

Magnus[®] Rotary-Steerable System Achieved Longest 12 1/4-in. Sidetrack Run of an Extended Reach Well in Field, Saved 26 Days of Drilling Time

Objectives

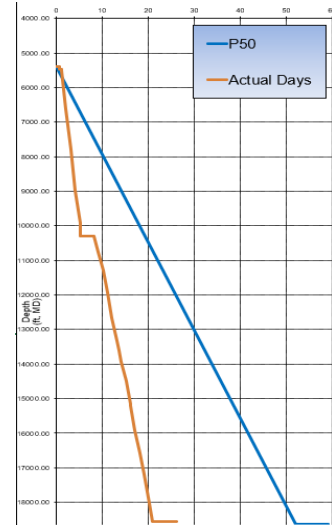
- Drill from whipstock set in 13 3/8-in. casing in softer Tertiary formations and finish section drilling through hard chalk formations.
- Kick off successfully from main bore and overcome directional challenging extended reach drilling (ERD) profile, with anti-collision, torque and drag (T&D), and hole cleaning.
- Drill a quality borehole with minimum tortuosity.

Our Approach

- The Weatherford team recommended an integral solution, including the 950 Magnus RSS. The strategy included using the Magnus RSS on a second bit run through the chinks which was typical for this field.
- Based on previous offset wells, the main challenges for this section were fluid losses, wellbore stability, abrasive wearing, and vibration when transitioning from soft tertiary sandstones to hard chinks.
- 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 due to the length of the section.
- The well profile was S-shaped with a 2.8°/dogleg severity (DLS) requirement, the maximum inclination building to 74° and turning a total 45° azimuth from kickoff to section total depth (TD).
- Drilling parameters were managed in real time, to optimize drilling performance, overcoming T&D challenges through abrasive formations along with ECD and ESD values monitored, and a controlled drilling ROP of 45 ft/hr (14 m/hr) to optimize hole cleaning requirements.

Value to Customer

- The Weatherford solution met all directional objectives—drilling a total footage of 13,150 ft (4,008 m) across the section, achieving the longest drilled run in 12 1/4-in. to date in the field.
- The change from an AFE plan of 5 runs to a 1-bit run saved 26 days, saving the customer approximately \$5.2 million USD.
- The 9 5/8-in. casing was successfully run to the section TD.



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, ERD

HOLE SIZE AND ANGLE

12 1/4-in. whipstock, S-Shape, inclination (36° building and holding to 74° and azimuth (178° turning to 223°)

FOOTAGE DRILLED

13,150 ft (4,008 m)

FORMATIONS DRILLED

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

PRODUCTS/SERVICES

- Magnus rotary-steerable system (RSS), powered by turbine generator
- 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 Real-Time Operations Centre (RTOC)

