Update on the Bakken in Southeast Saskatchewan: Stratigraphic Relationships, Sedimentology and Diagenesis Explored

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Abstract

In the past three years, the Bakken in Southeast Saskatchewan has been extensively drilled with over 670 wells completed with a current production of over 6000m^3 per day from the middle member. This represents a 2800% increase in Bakken production over the past three years.

The Middle Bakken is a clastic unit deposited during the earliest Mississippian. It is comprised of very fine calcareous sandstone and siltstone with shaly partings. Production from the Middle Bakken appears to be controlled by the stratigraphic architecture and relative degree of cementation. Most importantly, discontinuities within the Middle Bakken appear to play an important role in determining the best reservoir rocks in the areas of recent development. This member is bounded above and below by the black, organic-rich shales of the Upper and Lower Bakken Members. These shales are not thermally mature in most of the study area, however they are a significant oil source rock down-dip from the main Saskatchewan plays.

While engineering advances have made the Bakken an attractive target for new development, it is still important to consider traditional depositional and diagenetic models to find the best possible reservoir rock. This core presentation will show some of these important stratigraphic relationships through sedimentological study, regional mapping, and thin section petrography.