Optimized Fluids Help Operator
Save US$2.96 Million

SOLUTION SAVES 37 DAYS OF DRILLING TIME, ACHIEVING FIELD RECORD

COMALCALCO, TABASCO, MÉXICO

OVERVIEW
The operator planned to drill the onshore Puerto Ceiba-161 (PC-161) well to a measured depth (MD) of 6,050 meters (19,849 feet). This required drilling the Jurassic Kimmeridgian formation and 9 meters (30 feet) of salt dome.

CHALLENGE
Offset wells had experienced some issues with reactive clays and needed multiple wiper trips to maintain wellbore stability.

SOLUTION
After testing formation samples and conducting pre-well optimization analysis, the Baroid team recommended an inhibitive BOREMAX® potassium-chloride (KCl) water-based mud (WBM) for drilling the surface interval to 1,000 meters (3,281 feet). The system would then be displaced to an INVERMUL® oil-based mud (OBM) for drilling the remaining intervals, including the salt dome.

The low-solids/non-dispersed BOREMAX KCl fluid would allow the upper hole to be drilled quickly, resulting in an in-gauge wellbore for ease of running and cementing the 20-inch casing.

The INVERMUL system is designed to prevent dispersion and swelling of clays that can result in washouts, tight holes, and the need to condition the wellbore with wiper trips.

RESULT
The well was executed as planned with no operational issues. High-quality wireline data was retrieved, and the caliper log showed a completely in-gauge wellbore. No additional wiper trips were required before running and cementing the final casing strings.

The Puerto Ceiba-161 well was drilled 37 days faster than the plan, saving the operator US$2.96 million (see Figure 1).
Figure 1. This graph shows days vs. depth (in meters) of wells in the Puerto Ceiba field, showing plan (black) vs. actual (red) on the record-setting PC-161 well.