

Abstract :

Diesel, bentonite, and cement are affordable and plentiful in Algeria but operators are not using them to their full potential as lost-circulation materials (LCM). Laboratory testing and field testing sought to improve possible additives for drilling fluids to prevent circulation loss in fractured formations and caverns in supergiant Hassi Messaoud field. Several complex new plugs are available, and clay minerals behave, at least initially, as a beneficial rheological additive in drilling muds. Mud loss is the main problem encountered during drilling in Hassi Messaoud, where circulation control was reported in about 85% of more than 1,200 wells drilled to date. The volume of mud lost varies from as little as 66 cu m in one well to 6,149 cu m in another. The authors tested different slurry formulations (plugs) using diesel oil, clays, cement, and polymers.