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Study on pressure propagation of methane hydrate decomposition by depressurization in porous medium

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Natural gas hydrate is an ice like crystalline compound with a cage structure under high pressure and low temperature. The hydrate will decompose when the pressure is lower than the hydrate equilibrium pressure, so the pressure propagation rule is different from the porous medium without hydrate. Based on the theoretical analysis method of fluid mechanics in porous medium and considering the influence of hydrate existence on the law of influent in porous media, a seepage flow model of hydrate in porous media is established. Analytical solution of pressure distribution in porous media when the hydrates are decomposed can be obtained. Using the numerical simulation software CMG to simulate Gas Production from methane hydrate reservoir by depressurization in Shenhu Area . The law of pressure propagation in the process of decomposition by depressurization mining is obtained, and the results obtained by theoretical analysis are verified.

References

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