

Project Success Dependent on Sag Resistance and Long-Term Stability of Completion Fluid, India

Fluid with WARP advanced technology remained stable for 120 h and showed no signs of sag

When WARP* advanced fluids technology was used in a completion fluid design for minimum reservoir-damaging characteristics with a selection of preferred emulsifiers, organophilic clay, and wetting agents, even after a 120-h static period without conditioning there was no sag and no fluctuations in nominal mud weight recorded.

The operator's concerns

The completion fluid design for the carbonate reservoir was to sustain a bottomhole temperature (BHT) of 340 degF [171 degC] with a minimum barite sag profile. It was critical for the fluid design to be sag resistant and technically able to sustain the BHT for at least 7 days of static period without reconditioning of the fluid.

What was tried first

The previously used completion fluid did not allow for proper inflation of completion packers and the operator suspected that this was due to sag of the trimanganese tetra oxide fluid.

What was recommended

M-I SWACO, a Schlumberger company, proposed use of an invert-emulsion fluid weighted up with a combination of WARP OB CONCENTRATE* concentrated colloidal suspension technology and WARP UF 44* high-density micronized weight material. The WARP technology ensured low-rheology drilling fluid without barite sag and with exceptionally stable fluid properties through micron-sized weighting materials 10 times smaller than drilling-grade barite.

What was achieved

The completion and testing string were run without any restrictions. All testing tools and valves operated without any troubleshooting. After the 120-h static period without conditioning the fluid and circulation, the invert-emulsion WARP advanced fluids technology showed no sag and no fluctuations in nominal mud weight recorded, indicating the fluid remained stable. Testing of two production zones did not show any signs of reservoir damage.



Schlumberger was chosen for this job due to its expertise in this type of high-density fluids. The completion fluid performed its designed job excellently and provided trouble-free completion activities without any sag problem. The downhole tools functioned properly; solid removal efficiency was very good. Based on experience at the first well, we look forward to use the fluid at other wells.

Sukhvir Singh Kashyap
Executive Director
Head Drilling Fluid Services (offshore)