

Flat Rheology Drilling Fluid System Improves ECD, Saving USD 2.5 Million and 13.5 Days of Rig Time

Hole conditions and stuck pipe caused NPT in offset wells

RheGuard* flat rheology drilling fluid system helped reduce the rheological profile of the OBM, improving management of equivalent circulating density (ECD) during the cementing job and nearly eliminating losses to the formation.

Maintain low rheology in the drilling fluid

The operator wanted a fluid design capable of responding to different problems in the Magdalena Basin. The challenge was to maintain the lowest possible rheology in the drilling fluid, ensuring the suspension of cuttings and weight material.

Avoid NPT and stuck pipe

Offset wells in the area presented NPT associated with hole conditions and stuck pipe situations. High contents of smectite and kaolinite and shale packages generated instability issues. High-pressure zones required preventive measures and proper ECD to maintain well control. High ECD during cementing caused loss of cement to the formation.

Achieve proper ECD management while drilling high-pressure zones

RheGuard system is a 100% oil-based system that contains MicroBar* micronized weighting additive. With particle sizes less than 5 μm , MicroBar additive maintains the low rheological values needed to maintain proper ECD management while drilling high-pressure zones and encountering weak zones in highly complex geological settings. An oil/water ratio of 1 to 1 eliminates fluid salinity issues.

Improve BHA trips and casing running performance

The mud formulation maintained chemical stability, improving BHA trips and casing running performance. A formulation using 50% MicroBar additive as a weighting material maintained adequate management of the ECD in drilling and cementing. The formulation reached a yield point up to 13 lbf/100 ft² and a sag shoe test of less than 0.3 lbm/galUS. Reducing the rheological profile of the OBM helped to improve ECD management during the cementing job. The improvements resulted in a rig time savings of 13.5 days and a cost savings of USD 2.5 million.

“We want to express our appreciation for the excellent performance of the drilling fluid designed for the project. It generated significant savings and reduced time. An important part of this good performance was the good planning, engineering, execution, and monitoring of the OBM system in this complex basin of VIM, which mitigated potential problems of well control, instability, and pipe sticking.”

Drilling superintendent



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