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Effect of Operational Parameters on the Performance of Carbonated Water Injection: Experimental and Numerical Modeling Study

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Abstract

The most attractive features of carbonated water injection (CWI) are its application for enhanced oil recovery (EOR) and potential for reducing greenhouse gas emissions. CWI is a robust CO_2 sequestration method in which carbonated water is injected into depleted oil reservoirs. CWI could also be coupled with disposal water injection. However, CWI efficiency in CO_2 sequestration and enhanced oil recovery depends on operational parameters such as CO_2 concentration in the injected fluid and injection flow rate. Therefore, the aim of this research is the investigation of addressed parameters in laboratory and field scales.