

**VIKING SANDSTONE DEPOSITIONAL MODEL
ALONG THE EASTERN SHELF OF THE
WILLISTON BASIN, SASKATCHEWAN**

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The Viking Formation in southeastern Saskatchewan was laid down on the eastern shelf of the shallow marine Williston Basin during the Early Cretaceous. It is a fine-grained, multi-storey sandstone body, deposited by tidal and storm-generated currents.

In the western part of the study area the formation forms a broad, internally imbricate sheet between 20 m and 40 m in thickness, elongated parallel to the associated shoreline.

To the east, the sandstone forms thin discontinuous lobate bodies between 2 m and 20 m in thickness. These are tidally deposited marine bars and sand ridges. The locations of these sand bodies were influenced by basement controlled structural linear trends.

This study has revealed a number of previously undetected solution-formed depressions in southeastern Saskatchewan. Also, antecedent drape folding of the Viking Formation occurs above topographic highs on the Mississippian erosion surface.

The Viking lithology and structure in this area compares favourably with that of hydrocarbon-producing areas of the western shelf Viking sandstone in Saskatchewan. Many highly promising stratigraphic and structural trends are present. There are also numerous hydrocarbon shows within eastern shelf Viking sediments.