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Numerical Simulation of CO₂ Huff-n-Puff to Enhance Oil Recovery from Tight Oil Reservoirs. A Case Study.

Tuesday, 1 June 2021 20:00 (1 hour)

The integration of horizontal well drilling and hydraulic fracturing has improved oil production from tight oil reservoirs. The oil recovery potential using primary recovery is cumbersome due to its robust tight formation; thus, the remaining oil in place in the tight oil reservoir required an effective method to improve the oil recovery from the tight oil reservoir. The implementation of CO₂-EOR has substantiated its ability to boost oil recovery from tight oil reservoirs. In this study, a numerical simulation of CO₂ injection huff & Puff was conducted—three series of CO₂ injection, CO₂ shut-in, and production. Huff&Puff is effective to compare to CO₂ flood, as CO₂ flooding required a long time for pressure dissipation from the injection and production well. Reservoir heterogeneity, permeability, fracture half-length, number of cycles, and the effectiveness of CO₂ on the efficiency of huff& Puff were investigated. The result indicates that CO₂ propagation in the tight oil reservoir plays a substantial role in enhancing oil recovery from the tight oil reservoirs, emphasizing that CO₂ in heterogeneity, low-permeability, and extend fracture half-length is more preferable as it was aforementioned. This paper elucidates the performance of CO₂ Huff&Puff in the tight oil reservoir of the Bakken formation, North America.

Time Block Preference

Time Block C (18:00-21:00 CET)

References

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