OMNIFLOW drill-in invert emulsion fluid met drilling challenges in deepwater horizontal reservoir

A major operator drilling a deepwater water injector project through depleted reservoir sands needed a non-damaging, weighted drill-in fluid with a low coefficient of friction to avoid circulation losses.

In response, Baker Hughes, a GE company (BHGE), customized its OMNIFLOW™ drill-in invert emulsion fluid, a completion fluid designed for reservoirs that contain shale.

Challenges
- Deepwater water injector project
- Avoid loss of circulation in depleted reservoir sands
- Land completion screens in a long horizontal interval
- Provide a non-damaging fluid with good hole-cleaning properties without increasing ECD

Results
- Reduced torque and drag in the horizontal interval
- Maintained quality borehole and ideal fluid properties throughout the well
- Drilled 1,100 ft (225 m) of 6-½ in. hole section to well total depth
- Successfully ran completion screens to bottom

Drill-in fluids such as the OMNIFLOW fluid minimize reservoir damage during and after the drilling phase
The OMNIFLOW drill-in fluid produces a thin, non-invasive filter cake, which minimizes borehole problems during the drilling and completion phase, increases drilling rates, and improves production. The fluid is also resistant to contaminants such as carbon dioxide, hydrogen sulphide, salts, and shale cuttings.

The fluid performed flawlessly while drilling the well’s long horizontal interval. A competitor’s synthetic-based mud system, used to drill the upper interval, was also replaced by the 11.5 lbm/gal (1,378 kg/m³) OMNIFLOW fluid. High-viscosity sweeps were pumped for borehole cleaning, although there was no indication of an increase in cuttings volume or size. Equivalent circulation densities (ECD), which were closely monitored, averaged between 12.8 and 13.0 lbm/gal (1,534 and 1,558 kg/m³).

BHGE also added two of its MIL-CARB™ series bridging agents to further minimize losses to the formation. After reaching a measured depth (MD) of 23,815 ft (7,259 m), the hole was circulated and the mud weight was increased to 12.1 lbm/gal (1,450 kg/m³) to maintain wellbore stability during the completion. Completion screens were successfully run to the bottom and then set at 23,770 ft (7,245 m) MD.

Due to the successful performance of the OMNIFLOW drill-in fluid, this operator plans to award future work in these types of challenging applications to BHGE.