High-performance water-based drilling fluid system eliminates NPT and water flow challenges in drilling 2-mile lateral in less than 5 days

Replacing an oil-based drilling fluid system with the HydraGlyde™ high-performance water-based drilling fluid system enabled a Permian operator to drill a 2-mi lateral in less than 5 days. The system eliminated the need to run a contingency liner and prevented NPT caused by water flow. The operator achieved a cost savings of 59%.

The challenge

A 19,000-ft well in Martin County, Texas, presented complex curve and lateral geometry next to a recently hydraulically fractured well. Torque and wellbore inhibition challenges required the lateral to be drilled using water-based fluid.

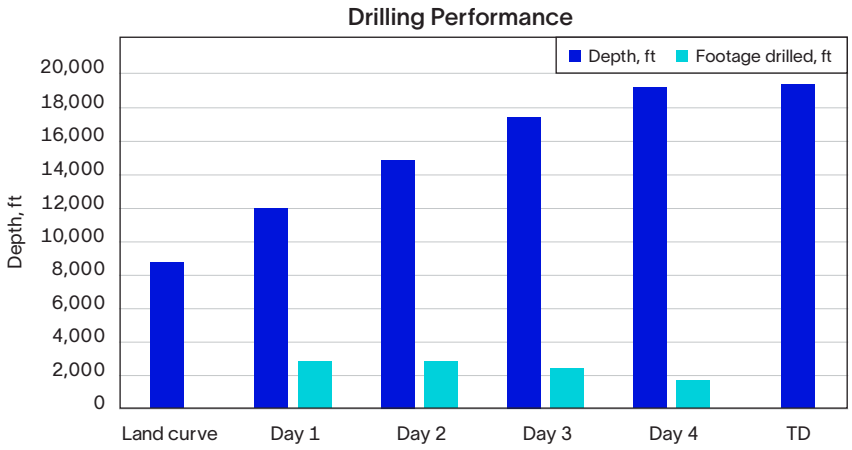
The operator initially used an oil-based drilling fluid system until a freshwater flow dropped the oil/water ratio to 52:48 and resulted in contamination of the oil-based mud (OBM) in the hole. The only potential solution was to run a contingency liner to shut off the flow. Running this extra string of casing would have caused delays in the delivery of the well, overspending of the AFE, and a continued risk of OBM contamination in the lateral.

The solution

The HydraGlyde system is an efficient, flexible drilling fluid solution that reduces torque and drag and delivers oil-mud-comparable ROP, exceptional hole cleaning, and wellbore stability in long-lateral sections while reducing restrictive costs and decreasing environmental impact.

The result

The operator replaced the oil-based drilling fluid system with the HydraGlyde water-based system for the curve. The system tolerated losses and water flows while drilling and negated the liner run in the curve. The operator drilled a 2-mi lateral in less than 5 days to TD with no bit trips. The average ROP stayed at just over 2,000 ft/d. The solution helped the operator achieve a cost savings of up to 59% in the lateral section, with zero diesel additions, zero OBM costs associated with lost fluid, and reduced disposal costs from using a water-based system.



The Permian operator reached TD in less than 5 days using the HydraGlyde system.

"I would like to express my gratitude toward the effort that the SLB team put out when facing this unusual technical challenge and their flawless execution of the plan. The system was built on location in such a short notice, and it was maintained to enable the team to drill the well to TD with no issues. The team displayed outstanding technical knowledge, a professional attitude, and a commitment to support of drilling operations."

Drilling Engineer