

High-Performance Fluid System Enables Low-Pressure Circulation During Challenging Scab-Liner Run

SAG-RESISTANT, LOW-RHEOLOGY FLUID SAVES OPERATOR SIGNIFICANT TIME AND MONEY

GULF OF MEXICO

CHALLENGES

An operator in the Gulf of Mexico needed to run and cement a scab liner, but was facing:

- » Narrow operating window
- » High-angle hole
- » Tight clearance between the casing and the liner

SOLUTIONS

BaraECD® high-performance fluid system and WellSET® LCM Strategy to:

- » Improve sag resistance and decreased circulating pressure during a long scab-liner run with a narrow pressure margin window that could not be met with conventional drilling fluids.

RESULTS

- » Avoided slowdowns as a result of pressure increase, thus saving the customer valuable rig time.
- » Required no extra time for circulation or treatment before performing the critical operation
- » Cemented scab liner 12 hours faster than planned circulation time with conventional SBM, ultimately saving approximately USD 500,000 in rig time

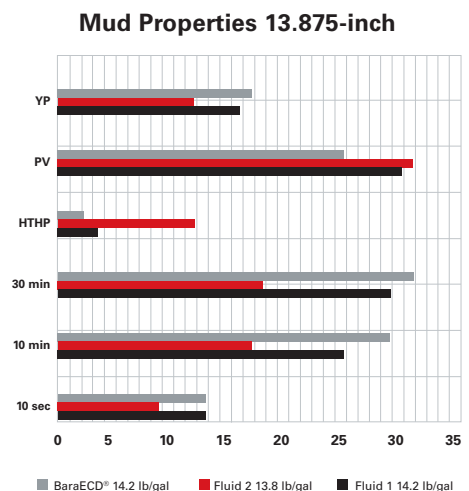
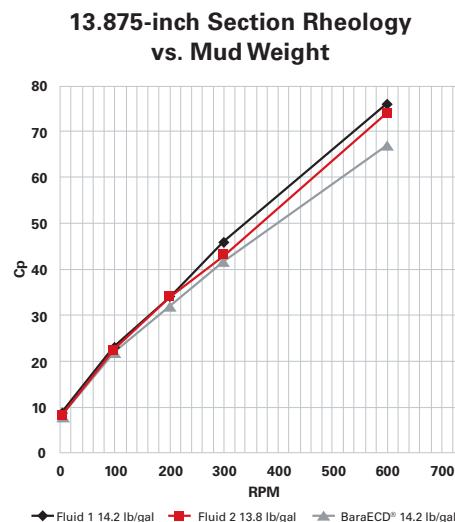
CHALLENGES

In 2013, a major operator attempted to run and cement a 12,000-foot (3,658-meter) scab liner in a well located in the Gulf of Mexico. Along with a narrow operating window and a high-angle hole, the tight clearance between the 14.734-inch casing inside diameter (ID) and the 13.97-inch liner outside diameter (OD) presented a challenge to the operator for cementing the scab liner in place. This was the tightest clearance and longest scab liner for running and cementing that had ever been attempted in the Gulf of Mexico.

The operator had to overcome the challenge of cementing a scab liner in a wellbore with a 38° angle, 9,000-foot (2,743-meter) horizontal displacement, a 4,000-psi maximum pressure limitation on the scab liner hanger, and 14.2-lb/gal surface mud weight.

SOLUTIONS

To overcome this challenge, Baroid suggested the use of the BaraECD® high-performance fluid system to provide improved sag resistance and decreased circulating pressure during a long scab-liner run with a narrow pressure margin that could not be met with conventional drilling fluids. The low rheological profile of the BaraECD system allowed the operator to maintain a maximum circulation pressure below 4,000 psi within a safe operating window. There was no evidence of barite sag in this high-angle wellbore while running and cementing the scab liner.



The scab liner was cemented 12 hours faster than the conventional SBM planned circulation time, resulting in savings of approximately USD 500,000 in rig time.

In addition to using the BaraECD fluid system, the Baroid team decided to use a coring fluid as a secondary solution. It provided a WellSET[®] lost circulation material (LCM) strategy to convert the BaraECD fluid into a coring fluid, allowing the plastic viscosity to remain in specification.

The combination of specially sized 2.5-lb/bbl each of BARACARB[®] 25 and BARACARB 50 agents bridged off the sand that was cored. Because coring fluids have a particular PPT value recommendation, the BaraECD system performed better on this test vs. conventional fluids. This was important in keeping the rheological values low.

RESULTS

The customer reported a good, timely cement job based on the low-pressure circulation that the BaraECD fluid was able to achieve. The operation did not have to slow down as a result of pressure increase, thus saving the customer valuable rig time. The fluid was received from the mud plant with the exact properties needed, and no circulation or treatment time was required before performing the critical operation.

Using Baroid's BaraECD high-performance fluid system, the operator was able to successfully run the 12,000-foot (3,658-meter) scab liner without any problems, despite the added challenge of managing the equivalent circulating density (ECD) and pressure in a narrow-margin application and sag resistance in this high-angle hole. The scab liner was cemented 12 hours faster than the conventional SBM planned circulation time, resulting in savings of approximately USD 500,000 in rig time. In addition, nonproductive time attributed to the drilling fluid was zero.

www.halliburton.com

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.

H010752 09/17 © 2017 Halliburton. All Rights Reserved.