

Regional Stratigraphy of the Fort St. John Group Between the Peace River Region and Fort Nelson: Interpretation of Northern Distal Sandstones of the Notikewin Member

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The Albian Fort St. John Group has been studied extensively in the Peace River region and recently in the Liard Basin due to increased hydrocarbon exploration. The area between the Peace River and Fort Nelson remains inadequately investigated. The study area covers the transition from coastal to shallow marine settings in the south to distal marine environments in the north. Stratigraphic correlations are based on over 1000 wells, three long coal cores south of the Peace River arch, and outcrop sections along the Peace River and Dinosaur Lake integrated with micropaleontological data.

The basal transgressive surface of the Moosebar/Clearwater Sea is a significant regional log marker separating coastal plain and shoreface deposits (Gething and Bluesky formations) from marine mudstones (Wilrich Member and Buckingham Formation). Sandstones of the Falher cycles pinch out northward into marine shales. The Notikewin Member of the Peace River area correlates north to map area 94H with one distinct coarsening upward cycle. However, westward these shelf sands abruptly change into massive mudstones of the Buckingham Formation. Distribution of these sands along the eastern margin of the foredeep is likely the result of counterclockwise marine circulation distributing sediments from the Notikewin delta along the eastern side of the foredeep. Greater subsidence rates to the west resulted in mainly distal, mudstone-dominated deposition. A high gamma ray unit overlying the Paddy Formation reflects a condensed section associated with a major marine transgression of the Mowry Sea. The high gamma ray unit is a widely traceable log marker. Deposition of shoreface sandstones of the Goodrich and Sikanni formations reflect regression of the upper Mowry Sea.