

عنوان مقاله:

Oil Recovery and CO₂ Storage through Carbonated Water Injection Process; Experimental Investigation on an Iranian Carbonate Oil Reservoir

محل انتشار:

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خلاصه مقاله:

Many oil reservoirs in the world including those in Iran have been producing oil for a long time; hence, they are at the end of their natural/primary production period. Enhanced oil recovery (EOR) processes are proposed for additional oil recovery after the primary and secondary oil recovery periods. Gas injection in particular CO₂ injection is a well-established method for incremental oil recovery in the oil reservoirs. This process is also considered as an environmental friendly process for CO₂ sequestration. CO₂ gas injection encounters some shortcomings such as low sweep efficiency, early breakthrough and high risk of gas leakage. Carbonated water injection (CWI) has been recently proposed as an alternative method to resolve the problems associated with gas injection. The results of extensive experimental tests of ultimate oil recovery efficiency for both secondary and tertiary CWI (SCWI-TCWI) core flooding and their CO₂ storage capacity are presented here. Besides, the CWI recovery efficiencies are compared with water flooding (WF) tests. The results showed higher ultimate oil recovery efficiency for SCWI compared to that for TCWI. However, CO₂ storage capacity for both TCWI and SCWI were observed to be the same. Generally, the CWI presented higher oil recovery efficiency than WF.

کلمات کلیدی:

Enhance oil recovery, Iranian carbonate reservoir, carbonated water, coreflood, CO₂ storage, secondary and tertiary

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