Case History
Shale Stabilizers

BARO-TROL® PLUS and CLAYSEAL® PLUS Shale Stabilizers Help Combat Sloughing Shale, Stuck Pipe

Location: Kettleman Middle Dome, Kettleman Hills CA

OPERATOR’S CHALLENGE – Kettleman Hills is a recently discovered field in central California that has a tremendous amount of reactive and unstable shales known as the “Reef Ridge” and the “Monterey.” As with several other wells in the area, operators on this well encountered issues with sloughing shale, tight hole, and packing off. The usual approach to drilling through these reactive formations is to use oil-based mud (OBM) due to its ability to inhibit the shale, thus delivering successful drilling operations. However, if an OBM is used to drill these wells, a very strong emulsion is often formed that restricts production.

HALLIBURTON’S SOLUTION – Halliburton Baroid recommended a low solids, non-dispersed (LSND) water-based fluid which has been customized for use in California several times. While drilling through the “Reef Ridge” and “Monterey” shale with 13.9 ppg fluid to a depth of 7597 ft., severe torque and drag were encountered due to sloughing and swelling. Baroid further customized the fluid formulation by incorporating 5-6 lb/bbl of BARO-TROL® PLUS and CLAYSEAL® PLUS shale stabilizers.

All torque and drag ceased, and the operator was able to wipe hole with no problems and run 9 5/8” casing to TD even though the open hole was exposed to the WBM for 15 hours.

ECONOMIC VALUE CREATED – Halliburton Baroid engineers customized the LSND fluid formulation to provide an inhibitive WBM that remedied the problem that the conventional OBM could not answer. The sloughing stopped and the rig was able to trip out and run the casing with no problems. Initially, twenty-four hours of rig time were spent trying to ream and weight up to combat the problematic shale. Baroid estimates the savings to be $65,000 for 1 day rig time.