

Carboniferous Stoddart Group: An integrated approach

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Abstract

The Carboniferous Stoddart Group is recognized as a complex stratigraphic unit within the Western Canadian Sedimentary Basin (WCSB) with high exploration risk. While syn-depositional tectonics controlled primary depositional thickness and facies distribution, post-depositional uplift and erosion significantly influenced unit preservation and interrupted facies belt continuity. Reservoir facies predictability is further reduced due to pervasive cementation, namely early anhydrite cement that was precipitated during transgressive events. The cement dissolved preferentially proximal to hanging wall side of tilted fault blocks during post-burial uplift. Integration of tectonostratigraphic, sequence stratigraphic, sedimentologic and diagenetic analyses is a key to understanding this complex deposit.