

HyperLine™ 250 Motor, Optimized BHA Drilled Challenging Sidetrack in a Single Run, Set New Benchmark for Horizontal Wells in North Iraq



The 12 1/4-in. section redrilled and landed, achieving all set objectives, and the 9 5/8-in. casing was run to bottom and cemented successfully.

Objectives

- Reduce the number of planned trips from three to one.
- Complete the sidetrack and drill to section total depth (TD) with the same bottomhole assembly (BHA) through a challenging formation sequence.
- Run 9 5/8-in. casing to bottom and cement.

Our Approach

- In the original wellbore, instability from extended exposure prevented the 9 5/8-in. casing from reaching the bottom. As such, the drilling strategy evolved based on Weatherford’s local drilling experience, performance drilling, and risk assessment process.
- The original plan called for a dedicated sidetrack BHA and then follow up with a second and third BHA to complete the section.
- Weatherford proposed to deliver the section in a single run—from sidetrack to TD—with the HyperLine 250 drilling motor. The HyperLine motor combines the latest elastomer technology, design, and manufacturing to nearly double the operating torque and power output of standard motors, making it capable of producing a higher-pressure differential.
- The BHA also featured the HEL™ hostile-environment logging measurement-while-drilling system and the MFR™ multi-frequency resistivity sensor.

LOCATION

North Iraq

WELL TYPE

Horizontal oil producer

FORMATION

Chia Gara – Shale/Clay Basarin - Limestone

HOLE SIZE AND ANGLE

- Unstable shale/clay (Chia Gara) through build section from 60° to 83°
- Maintain 83° to section TD through Basarin Limestone

LINER SIZE

9-5/8 in.

TEMPERATURE

118°F (48°C)

PRESSURE

950 to 1,100 psi (6.5 to 7.5 MPa)

EQUIVALENT MUD WEIGHT

4.2 to 5.7 ppg

TOTAL VERTICAL DEPTH

2,788 to 5,741 ft (850 to 1,750 m)

FOOTAGE DRILLED

2,417 ft (737 m)

OPERATING HOURS

130.5

DRILLING HOURS

71.3

AVERAGE ROP

33.7 ft/hr (10.3 m/hr)

PRODUCTS/SERVICES

- Drilling services
- HyperLine 250 drilling motor
- HEL hostile-environment logging measurement-while-drilling system
- MFR multi-frequency resistivity sensor



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Our Approach (continued)

- Weatherford experts replanned the execution phase using a single-motor BHA in order to reduce wellbore exposure time and mitigate wellbore instability as the primary drilling hazard.
- The drilling operation was a complete success, drilling the section in 5.43 days. The 9 5/8-in. casing was successfully run to bottom and cemented.

Value to Customer

- Weatherford expertise, experience, and technology achieved all the objectives and set a new drilling record for the customer: the second horizontal-only well in this field building to 82° in this hole size.
- The primary objectives—run 9 5/8-in. casing to bottom and cement—were successfully achieved.
- Weatherford experts recognized wellbore time exposure was the primary challenge and channeled their expertise to analyze all factors involved—from the bit to the simplification of the BHA—to produce the optimal BHA design.



The HyperLine 250 motor allows a true one-trip exit to be executed with a mud motor in the BHA. Without this integrated feature, additional trips to the installation are required before the job can even start. The larger the daily-spread rate, the higher the reward is in the reduction of installed cost.

