

Case History

Shale Stabilizers

Baroid's CLAYSEAL® Shale Stabilizer Provides Excellent Wellbore Stability on Problematic Well

Location: Laramie County, Wyoming

OPERATOR'S CHALLENGE – The DJ Basin located in Laramie County, Wyoming is known for its reactive and unstable shales. Preliminary research of offset data indicated that reactive clays may not present a problem in the upper hole section, but issues were anticipated as drilling progressed through the interval. Contrary to the data, while attempting to drill to a total depth of 11,804 ft, an operator encountered excessive torque and drag in the upper vertical section, and also encountered a prolonged open hole due to operational issues. The operator needed a cost-effective solution that would aid in overcoming wellbore integrity issues and reducing non-productive time.

HALLIBURTON'S SOLUTION – Halliburton Baroid proposed a low solids, non-dispersed (LSND) water-based drilling fluid, along with CLAYSEAL® shale stabilizer to help maintain wellbore stability in the highly reactive clays. Although concentrations of the 2% CLAYSEAL shale stabilizer had initially been programmed to be incorporated at an approximate depth of 7,100 ft, or once the build section was started, Baroid recommended an earlier addition of the shale stabilizer since issues with torque and drag were experienced sooner than anticipated. These preemptive additions of CLAYSEAL shale stabilizer aided in the inhibition of reactive shales and allowed the operator to successfully drill to the interval end.

The LSND and CLAYSEAL fluid system also served in providing increased wellbore stability through excessive open-hole time due to coring, unexpected operational issues, and an excessive number of trips in and out of the wellbore.

Taking into account the unanticipated problems experienced throughout this well, Baroid developed a customized solution that enabled water-based mud (WBM) to keep this wellbore intact for 37 days between drilling out surface pipe and setting intermediate casing through the curve.

ECONOMIC VALUE CREATED – Baroid engineers customized a solution that maintained the integrity of the wellbore long enough for the well to be successfully drilled without having to displace to oil-based mud (OBM). Had the decision been made to displace to OBM, costs for the operator would have multiplied exponentially due to diesel consumption, fluid additive costs, and cuttings disposal. The addition of 2% CLAYSEAL shale stabilizer potentially saved the operator hundreds of thousands of dollars with the aversion of wellbore integrity issues.

Depth vs Days

