Magnus® RSS Achieved Longest 12 1/4-in. Sidetrack Run in Field to Date, Saved 7 Days of Drilling Time

Objectives

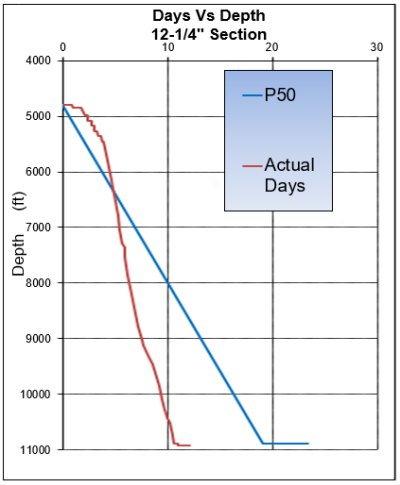
- Drill from a whipstock set in 13 3/8-in. casing in soft Tertiary formations and complete section drilling through hard chalk formations.
- Kick off successfully from main bore.
- Overcome challenging directional profile with anti-collision.

Our Approach

- The Weatherford team recommended an integral solution, including the 950 Magnus rotary steerable system (RSS).
- The strategy included using the Magnus RSS on a second bit run through the chalks which is typical for this field. Based on previous offset wells, the main challenges for this section were fluid losses, wellbore stability, abrasive wearing, and vibration.
- The team engaged with the customer throughout, from design, execution, evaluation, and optimization stages. This included detailed hydraulic analysis to maximize the RSS directional performance from previous offset wells.
- The well profile was S-shaped with a 3 to 3.5°/dogleg severity (DLS) requirement, the maximum inclination building to 40° and turning a total 246° azimuth from kickoff to section total depth (TD).
- Drilling parameters were managed in real time to optimize drilling performance, with 24/7 operational support by the Weatherford Real-Time Operations Centre (RTOC) and monitored in the real-time viewer of the CENTRO™ well construction optimization platform. This included real-time survey correction for anti-collision monitoring with a Gyro single shot survey across the first 500 ft (152.4 m) measured depth (MD), and SAG and multi-station analysis (MSA) corrections to the MWD surveys.

Value to Customer

- The Magnus RSS drilled a total footage of 6,080 ft (1,853 m) across the section, maintaining a rate of penetration (ROP) average of 50 ft/hr (15.2 m/hr).
- The optimized efficiency saved the customer 7 days of drilling time and eliminated the requirement for a second bit run.
- The Weatherford solution met all directional objectives—drilling from a 13 3/8-in whipstock to the Hidra formation in one run—achieving the longest drilled run in the 12 1/4-in. section to date in the field.



The robust, modular construction of the Magnus RSS helped the operation drill reliably, maintain trajectory, and reach TD faster without the requirement for a second bit run.

LOCATION
North Sea, United Kingdom

WELL TYPE
Offshore, production

FORMATION
Balder, Andrew, Maureen, Ekofisk, Tor, Flounder, Herring, Plenus Marl, Hidra

HOLE SIZE AND ANGLE
12 1/4-in. whipstock, S-shape, Inclination (31° building and holding to 40° before dropping to 11°) and azimuth (206° turning to 92°)

FOOTAGE DRILLED
6,080 ft (1,853 m)

PRODUCTS/SERVICES
- Magnus RSS
- IDS Integrated directional sonde
- HEL™ hostile-environment-logging measurement-while-drilling system
- BAP™ bore and annular pressure sensor
- HAGR™ high-temperature azimuthal gamma ray tool
- TVM total vibration monitor
- CENTRO well construction optimization platform
- Drilling Engineering services

Weatherford®