

Identifying Hydrocarbon Potential in Shale Dominated Thinly Bedded Clastic Reservoirs

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Abstract

Declining output from conventional reservoirs has led to an increased interest in unconventional reservoirs such as thinly bedded clastics characterized by low permeability and shale dominated lithofacies. Historically, these reservoirs have not attracted attention as hydrocarbon exploration targets because of their inherent low deliverability, and because it has been difficult to recognize net pay associated with thinly bedded sands utilizing conventional logging technology.

We will present case studies demonstrating a petrophysical modeling workflow to produce modeling-derived net-to-gross (N/G) curves based on a geologically realistic distribution of sands and muds. SBED geological modeling technology aids in identifying hydrocarbon net pay below the level of petrophysical log resolution by capturing sedimentary details at the laminar scale. Stratigraphic modeling of reservoir parameters such as kv/kh has contributed to improved estimates of recoverable hydrocarbon, and higher quality simulation models in reservoirs consisting of thin bedded interlayered sandstone/mudstone successions with good lateral connectivity.