Operator Overcomes
Lost Circulation Problems

BARAECD® HIGH-PERFORMANCE NON-AQUEOUS FLUID
HELPS COMPLETE TROUBLE-FREE CEMENTING OPERATION

MISSISSIPPI CANYON, GULF OF MEXICO

OVERVIEW
A major operator in the Gulf of Mexico had experienced multiple fluid lost circulation events during cementing operations for an 18-inch liner section in several wells sharing identical casing designs. Lost circulation occurs when drilling fluid, or mud, flows into the geological formation instead of returning up the annulus. In each of these wells, the 3,000-foot-long (914-meter-long) liner was set in a 21-inch hole. For optimal results, it was vital to control and isolate a pressurized sand horizon. To maintain well control during liner running and cementing operations, fluid density was increased from 10.7 lb/gal to 11.1 lb/gal; critically, the fracture gradient was only 11.4 lb/gal.

The operator challenged Baroid to provide a drilling fluid with a lower rheology profile that would aid in reducing the equivalent circulating density (ECD) while displacing the annulus to cement in order to help eliminate the risk of lost circulation and ensure the integrity of zonal isolation.

BARAECD® NAF BEST FLUID FOR THE JOB
Although many high-performance non-aqueous fluids (NAFs) were a potential solution, wellbore hydraulic simulations indicated that ECD for these fluids would exceed the fracture gradient during displacement operations. Baroid implemented an extensive design and screening study that concluded with the high-performance BaraECD NAF system as the preferred solution, since it exhibited the lowest ECD within the safe mud weight window and, therefore, the lowest risk of lost circulation. The innovative BaraECD NAF is designed to provide low ECD in narrow-margin applications, while also providing necessary hole cleaning and resistance to barite sag.

SUCCESSFUL CEMENTING OPERATION
Application of the BaraECD NAF resulted in a very successful cementing operation. Full displacement and annular isolation were achieved with no fluid losses, thus, increasing operational efficiency and reliability, and avoiding the need for remedial cementing work. Twenty-four hours of rig time were saved, translating to savings of approximately USD 800,000.