

Highstand Stacked Tidal Flat / Standing Water Evaporite Cycles of the Midale Evaporite in southeast Saskatchewan (Mississippian Williston Basin).

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Abstract/Excerpt

The Midale Marly and Midale Evaporite were recognized early in Williston Basin studies as a major marine transgression in predominantly regressive cycles (Harris, 1966, Hendricks, 1988). The cycles of the Mississippian in the Williston Basin reflect an aeriually shrinking basin with time. The Harris model suggests that hydrocarbons are trapped laterally by facies changes, and successive evaporates overriding the carbonates act as a top seal. The Midale Marly and Midale Evaporite reverse this trend. These units are interpreted to represent deposition within a Highstand Systems Tract Sequence Stratigraphic setting. The Marly dolomite reservoirs were deposited in shallow ponds along the shoreline according to the topographic relief of the underlying strata. The marine transgression on this Highstand package accounts for the variability in degree of dolomitization and reservoir thickness. A brief hiatus in deposition between Marly and the Evaporites is often marked by a thin organic lens. This core display will demonstrate the depositional environment and assess the regional significance of the Midale Evaporite. Is there important information to be learned from studying evaporites and does it have any economic significance?