

Modus™ Managed Pressure Wells Solution

Minimizes Fluid Loss on Extended-Reach Well, Saves Operator Over \$1.2 Million USD



The MPD equipment, including the Modus solution, rigged up on the jackup rig.

Objectives

- Safely drill an extended-reach well with multiple challenges: a vertical section of 6,551 ft (1,997 m), an operational inclination up to 89°, and narrow pressure windows.
- Minimize fluid loss and mitigate formation influx risks during drilling and fluid transitions.
- Ensure real-time pressure control and avoid nonproductive time (NPT) events.

Our Approach

- In collaboration with the operator, Weatherford experts analyzed formation pressure data and the offset wells to define a customized MPD strategy. One aspect was the evaluation and proposal of lower fluid densities than typically used in the drilling program to better manage equivalent circulating density (ECD) and maintain near-balance conditions.
- The Weatherford managed pressure drilling (MPD) service, including the advanced Modus system with electric chokes and Coriolis meter, proved critical to the successful execution of this project. The Modus solution enhances operational performance with simple, precise pressure management while capturing data in a digital platform.
- Field personnel operated the Modus solution to monitor wellbore conditions and proactively apply surface pressure control, enabling real-time responses to pressure fluctuations.
- MPD engineers suggested lower-density control fluids during trips to mitigate surge and swab effects.

LOCATION

Mexico

WELL TYPE

Directional

HOLE SIZE AND ANGLE

8-1/2 to 6 in., 89°

DEPTH

- 8-1/2 in.:
1,775 to 2,681 ft (541 to 817 m)
- 6 in.:
2,681 to 3,166 ft (817 to 964 m)

PRODUCTS/SERVICES

- Modus managed pressure wells solution



Modus™ Managed Pressure Wells Solution

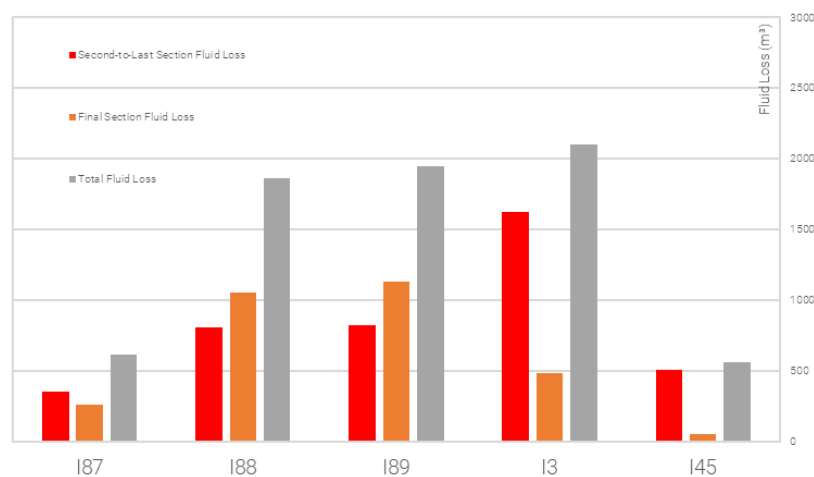
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Our Approach

- All fluid transitions were conducted through the MPD system to maintain pressure stability and prevent formation losses or influxes.
- The effective application of the MPD techniques and the use of the Modus solution maintained safe drilling conditions despite a challenging geopressure window, safe drilling conditions were maintained without any NPT-related pressure events during drilling, tripping, or cementing.
- Improved fluid loss control was achieved, significantly reducing total drilling fluid loss compared to the average in offset wells. Managed pressure cementing was also effectively executed with 7 1/4-in. liner.

Value to Customer

- The significant reduction in drilling fluid expenses combined with enhanced operational efficiencies saved the operator approximately \$1.2 million USD in fluid loss as compared with the offset wells.
- By choosing the Modus solution, the operator reduced fluid loss by 65%. The reduction in the total loss volume from 10,264 bbl (1,632 m³) (typical value for similar wells) to 3,541 bbl (563 m³) equated to more than 6,289 bbl (1,000 m³) saved.
- The operator incurred zero NPT by avoiding downtime due to pressure, influx, or fluid management issues.
- The seamless management of ECD during drilling as well as all fluid transitions and trips with the Modus solution improved overall operational control.



Fluid loss comparison: Current well compared to other extended-reach wells in the area. 145 is the subject of this case study.

