عنوان مقاله:

An Experimental Study of CO2-low Salinity Water Alternating GasInjection in Sandstone Heavy Oil Reservoirs

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خلاصه مقاله:

Several studies have shown that oil recovery significantly increases by low salinity water flooding(LSWF) in sandstones. However, the mechanism of oil recovery improvement is still controversial.CO2 that develops buffer in the presence of water is expected as a deterrent factor in LSWF efficiencybased on the mechanism of interfacial tension reduction due to pH uprising. No bright evidence inliterature supports this idea. Herein, a set of core floods including a pair of CO2 water alternating gas(WAG) and a pair of water injection tests were conducted and the efficiency of LSWF and highsalinity water flooding (HSWF) was compared for each pair. HSWF was followed by LSWF intertiary mode. The results showed that not only did not CO2 deteriorate LSWF recovery efficiency, itimproved recovery, because CO2-low salinity WAG showed the best performance among the othertypes at a constant pore volume injected. The positive results in both secondary and tertiary modeswith Kaolinite free samples used herein showed that Kaolinite release was not the criticalphenomenon in LSWF brisk performance. In addition, different pressure behaviors of CO2 WAGprocesses in comparison with the reported behavior of LSWF proves that LSWF performance may notdepend on how pressure changes through flooding.

کلمات کلیدی:

Low Salinity, Carbon Dioxide, WAG, Heavy Oil, Sand Stones