

Sequence Stratigraphic and Depositional Facies Framework of the Lower Cretaceous McMurray Formation, Kearl Oil Sands Project, Alberta

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Abstract/Excerpt

The Lower Cretaceous McMurray Formation in the Athabasca area of northern Alberta represents Canada's most important oil sands resource with an estimated 800 billion bbl in place (Figure 1). Approximately 15% of this resource can be exploited by surface mining. Imperial Oil and ExxonMobil have obtained regulatory approval to develop 4.4 billion bbl of bitumen at 300,000 bpd over a 50 year period at their Kearl Mine.

By integrating well, core and seismic data, a sequence stratigraphic framework was constructed for the McMurray Formation at Kearl to establish the basis for reservoir models that are essential for resource assessment, ore grade prediction mine planning and pit design. Observations from outcrop and Syncrude mine exposures also were incorporated to help identify regionally significant sequence boundaries, establish facies recognition criteria, interpret depositional environments and determine reservoir dimensions and distributions.