

Shedding More Light on an Oil Sand Reservoir by Applying Integrated Spectral Method Analysis – Case Study

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Abstract

Bitumen of the Lower Cretaceous McMurray Formation in north-eastern Alberta represents one of the most important hydrocarbon accumulations in the world with estimated more than 1.7 trillion barrels of oil in-place. Reservoir deposits are primarily associated with point bars and sandstone-filled channels. The reservoir is produced through steam assisted gravity drainage (SAGD), a very cost intensive operation that uses horizontal well pairs to extract bitumen. Successful SAGD relies on heat transfer through the reservoir from stem injection wells to horizontal producers at the base of the reservoir. Detailed knowledge of depositional facies, vertical and lateral distributions of potential stem-barriers (mud), net pay thickness and geometry of the reservoir are required for a successful reservoir development.