

Engineered Wellbore Cleanout Spacers Accelerate Deepwater Displacement

WELLBORE CLEANOUT SPACERS CUT FILTRATION TIME, SAVING OPERATOR APPROXIMATELY USD 150,000

GULF OF MEXICO

CHALLENGE

After a completion brine was ruined on an offset well when a competitor's wellbore cleanout spacers failed to remove mud and mud residue, the operator asked Baroid to provide an effective wellbore cleanout system and displacement program for the next well.

SOLUTION

Testing showed that BaraKlean[®]-648 casing cleaner would deliver effective mud and residue removal.

RESULTS

The successful cleanout reduced the filtration time needed to obtain the target completion brine clarity, ultimately saving 2–3 hours on the final circulation and approximately USD 150,000 in rig time.

CHALLENGE

A previous displacement performed by a competitor on a nearby well was unsuccessful because the wellbore cleanout process failed. The completion brine was ruined and had to be replaced. The operator challenged the Baroid team to provide a reliable and effective wellbore cleanout system and displacement program for the next well. The water depth was 5,346 feet (1,630 meters), and the well had a maximum deviation of 27°. Total depth was 27,249 feet (8,306 meters) in true vertical depth – 28,475 feet (8,679 meters) in measured depth. The well contained 3,256 bbl of 14.5-ppg synthetic-based fluid prior to the displacement.

SOLUTION

Lab testing showed that conventional products would not provide adequate cleanup of the drilling fluid system. Significant time and effort were devoted to developing spacer formulations that would efficiently remove and clean the drilling fluid from the wellbore. The optimal formulation contained BaraKlean[®]-648 casing cleaner.

BaraKlean-648 casing cleaner is a blend of surfactants and solvents that provide strong cleaning and wetting actions to break and disperse mud film and residue. Test results indicated that this product would provide superior cleaning efficiency.

When applied in the field, initial brine returns exhibited low NTU readings and negligible solids content, validating the cleaning spacer's effectiveness. When the riser brush and magnet were evaluated during the short trip, they appeared to be water-wet and free of all drilling fluid residue. The subsequent cleanup of completion fluid to meet operator specifications was completed in a circulation of 1.5 wellbore volumes. The initial clarity of the completion fluid allowed the filtration unit to pump at 25–30 bpm. Previous maximum filtration rates achieved by this operator were 15–20 bpm.

RESULTS

This engineered cleanout system delivered rapid removal of drilling fluid and drilling fluid residue from the wellbore, saving 2–3 hours on the final circulation and approximately USD 150,000 in rig time. This was the first completion performed on this rig, and Baroid personnel provided the guidance to successfully execute the displacement. This engineered blend of surfactants and solvents reduced costs and resulted in a clean wellbore.



This brush is residue-free after application of an engineered cleanout spacer containing BaraKlean[®]-648 casing cleaner.

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