

NON-STEAM RECOVERY PROCESSES FOR OIL SANDS RESERVOIRS

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Solvent-aided steam recovery processes have been studied and tested in oil sands reservoirs in Alberta, Canada for several years. The results demonstrate that solvent addition to steam can help the recovery process and yield performance (energy efficiency and environmental impact) improvements beyond that of steam-only recovery processes. Here, we explore the use of solvent-only recovery processes in an ultra-defined oil sands point bar reservoir model. Ancient point bar systems are characterized by lateral and vertical lithological heterogeneities with length scales varying from centimeters to tens to hundreds of meters. These heterogeneities can serve as a means to cause greater solvent distribution within the reservoir through dispersion but on the other hand can lead to stranded solvent that is lost for production and subsequent recycling (thus improving process economics). Furthermore, heterogeneity alters the depletion chamber conformance along the well pair leading to non-ideal utilization of the well pair. We explore strategies to improve chamber conformance and solvent recovery from warm solvent-only recovery processes.