

عنوان مقاله:

New prospects of water and CO2 flooding in linear and five spot patterns: Numerical simulation case study

محل انتشار:

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نویسندگان:

Z. Jalili - *Department of Petroleum Engineering, Science and Research Branch, Tehran University, Tehran, Iran*

A.A Hashemi - *Department of Petroleum Engineering, University of Stavanger, ۴۰۳۶ Stavanger, Norway*

خلاصه مقاله:

Improving oil recovery is recognized as the major challenge and target at different stages of an oil field development. In this paper, a numerical simulation approach has been selected for water and CO2 flooding in linear and five spot patterns. It has been demonstrated that a proper and careful analysis of core experimental results is necessary for optimum representation of the reservoir simulation model, since an adverse effect of temperature (above a critical temperature) on relative permeabilities significantly affects the water flooding simulation results. For CO2 flooding in five spot patterns, it has been observed sweep efficiency directly depends on viscous to gravity ratio. By decreasing the gas flow rate, the viscous force is reduced; moreover by increasing the time, gas has enough time to segregate completely from oil bearing zone. The final oil recovery is reduced significantly and gas breakthrough time is occurred earlier as the ratio of viscous to gravity force decreases. The irregular global with irregular local grid refinement of production and injection wells has been suggested in terms of accuracy and CPU time for simulation of CO2 flooding processes.

کلمات کلیدی:

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