

عنوان مقاله:

Performance Analysis of Enhanced Gas Recovery Approach

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خلاصه مقاله:

Production of massive gas fields in Bangladesh is nearing to be ended in the near future. As global energy demands rise due to the rising population and rapid urbanization, maximizing available resources use has become essential. Therefore, preparing the field's measurement to extend the field's lifetime needs to get attention. One such measure is enhanced gas recovery (EGR); it is a potential technique to maximize the efficiency of the recovery process, which utilizes fracturing, water flooding, and gas injections to increase gas production. In this study, a simulation of the performance of three EGR techniques with linear, triangular, and corner injection well placements is presented; and thereby, the simulation results of the techniques are analyzed. Simulation of water flooding, CO<sub>2</sub> injection, and WAG (water alternating CO<sub>2</sub> gas) techniques are performed to evaluate the performance of the reservoir under these injections. A suggestion has been provided in favor of the suitable approach among them. The performances are evaluated based on two factors: the amount of additional gas which has been recovered and the quality of the produced gas. After analyzing the results for each case scenario, it is concluded that CO<sub>2</sub> injection can be applied to increase natural gas recovery up to ۲۴.۵۵% more than the base case model. In comparison, the water flooding and WAG models contributed ۱۶.۵۷% and ۸% more gas recovery, respectively. The EGR techniques are simulated using the GASWAT feature in the fully implicit formulation of the E<sub>300</sub> compositional simulator, a tool of the ECLIPSE suite. Finally, by analyzing the performances of three EGR techniques, this simulation study suggests the CO<sub>2</sub> injection model as the most suitable EGR technique over the water flooding and WAG models in terms of more gas recovery.

کلمات کلیدی:

Enhanced Gas Recovery, CO<sub>2</sub> flooding, Waterflooding, WAG, Injection Well Placement

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