

Victus™ Intelligent MPD Solution Delivers Infill Well Through Severely Depleted Reservoir, Cuts 25 Days Off AFE Budget for North Sea Operator

Objectives

- Drill within a narrow pressure window and cement liner in a severely depleted reservoir.
- Maintain constant bottomhole pressure (CBHP).
- Detect and control formation fluid influxes.
- Minimize mud and cement weights to prevent losses.

Our Approach

- Weatherford drilling experts met with a major operator to review plans for drilling an infill well through a severely depleted reservoir. To mitigate potential depletion problems, the Weatherford team recommended using managed pressure drilling and cementing (MPD and MPC) techniques.
- Incorporating lessons learned from previous wells in this field, the Weatherford MPD team set up simulations and developed customized procedures in response to potential drilling problems, such as mud loss, stuck pipe, and wellbore stability issues. The MPD team performed additional simulations for MPC to delineate the cement-weight envelope at different casing points.
- At the rig, an MPD crew installed a Victus intelligent MPD solution, including a rotating control device, choke, and Coriolis manifold.
- While drilling, the Victus MPD solution provided fast, precise pressure control in response to changing downhole pressures, and automatically determined the required amount of backpressure to maintain CBHP.
- Following each dynamic formation integrity test and dynamic pore pressure test, the MPD crew updated parameters to determine optimal mud weights and minimize the risk of lost circulation.
- The crew used MPD and MPC techniques to prevent losses, safely drilled to total depth, and set two liner strings across weak formations.

Value to Customer

- The Victus intelligent MPD solution and MPC procedures helped the operator to safely drill and complete the well through a depleted reservoir. In fact, the solution resulted in drilling rate gains that cut 25 drilling days from the authorization for expenditure (AFE) budget.
- By maintaining CBHP and managing fluid influxes and losses while drilling and completing the well, the MPD crew helped the operator to reduce drilling fluid expense and well construction costs.
- Victus MPD technology enabled the operator to minimize mud and cement weights and prevent formation damage.



Managed pressure drilling and cementing equipment required only a small footprint for installation.

LOCATION

UK North Sea

WELL TYPE

Infill, development, high pressure/high temperature

HOLE SIZE

- 12-1/2 in. to 15,978 ft (4,870 m)
- 8-1/2 in. to 17,149 ft (5,227 m)
- 5-5/8 in. to 18,064 ft (5,506 m)

CASING SIZE AND DEPTH

14-in. casing at 11,850 ft (3,612 m)

LINER SIZE AND DEPTH

- 10-in. liner at 15,958 ft (4,864 m)
- 7-in. liner at 17,149 ft (5,227 m)

MAXIMUM DEVIATION

9°

MAXIMUM TEMPERATURE

374°F (190°C)

MAXIMUM PRESSURE

14,736 psi (101.6 MPa)

TOTAL DEPTH

18,604 ft (5,506 m)

PRODUCTS/SERVICES

- Victus intelligent MPD solution
- Rotating control device
- Coriolis manifold and choke
- Engineering studies and real-time support

