

Studies of the Loss of Circulation during Drilling Oil Wells

Abderrahmane MELLAK¹, K. EL HEIT², K. BENYOUNES¹

¹Hydrocarbons and Chemicals Faculty - Laboratory of Hydrocarbon Engineering,
University of Boumerdes, Algeria

²University Mouloud Mammeri, Tizi Ouzou, Algeria

Mellakabder@yahoo.fr

Abstract

Our research focuses on mud and cement loss during drilling of oil wells. These losses of circulation represent a real problem in phase 81/2 and particularly in the geological zone of the clay triassic. The problems of loss of circulation in drilling or cementing are too expensive for the oil companies and can also, if the problem is not well studied, go as far as the loss of the well. In order to avoid or at least reduce these losses of circulation, certain factors must be taken into account, the most important of which may be : The precise location of the area at a loss in order to inject the appropriate clogging products at the intended. It is in fact a successful mixing of bottom products with surface products at low densities while specifying the thixotropic behavior of injection products. Hydrostatic pressure must also be sufficient to avoid the creep of the clays and thus avoid the risk of Cracking Triassic-Clay. Consultation of records of previous experiments on loss of circulation in neighboring fields may also often indicate to us the effective solution to be applied to solve problems of loss. The simulation of the injection of drilling mud or cement suspensions into a research laboratory can also help us understand and plan this operation. Nevertheless, the ideal solution would be to find an injection fluid which incorporates in advance, at the entrance to the loss zone of the clogging products in order to reduce the number of cement plugs. This will avoid or at least greatly reduce the triggering of the loss while enabling the zone to be consolidated at a loss.

Keywords

Loss of circulations, thixotropy, clogging, simulation.