

Sedimentology and Stratigraphy of the Middle Jurassic Shaunavon Formation Oil Fields in Southwestern Saskatchewan

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Summary

The Shaunavon Formation has been a known oil producer in southwestern Saskatchewan with the first production coming from the Delta field (Township 15 Range 19 West of the Third Meridian) in mid-1952, and followed shortly thereafter by a second producer in the Eastend field (Township 6 Range 20 West of the Third Meridian) later in the same year. Early production from the Shaunavon interval in southwestern Saskatchewan was typically limited to isolated mixed clastic/carbonate shoreline bodies of the upper member of the formation. To date 2116 wells have produced oil from the heterogeneous Upper Shaunavon in the southwest of the province. However, over time 46 wells have also been drilled into and have produced from a fossiliferous-oolitic vuggy-mouldic porous interval, in the upper few metres of the lower commonly more homogeneous carbonate mudstone member of the formation, along the paleosyncline that forms the Shaunavon Oil Field Trend (Townships 3 to 16, Ranges 16 to 20 West of the Third Meridian). Production from the upper member is in the order of $55.9 \times 10^6 \text{m}^3$ (352MMBbl) since 1952, while the lower member currently has contributed $228.5 \times 10^3 \text{m}^3$ (1.5MMBbl).

The purpose of this study is to provide an update of the geological information that is now available for the Shaunavon Formation in southwestern Saskatchewan, by producing detailed maps and cross-sections that are derived from the study of core and geophysical well logs. The results of this study, when used in conjunction with previous work in the area, can then be used to attempt to expand and further delineate current exploration, particularly with respect to the lower member of the Formation.