



Weatherford®

REAL RESULTS

Constant Bottomhole Pressure Drilling Enables Reduction of NPT in High-Pressure, High-Temperature Well, Offshore India

Objectives

- Minimize nonproductive time (NPT) from losses and kicks by managing annular pressure during drilling to ascertain operational limits and stay within the pressure window.
- Enable the operator to switch from constant bottomhole pressure (CBHP) to pressurized mud-cap drilling (PMCD) if fluid losses into the formation became unsustainable.

Results

- The pressure balance between fluid losses and kicks was determined, and this operational window was successfully managed during all stages of the managed pressure drilling (MPD) operation.
- MPD CBHP techniques using a semiautomatic choke system enabled the operator to maintain annular pressure within the operational window at all times, minimizing NPT.

Value to Client

- Use of CBHP techniques reduced NPT compared to the values experienced during previous drilling of offset wells in this basin.
- NPT related to downhole problems was reduced to one day compared to an average of ten days for each of the three previous wells in the field.
- Fluid losses were minimized to 290 bbl of synthetic oil-based mud compared to previous losses of up to 4,000 bbl.



Weatherford's CBHP drilling technique was used to accurately manage the downhole pressure profile, based on real-time pore-pressure calculations performed while drilling. Ongoing evaluations of the balance between acceptable fluid loss and formation influx pressure enabled the operator to adjust surface pressure and maintain stability.

Client

Reliance Industries Limited

Location

Offshore India

Well Type

Vertical high-pressure, high-temperature well

Formations

Fractured limestone and carbonate late Oligocene

Depth

7,113 to 14,193 ft (2,168 to 4,326 m)

Hole Size

8-1/2 and 12-1/4 in.

Products/Services

- Controlled Pressure Drilling® (CPD®)
- Managed pressure drilling
- Semiautomatic choke system

