

Recovery Mechanisms of Bitumen from Fractured Carbonates using Steam

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In Alberta, Canada, extensive experience exists for extracting bitumen from clastic reservoirs using steam injection to reduce the ultra-high initial viscosity. However, the bitumen reserves of Alberta include 470 bln bbl in the Grosmont and Winterburn carbonates. Differences in characteristics between clastic and carbonate reservoirs (mineralogy, natural fracture systems, vugs, permeability, etc.) require modifications to the established in-situ recovery with steam. After listing main characteristics of the Grosmont carbonate relevant to recovery processes, all principal recovery processes are explained. The potential application of classical SAGD (Steam Assisted Gravity Drainage) and CSS (Cyclic Steam Stimulation) is discussed, and the concept of Cyclic-SAGD is introduced.