

Review and Comparison of Belly River Group and Edmonton Group Stratigraphic Architecture in the Southern Alberta Plains

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Southern Alberta south of T35 and east of W5 contains laterally extensive-to-patchy exposures and subsurface strata of the Campanian-Maastrichtian age Belly River and Edmonton Groups. During the past 10 years the stratigraphy of the Belly River Group in this region has been reinterpreted and redefined using a sequence and event stratigraphic approach. The results appear to have been useful to the hydrocarbon industry. More recently, portions of the Edmonton Group have been selected for review and re-interpretation using similar approaches.

Data presented here indicate that both units consist of a similar kind of stratigraphic architecture with a hierarchy of sequences and sedimentary facies that provides evidence for changes in (1) regional tectonism and associated rates of sediment supply and subsidence, (2) climate, and (3) sea level. Both units have a strongly non-marine flavor, and thus, cryptic sequence boundaries are present.

The complex hierarchical sequence stratigraphy of the Belly River Group is reflected in its current stratigraphic nomenclature. This nomenclature has found favor in the shallow gas industry. The Edmonton Group and particularly the Horseshoe Canyon Formation, appear to be very much in need of a similar revision. Recent study indicates the presence of at least five sequences in the Horseshoe Canyon Formation and a sequence boundary at the base of the Whitemud Fm. Previous successes in applying an understanding of subtle stratigraphic variation in the Belly River Group to hydrocarbon exploitation should encourage a similar interest in the ongoing development of revisions in the Edmonton Group.