

3rd-Order Sequence Stratigraphy and Lithostratigraphy of the Bearpaw–Horseshoe Canyon Transition, Alberta Plains

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Abstract

The regional-scale delineation and modelling of upper and lower boundaries and zero edges for the Bearpaw Formation tongues in southern and central Alberta forms an important component of a wider AGS project to construct a digital 3D geological framework for the Alberta subsurface. Core and high-quality wireline logs, generated to a large extent by recent coal-bed methane drilling, permit the establishment of a 3rd-order sequence stratigraphic framework. This provides a context within which lithostratigraphic boundaries of the Bearpaw Formation with laterally equivalent and overlying Horseshoe Canyon and St. Mary River formation strata can be more rigorously mapped. Lower boundaries of the Bearpaw tongues are 3rd-order transgressive, or more proximally, maximum flooding surfaces, and upper boundaries are highly diachronous facies contacts within successive regressive systems tracts.