



ENCORE® NAF System Drills Deep Depleted Sand with Zero Losses in Deepwater GOM

MISSISSIPPI CANYON, GULF OF MEXICO

CHALLENGES

A known depleted zone was causing severe lost circulation on deepwater wells in this field.

SOLUTIONS

- » Use ENCORE NAF system to enhance ECD control
- » Maintain engineered LCM blend in the active system while drilling the depleted sands

RESULTS

The depleted section was drilled with zero losses and no NPT.

- » Reservoir logged and completed with no issues
- » Approximately US\$ 1 million saved in fluid costs

SEVERE LOST CIRCULATION EXPECTED IN DEEP DEPLETED SANDS

A major operator drilling in the Mississippi Canyon area of the Gulf of Mexico (GOM) expected to encounter a severely depleted sand section that could destabilize the wellbore. Offset well records indicated significant downhole losses occurred in the depleted zone at a true vertical depth (TVD) of $\pm 22,140$ ft. Differential pressures ranged from 4,150 psi to 5,000 psi based on the mud density required to maintain wellbore stability.

The optimal drilling fluid must be able to carry a high concentration of lost circulation material (LCM) in the active system to help minimize losses in the depleted sand, without increasing the equivalent circulating density (ECD) to unacceptable levels. A thin impermeable filter cake was also critical to preventing differential sticking.

ENCORE NAF EMERGES AS OPTIMAL CHOICE ON CRITICAL FIRST WELL

The Baroid team designated this project as a Critical First Well (CFW) for several reasons:

- » First time delivering services on this rig
- » First Baroid fluids operation in this new field
- » First time drilling a depleted sand for this specific operator

As a result of their extensive deepwater experience, Baroid GOM personnel have developed proven strategies for drilling through depleted sands. They recommended the organophilic clay-free ENCORE® non-aqueous fluid (NAF) system because of its excellent track record in similar fields, under similar downhole conditions.

The ENCORE system is widely used in the GOM due to its unique rheological profile and ability to enhance ECD control. The fluid exhibits rapid gel-to-flow transitions that minimize pressures exerted on the wellbore when initiating circulation or tripping. It also provides outstanding suspension to support effective hole cleaning, another aspect of successful ECD management.

Baroid personnel also worked with the operator to determine the optimal background LCM treatment to be maintained in the ENCORE fluid while drilling through the depleted zone. This would provide the necessary bridging and plugging to prevent lost circulation incidents.

Zero losses in depleted zone

SAVES



deepwater operator

~ US\$ 1 million

HAL12221

RESERVOIR LOGGED AND COMPLETED WITH ZERO LOSSES, ZERO NPT

The reservoir was drilled, logged and completed successfully.

There was zero nonproductive time related to downhole mud losses. Avoiding lost circulation reduced fluid costs by approximately US\$ 1 million when compared to losses experienced on offset wells.

Baroid demonstrated highly effective technical capabilities and continues to deliver fluid services for this operator on similar deepwater wells.

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