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**Barite Sagging: Polymer Integrated Drilling Mud Design Analysis**

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**Abstract**

Barite sagging is defined as separating and settling of weighing particles from the drilling fluids. Barite sagging occurs as a result of large density difference in drilling fluids or after the well is left uncirculated for a long time. This is a common problem in HPHT wells leading to wellbore instability; pipe stuck and well control problems. Hence, making corrections in the existing drilling fluids can be a solution to the problem which can save additional costs in case of failure to detect barite sagging. Hence, the study was done to add a new copolymer to invert emulsion drilling fluid in preventing sagging. The analysis of sag tests conducted by [5] B. Salem et. al. 2018 at 200°F to 350°F was done on a newly formulated drilling fluid for HPHT wells. The sag tests were performed with help of vertical and decline (45°) aging cells and were conducted for rheological characteristics and electric stability of the invert emulsion drilling fluid. The results of the tests on the drilling fluid conclude that the wells could be drilled without any sag issues reducing the overall drilling operation cost by reducing the non-productive time in resolving complications due to pipe sticking, wellbore instability or well control issues.

**Keywords:**

Sagging, Barite, Polymers, Drilling mud, Sag test, Mud design.

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