TG14

An Anti-Abiotic Mud System to Make Tight Gas Economics Economical

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SUMMARY

Abstract

The high cost of drilling and completion and the low gas price dictate to reduce the total drilling cost significantly to make the tight gas economics attractive. As the cost associated with the drilling of the non-reservoir section of a tight gas reservoir makes a major part of the total drilling cost, it is essential to reduce the cost associated with this part of the borehole significantly to make the tight gas economics economical. Drilling fluid and the fluid triggered borehole problems are some of the major cost items that increase the drilling cost significantly. That's why different mud systems are used to avoid different drilling problems while drilling the non-reservoir sections of the borehole. If a single mud system is capable to annihilate most of the mud problems such as monovalent salt contamination, divalent salt contamination, lime contamination, shale-drilling mud interactions, anhydrite dissolution, formation dissolution associated loss of circulation, then there will be a significant reduction in total drilling cost and thus can create a rosy economic for tight gas reservoirs. This paper describes an 'Anti-abiotic' drilling mud system that can prevent the sickening effect of all these common mud contaminants including shale-drilling mud interactions and other mud related borehole problems.

Experimental results of the mud with different mud contaminants such as NaCl_2 , CaCl_2 , cement, lime etc shows its excellent resistance to these contaminants and thus prevent the mud from any sickening effect of these contaminants. The ability to use KCl along with other shale inhibitive additives also make it a promising mud system to drill the reactive shale. Like the antibiotic of bacterial sickening, the mud system shows the anti-abiotic effect to all these mud contaminations and thus expected to be a universal mud system for drilling formations up to the tight gas reservoir zone.