A WELLBORE CLEANUP & DISPLACEMENT SOLUTION

OPERATOR SAVES MILLIONS EFFICIENTLY DISPLACING SOLIDS-LADEN SYNTHETIC MUD WITHOUT ADDITIONAL CIRCULATION OR FILTRATION

Application of a TETRA Advanced Displacement System (TADS) in a Temporary Abandonment Provided the Necessary Cleanout and Corrosion Inhibition for Later Completion

PROVIDE A CLEAN WELLBORE ENVIRONMENT REQUIRING MINIMAL CONDITIONING FOR LATER COMPLETION

Setting out to temporarily abandon a deepwater well for later completion, an operator sought to displace a 16.5 lb./gal. solids-laden, synthetic-based mud (SBM) from the well without additional circulation or filtration of the suspension fluid. Well depth was 26,000 feet, water depth was 2,038 feet, and the bottom-hole temperature was 260°F (127°C).

Because cost-savings and efficiency were paramount, the operator also wished to eliminate the need for additional SBM to displace the existing mud, and thereby forgo the third-party cost and logistics of purchasing and transporting the SBM, as well as cleaning the drillship of SBM ahead of loading the clear-brine. They also sought to eliminate waste production from wellsite cleanup.

The displacement system needed to be high-density, solids-free, corrosion-inhibiting, compatible with the well's Q125 alloy casing, and capable of efficiently displacing the 16.5 lb./gal. SBM to yield a clean wellbore.

FORMULATE AND APPLY A HIGH-DENSITY, SOLIDS-FREE BRINE WITH CORROSIONINHIBITING SUSPENSION FLUID

TETRA formulated a high-density, solids-free, corrosion-inhibiting suspension fluid compatible with the Q125 alloy casing. A third-party laboratory was then contracted to verify the fluid's compatibility with the wellbore metallurgy. This fluid was used for the first phase of the job, the 'dirty' displacement.

For the second phase, TETRA custom designed and tested a high-density, solids-free TETRA Advanced Displacement System (TADS) of calcium bromide and zinc bromide that was 16.1 lb./gal. Application of the customized displacement system in the wellbore occurred 10 months after the 'dirty' displacement and took less than four hours.

CHALLENGE

- Displace 16.5 lb./gal. SBM in deepwater well in Gulf of Mexico
- Forgo the need for additional SBM and associated cost and logistics
- Render wellbore clean without additional circulation or filtration of displacement fluid

SOLUTION

- Customized TADS and suspension fluid of solids-free, high-density CaBr2 + ZnBr2 clear brine with corrosion inhibitor
- Independent verification of compatibility between casing alloy and displacement fluids

RESULTS

- Cleaned wellbore beyond expectations for temporary abandonment
- Left well prepared for hasslefree initiation of completion at a later date
- Eliminated the need for additional synthetic-based mud and the associated logistics and costs
- Saved operator approximately $5.4 million

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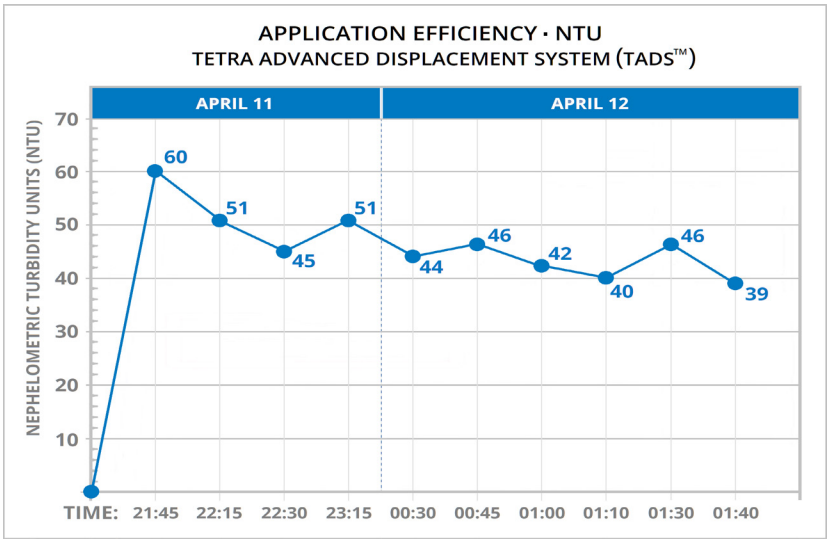
Continued

APPLICATION OF TADS ENABLED OPERATOR TO TEMPORARILY ABANDON WELL AND SAVE APPROXIMATELY $5.4 MILLION

The application of the TADS successfully displaced the 16.5 lb./gal. SBM and did so without the need for additional SBM as well as a specialized trip to stage into the well and condition the existing mud, greatly reducing operational costs and logistics.

The job rendered the wellbore clean beyond expectations, reducing the number of wellbore cleanout strings for both suspending the well and for later initiation of the completion phase — assuring the operator of a successful temporary abandonment and a hassle-free initiation of the completion phase when the time comes.



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