

Simulating the Effects of Water Shut-off Treatment by Polymer Gel Injection

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Abstract

Worldwide, the high water production along producing hydrocarbons is affecting the cumulative productivity of wells. Due to complex reservoir parametric changes during the production, the near-by water aquifers or water tables infiltrates highly into the reservoir and starts affecting the well's productivity. Controlling the high water-cut producing wells is very challenging in the petroleum industry and is of prime importance as high water cut wells sometimes creates the mechanical and chemical damages to the equipment, depending on the water composition.

The research is focused on using one of the most effective and economical chemical treatment method. The Colloidal Dispersion Polymer Gel (CDPG) is injected from the injection well into the reservoir having very high the water cut. CDPG injection attempts in increasing the water viscosity, decreasing its mobility towards producing well that results in increasing the reservoir's oil productivity. CDPG injection results in oil increment and reduces 21% water-cut whereas initially it was 78% and now it is 57%. That much amount of water if produced will cost huge techno-economics and increment oil will prominently help to increase profit.