TECH REPORT

DEEPWATER

GULF OF MEXICO

Background

In a deepwater operation, a formation had a much higher pore pressure than initially anticipated. After perforation, a large volume of crude oil entered the operator's wellbore since pore pressure was above the hydrostatic pressure provided by the 9.8-lbm/galUS $CaCl_2$ brine. The crude oil from this field is prone to form a strong emulsion when contacting with brine, and the emulsion was sticking to the tubing downhole.

To break the emulsion, pills with solvent were first tried, but because the flow rate was limited to 1–2 bbl/min, not enough turbulence could be achieved to break the emulsion. It was decided to treat the active system of 10.4-lbm/galUS $CaCl_2$ brine with 0.5% SAFE-BREAK Prime* universal nonemulsifier.

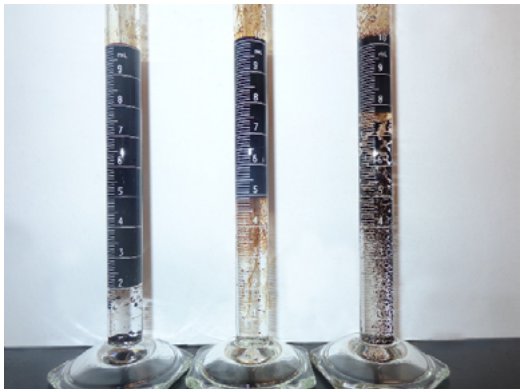
Technologies

- SAFE-BREAK Prime universal nonemulsifier

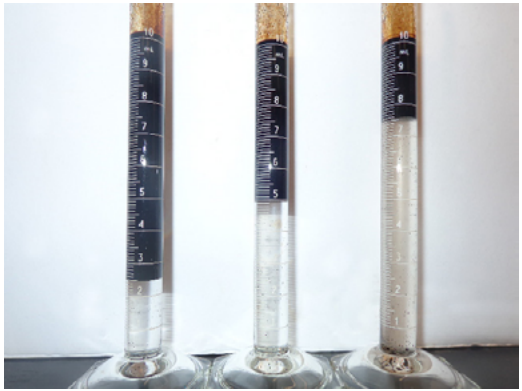
MI SWACO
A Schlumberger Company

SAFE-BREAK Prime Nonemulsifier Successfully Breaks Preexisting Crude and Brine Emulsion

Universal nonemulsifier outperforms pills with solvent to clean a contaminated wellbore



Without SAFE-BREAK Prime nonemulsifier



0.5% SAFE-BREAK Prime nonemulsifier

SAFE-BREAK Prime nonemulsifier proved to be effective at breaking preexisting emulsions, contrary to standard nonemulsifiers. At bottoms-up, a slug of oil was observed at surface and was isolated from the active system. After one well circulation, no more oil was observed, and brine turbidity dropped to 25 NTU.