Genetic Stratigraphy of the Lower Colorado Group: From Peace River to the Montana Border

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Summary

Regional transgressive surfaces (commonly composite unconformities + transgressive surfaces) in the Upper Albian and Lowest Cenomanian Lower Colorado Group, allow subdivision into genetic units traceable from Peace River to the Montana border. An informal Lower Colorado allogroup comprises the Paddy, Joli Fou, Viking, Westgate and Fish Scales alloformations. The wedge-shaped, alluvial to marginal marine Paddy alloformation is confined to the north, and progressively onlaps eastwards onto a subaerial unconformity that truncates Cadotte and older strata. The mud-dominated Joli Fou alloformation records the subsequent regional Skull Creek marine transgression and coarsens northwards into strata assigned to the Viking Fm and southwards into the basal interval of the Bow Island Fm. The lower part of the Viking alloformation comprises regressive sandy shoreface to offshore deposits that filled the Skull Creek Sea prior to a prominent eustatic lowstand, combined with subtle southward tilting. Coeval rocks to the West are alluvial and are assigned to the Mountain Park Member; southwards the lower Viking equates with lower Bow Island Fm. The upper part of the Viking alloformation records the earliest part of the Mowry Sea transgression; the

unit is thick in the North (lower Hasler Formation), and in the South, but thins to zero in central Alberta due to arching and erosion. The bulk of the Mowry deposits are represented by the Westgate alloformation, which is a wedge of marine mudstone that thins and onlaps southwards onto the top of the Viking alloformation; in the far south it forms nearshore deposits of the middle and upper Bow Island Fm. The erosive-based Fish Scales alloformation records both sea-level fall, and longer-term rise, with widespread anoxia related to the connection of the Boreal and Tethyan water masses. Local coarse-grained nearshore facies constitute the lower part of the Barons Sandstone in southern Alberta.