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Waterflooding simulation of reservoir containing horizontal well stimulated by multistage hydraulic fracturing

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Abstract

© Published under licence by IOP Publishing Ltd. The article presents a three-dimensional mathematical model for two-phase fluid flow near a multistage hydraulically fractured horizontal well (MSHFHW). The flow in the reservoir and in the fractures is simulated separately, and the flow rate is governed by Darcy's law. Finite volume method is used for spatial approximation. The obtained systems of linear equations for pressure in the reservoir and in the fractures are solved simultaneously, which allows us to avoid using iterative process for solution adjustment both in the fractures and the reservoir. Saturation is calculated by the implicit adaptive scheme AIM.

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Keywords

Horizontal well, Multistage hydraulic fracturing, Two-phase flow in porous media