

N-FLOW™ 325 Breaker System Frees Differentially Stuck Pipe in Depleted Sand, Saving USD 1.1 Million

SUCCESSFUL BREAKER TREATMENT SAVES OPERATOR SEVERAL DAYS OF RIG TIME

OMAN

CHALLENGE

The BHA had become differentially stuck in a depleted sandstone formation.

- » 1,400-psi overbalance
- » Conventional freeing agents were unsuccessful

SOLUTION

N-FLOW™ 325 delayed-reaction filter cake breaker converts to acid downhole after being placed at the stuck point.

- » Uniform distribution of breaker before reacting with formation
- » Safe handling at the surface

RESULTS

The BHA was freed after the first attempt.

- » Recovery of downhole tools valued at USD 1.1 million
- » No need for costly sidetrack

COSTLY DRILLING ASSEMBLY BECOMES DIFFERENTIALLY STUCK IN DEPLETED SAND

After reaching total depth (TD) in the 8-1/2-inch interval on a well, the rig crew began pulling out of the hole. The bottomhole assembly (BHA) became differentially stuck in a high-porosity depleted sand reservoir. The overbalance was estimated at 1,400 psi.

Similar differential sticking issues had occurred on offset wells. Prior attempts using a conventional stuck-pipe spotting agent and a light lubricant pill had not worked.

Failure to free the BHA would result in the loss of expensive directional drilling and logging-while-drilling (LWD) tools. The well would then have to be sidetracked, adding days and increasing total well costs significantly.

N-FLOW™ 325 FILTER CAKE BREAKER FREES PIPE ON FIRST ATTEMPT

Time is critical in stuck-pipe incidents. Every hour of exposure significantly decreases the chance of freeing the pipe.

The Baroid team analyzed the formation composition and data from offset wells. The trouble zone was a fine-grained to medium-grained sandstone with shale, clay, and calcite cement intercalation. Calcite is a carbonate mineral, making it a good candidate for treatment with an acid-based filter cake breaker system.

The N-FLOW 325™ delayed-reaction filter cake breaker system can dissolve calcite and other filter cake components around the stuck point to free the pipe.

Unlike conventional acid treatments, the N-FLOW 325 breaker is safe to handle at the surface. When it is placed downhole, the acid is generated in situ after a specified delay period, allowing for the distribution of a uniform, targeted solvent across the pipe-to-formation contact area.

Although the well location was 800 kilometers (497 miles) from the stockpoint, the Baroid team was able to deliver the N-FLOW 325 breaker system to the rigsite quickly. A detailed procedure for mixing and pumping the customized breaker was provided to the wellsite engineer.

The breaker was spotted at balance across the stuck area, and it freed the pipe on the first try.

BHA FREED ON
FIRST ATTEMPT,
SAVING \$1.1
MILLION

With the N-FLOW™ 325 breaker system, an estimated 2–3 days of rig time were saved.

OPERATOR AVOIDS SIDETRACK, RECOVERS DOWNHOLE TOOLS VALUED AT USD 1.1 MILLION

The breaker treatment was executed safely and successfully. An estimated 2–3 days of rig time were saved. The BHA was recovered, and sidetracking was avoided.

The savings totaled an estimated USD 1.1 million, including the value of the recovered motor and LWD tools.

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.

H012465 02/17 © 2017 Halliburton. All Rights Reserved.