M-I SWACO
A Schlumberger Company

HydraGlyde System Reduces Costs from Mud Losses by USD 300,000 per Pad

High-performance water-based drilling fluid system increases ROP despite heavy losses, Eagleville Field, Texas

CHALLENGE

- Use a water-based mud (WBM) to avoid high costs due to formation losses of oil-based mud (OBM), while overcoming torque limitations and improving ROP.

SOLUTION

- Use the HydraGlyde* high-performance water-based drilling fluid system as a replacement for current OBM.

RESULTS

- Avoided potential costs due to OBM losses by USD 300,000 per pad.
- Averaged an ROP of 86 ft/h [26 m/h] in three wells.

Drill four wells expected to experience high mud loss with WBM

Previously in the Eagleville field, an operator drilled 8½-in lateral sections of up to 12,800 ft [3,900 m] using OBM without technical wellbore issues. However, the formations were prone to severe lost circulation, making OBM uneconomical in these intervals. These very extended laterals required a highly lubricious drilling fluid to minimize torque and drag while maximizing ROP. The customer wanted to drill four wells with a WBM that could mimic these properties and be a cost-efficient alternative. But using a conventional WBM would include challenges such as a higher surface torque and drag, a lower ROP, and tights spots caused by wellbore swelling and high friction when running casing or tripping out of the hole.

Replace current OBM with a high-performance water-based drilling fluid system

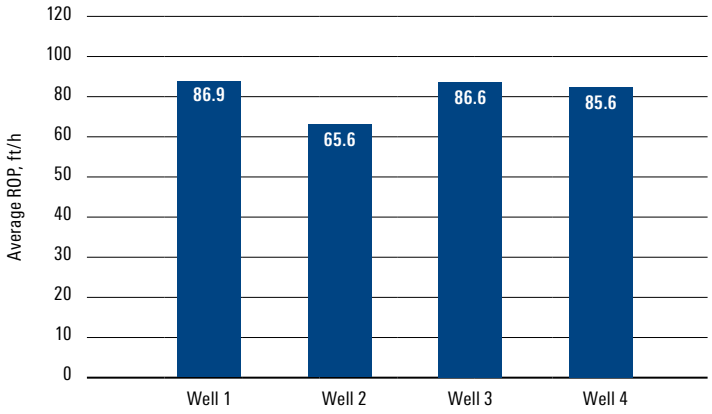
M-I SWACO, a Schlumberger company, suggested using the HydraGlyde system to replace the current OBM system. The HydraGlyde system is a unique shale-play drilling fluid system that competes with OBM in terms of penetration rates and wellbore stability—while helping operators minimize environmental impact and cost due to formation mud losses.

It was engineered with a low-solids formulation, consisting of 10 lbm/galUS [1,198 kg/m³] sodium chloride brine as the base fluid. To manage the reactivity of the Midway shale formation, 1–2% by volume of HydraHib* shale inhibitor and 1 lbm/bbl [2.8 kg/m³] of HydraCap* encapsulating additive were added to manage the reactivity of the Midway shale formation. In addition, up to 3% by volume of HydraSpeed* ROP-enhancing primary lubricant was used to provide the HydraGlyde system with similar lubricious characteristics to an oil-based mud.

Reduces cost due to formation losses by USD 300,000

By using the HydraGlyde system, the operator was able to save USD 300,000 per pad in costs due to mud losses, based on the unit cost of HydraGlyde system versus the previous OBM.

Additionally, the system enabled the bit to average an ROP of 86 ft/h [26 m/h] across three of the wells, with the exception showing the lowest ROP at 65 ft/h [19.8 m/h] due to severe losses encountered while drilling.



slb.com/drilling

Drilling Fluids