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Dynamic Behavior of Hydrate Dissociation for Gas Production via Depressurization and Its Influencing Factors

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ABSTRACT

Natural gas hydrate can be a potential energy resource to be developed in the near future. Gas production is feasible via depressurization, which has been applied for gas extraction from gas hydrate deposits in Messoyakha. Understanding the dynamic behavior of hydrate dissociation, i.e. the variations of pressure, temperature and gas production rate during the depressurization process, is important for process optimization and predications of geological hazards caused by hydrate dissociation. In this study, methane hydrate formation and dissociation experiments were conducted using a self-designed apparatus under different conditions in simulated porous media. Hydrate formation in sand packs with different hydrate saturations were simulated, and the dynamic behavior of hydrate dissociation process and its influencing factors were analyzed,

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