Holistic Fluid Design Saves North American Operator 10 Hours per Production Casing Run

HYDRAULIC MODELING AND TRIPLE-COMBO LUBRICANT PACKAGE FACILITATED PRODUCTION CASING RUN, SAVING THE OPERATOR USD 25,000/WELL

UTAH, UNITED STATES

CHALLENGE

- Reduce casing run times to improve operational efficiency
- Find cost-effective drilling fluid and lubricant additives
- Avoid non-productive time (NPT) during the operation

SOLUTION

Two-pronged technical approach considering hydraulic and chemical factors in achieving well construction success:

- Baroid Drilling Fluids Graphics (DFG™) software – for hole cleaning optimization and sweep design
- Custom lubricant package – incorporating proprietary products designed to be spotted in the lateral up to the curve

RESULTS

- Reduced time to run production casings by an average of 10 hours
- Saved operator USD 25,000 per well
- Enhanced asset value by combining engineered chemistry with hydraulic modeling

OVERVIEW

An operator drilling lateral sections of up to 2 miles (3,219 meters) in Utah was averaging 35 hours per well to install production casing. Halliburton Baroid proactively approached this critical operational issue by optimizing the fluid system, customizing a lubricant application, and performing hydraulic trip speed modeling to improve overall efficiencies.

CHALLENGE

Concerned about the time it was taking to install production casing in lengthy lateral sections, the operator wanted to find a more efficient solution that would be simple to implement and reliable in execution. A primary objective was to minimize downtime during the casing operation, given the various risks and challenges of this particular formation.

SOLUTION

Working with the regional North American team, Baroid conducted a thorough review of the existing well conditions. A two-pronged approach was taken to demonstrate to the customer that reducing their casing run times required more than the addition of a single lubricant. First, DFG™ hydraulic modeling software was used to estimate the cuttings load for the lateral section of the well. The effects of including a weighted sweep to improve hole cleaning in this challenging section were clearly demonstrated. Next, Baroid recommended spotting a customized pill to address the challenges that were experienced in past offset wells:

- Two of Baroid's proprietary shale stabilizers that serve to seal micro-fractures and greatly reduce the potential for issues relating to torque and drag.
- A proprietary solid lubricant, which functions much like ball bearings, is highly resistant to extreme stress and particularly suited for use in highly deviated wellbores.

RESULTS BRING ECONOMIC VALUE

This project exemplifies the benefit of applying engineered chemistry in conjunction with hydraulic modeling techniques. The combined approach of weighted sweep and customized lubricant treatment resulted in an average reduction of casing run time from 35 hours to 25 hours. At the operator's planned spread rate, Baroid's holistic fluid design delivered a savings of USD 25,000 per well for the life of the project. Additionally, Baroid's strong technical methodology was noted by the operator, showing value in not only product recommendations, but also in hole cleaning modeling and pill design.

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