

Resource Potential of the Peco Lower Belly River Sand Reservoirs

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The Peco Belly River Formation, located in Township 47 Range 15W5M, is a late Cretaceous clastic wedge of sediment that has produced significant quantities of oil and gas. The Belly River Formation has been divided into an upper and lower sequence, the latter of which lies conformably on the marine Lea Park Shale. This study focuses on the Lower Belly River sequence, where a series of stacked fluvial and deltaic distributary channel sands provide the reservoir facies for hydrocarbon accumulations.

The Lower Belly River has been divided into eight depositional units that are identified from oldest to youngest as A through H. Historically, the B sand unit has produced the majority of hydrocarbons; however the D, G, and H unit sands provide significant exploitation opportunities generally overlooked to date. The reservoir characteristics of each sand unit have been evaluated through core data and drill cuttings. Net pay calculations based on porosity cutoffs were subsequently used to determine original oil-in-place and drainage areas of the productive sands. These methods provide evidence of unexploited reserves in both the established productive oil pools and in untapped sand units within the Lower Belly River sequence. This evaluation also suggests horizontal drilling with multi-stage fracture stimulation may increase hydrocarbon recoveries.