

Managed Pressure Drilling Exceeds 15,000 ft in Challenging North Sea Well, Opens Access to Significant Production Potential

Objectives

- Enhance drilling efficiency through early kick, influx, and loss detection.
- Ensure safe management of potential surface gas event.
- Drill through high-temperature, unconventional Lulu & Byrne formations.
- Utilize constant bottomhole pressure (CBHP) during managed pressure drilling (MPD) to achieve total depth (TD) and complete the 8 1/2-in. reservoir section.
- Address a narrow drilling window, effectively preventing and managing known hole stability challenges under both dynamic and static conditions.
- Minimize the risk of differential sticking.
- Maintain CBHP while assessing formation pressure and fluid sampling.

Our Approach

- Weatherford engineers conducted a preliminary engineering assessment of the operator's well data to evaluate the feasibility of implementing MPD techniques.
- The MPD system rapidly reacted to pressure fluctuations, and the constant bottomhole pressure application mitigated gas at the surface.

Value to Customer

- The MPD choke adjustments effectively offset the impact of high temperatures on drilling fluid density, preventing influxes in both dynamic and static conditions.
- The fully automated MPD system enabled fluid sampling while eliminating the need for redundant increases in mud weight, thereby reducing the risk of differential sticking.
- The MPD system allowed the operator to drill to TD and access a reservoir with substantial potential for production and profitability.

LOCATION
Denmark

FORMATION
Sandstone

WELL TYPE
Offshore, Exploratory

FIELD
Harald East Middle Jurassic

HOLE SIZE
8-1/2 in. (21.59 cm)

LINER SIZE
7 in., (17.78 cm)

TEMPERATURE
329°/140°F (165°/60°C) (on surface with mud coolers)

PRESSURE
10,310 psi (71 MPa)

MEASURED DEPTH
15,170 ft (4,623 m)

PRODUCTS / SERVICES

- Managed Pressure Drilling services
- Victus™ Intelligent MPD software
- Model 7875 DS rotating control device
- Remote MPD

