilling team used remote operations for the night MWD/LWD supervision and sustained more than a Mile-a-Day drilling for 3 straight days, averaging 5,900 ft (1798.3 m) per day. The AutoTrak Curve system maintained precise direction and control, with no stuck pipe incidents or non-productive time (NPT).

This outstanding performance was achieved on the first attempt to drill a monobore exceeding 21,000 ft in this area. The operator was extremely satisfied with BHGE’s ability to deliver Mile-a-Day drilling in the DJ Basin and is committed to deploy the system in their future long monobore wells.

Challenges
- 21,900 ft vertical, curve and lateral to be drilled in one run
- Extend reservoir contact to 15,000 ft

Results
- Drilled a total of 21,954 ft in one run in less than 4 days
- Maintained an average verticality of 0.12° inclination
- Drilled a 12.4°/100 ft curve section
- Stayed within a 10 ft window in the 15,408 ft lateral
- Averaged more than a Mile-a-Day drilling on 3 consecutive days

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