

Middle East

# High-performance non-aqueous fluid system helps operator save 55 hours of rig time

Operator drills high over balance interval without incident and cancels 55-hour conditioning due to fluid stability and good hole conditions after 128 hours of logging in 315°F reservoir

## CHALLENGES

- Deliver stable wellbore through depleted formation at high overbalance conditions
- Prevent stuck pipe incidents
- Develop stable fluid with no propensity for barite sag for use in high-temperature applications

## SOLUTION

- BaraXcel™ high performance non-aqueous fluid (NAF) system with products from country portfolio
- Developed a rigorous test protocol to validate the required fluid design
- Qualified the NAF formulation with FACTANT™ emulsifier and LIQUITONE® filtration control additive

## RESULTS

- Met required properties while drilling at high overbalance conditions with BaraXcel
- Fluid stable during 128 hours of logging at high BHT
- Helped avoid 55 hours of a planned conditioning trip (~\$120K savings) with BaraXcel

## Overview

A Middle East operator planned to drill a horizontal section through dolomitic limestone and complete the well with a multi-stage fracturing (MSF) operation. The MSF completion previously presented operational problems including stuck pipe, tight spots, and washouts. The fluid density was determined by wellbore stability requirements while drilling in the direction of minimum horizontal stress. The target mud weight resulted in a static overbalance of 3,406 psi. The operator required specific targets on fluid rheology, gel strengths, and tight filtration characteristics. Fluid stability was imperative due to the lengthy static periods expected for logging and running the MSF completion in a 315°F reservoir.



# \$120K

Savings achieved by avoiding conditioning trip

## Challenge

The operator planned to drill a deep gas well with a long horizontal section through depleted dolomitic limestone. The high overbalance and high bottom hole temperature presented risk to the operation. The operator had experienced differential sticking on offset wells during the drilling phase and while running the MSF completion.

## Solution

The Halliburton team developed a robust laboratory test protocol to qualify a fluid system suitable for the application. BaraXcel™ non-aqueous fluids (NAF) was considered the most suitable fluid technology based on its stability and track record with the operator.

The required rheology and tight filtration characteristics of the BaraXcel™ NAF were developed with the inclusion of FACTANT™ and LIQUITONE® additives in the formulation. The operator approved the proposed BaraXcel formulation based on the qualification testing.

## Results

The BaraXcel NAF was deployed successfully with a notable improvement in HPHT and particle plugging apparatus filtration compared to formulations that had been used on offset wells. The BaraXcel system remained stable through the drilling phase, meeting the required target properties. Challenges with the logging tools resulted in an extended static phase for the fluid of 128 hours. The operator canceled a planned conditioning trip as the hole conditions were satisfactory and BaraXcel NAF had exhibited stable properties for an extended period at high temperatures. The MSF completion was set in one run per customer expectations.

Challenges with the logging tools resulted in an extended static phase for the fluid of 128 hours.



---

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

H014649 © 2024 Halliburton. All Rights Reserved.