



Customized Solids-Free Displacement Spacer Delivers Clean Fluid and Saves Filtration

GREEN CANYON, GULF OF MEXICO

CHALLENGES

The operator attributed failed wellbore cleanups to inefficient practices:

- » Competitor's spacer package left fines in the wellbore
- » Completion fluid could not be filtered to specification

SOLUTION

Baroid personnel formulated a BaraKlean® solids-free spacer package that would leave the casing clean without the need for extended filtration.

RESULTS

The use of BaraKlean®-648 casing cleaner and an engineered spacer train resulted in a clean displacement:

- » Displacement completed with a small interface volume and low residual solids content
- » Required specification of less than 0.05 percent solids content and turbidity of less than 20 NTU was achieved

OVERVIEW

Displacement operations in deepwater areas present some very specific challenges. Low mudline temperatures, large fluid volumes, and slow annular velocities all serve to increase the complications associated with displacement design.

Baroid was requested to conduct a displacement in a deviated well in a water depth of more than 8,000 feet (2,438 meters). This followed a poor experience with a competitor's system, and included a request to avoid the use of solid weighting agents.

SOLIDS-FREE SPACER COMBINES HIGH-PERFORMANCE CLEANER AND VISCOSIFIER

BaraKlean® Solutions provide a systematic engineered design process, along with access to a range of functional additives, to provide a displacement program customized to the requirements of each well. Displacement operations are modeled and optimized using Baroid's Completion Fluids Graphics (CFG™) hydraulics simulation package.

Baroid laboratory testing identified a cleaning system based on BaraKlean®-648 casing cleaner that was capable of 100 percent efficiency. This was incorporated into a cleaning train that included a customized viscosifier package providing a solids-free transition spacer with all of the required physical properties.

The design of the displacement train ensures efficient removal and recovery of the drilling fluid. The cleaning system removes oil-based residue and delivers water-wet surfaces. These features all serve to reduce displacement, filtration, and operational time and costs.

SPACER PACKAGE DELIVERS CUSTOMIZED, SOLIDS-FREE CLEANUP OPERATION

The wellbore cleanup program was executed successfully on the installation. The displacement was completed with a small interface volume and low residual solids content. Circulation and filtration of the wellbore and riser fluids quickly established the required specification of less than 0.05 percent solids content and turbidity less than 20 NTU.

The BaraKlean Solutions system delivered a customized, solids-free cleanup package. The operation achieved a level of performance which had eluded other displacement services, thus ensuring that the risks of equipment failure and formation damage were minimized.

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