

Depositional Models for the Milk River Interval: Past, Present and Future

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The Milk River Formation in southern Alberta and the lithostratigraphic equivalent Eagle Formation in north-central Montana comprise the first Late Cretaceous clastic wedge in this part of the Western Interior Foreland Basin. The interval is part of the northern Great Plains shallow gas system, which holds an estimated 25 to 55 tcf of natural gas in conventional and unconventional reservoirs. Because of the shallow depth of the reservoirs (around 300 – 600 m), and the resulting low drilling costs, relatively few detailed stratigraphic studies exist for the Milk River/Eagle interval. However, increasing demand and prices for natural gas have, over the recent year, increased the interest and needs for more detailed work. In this paper, historic and current models of deposition for the Milk River Formation in southern Alberta and the equivalent Eagle Formation in north-central Montana are reviewed, and future needs are discussed.

As gas exploration excelled in the late 60s in southern Alberta and north-central Montana, so did geological models for the interval evolve. After lithostratigraphy, the advancement of sequence stratigraphy and facies analysis has greatly helped in the understanding of the Milk River/Eagle Formation and equivalent rocks on a regional and reservoir scale. Nonetheless, a good integration of the fine-grained (unconventional) reservoirs in the distal part of the basin with the Milk River/Eagle shoreline in the proximal part proves challenging. To improve future natural gas development and exploration in this area a thorough regional understanding of the complete depositional system is necessary.