

Blackstone Formation Petroleum System of West-Central Alberta, Canada

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The Cretaceous (Cenomanian to Turonian) Blackstone Formation of the Colorado Group in west-central Alberta represents a self-sourced petroleum system with proved light oil production. Although a high-resolution allostratigraphic framework for the Upper and Lower Colorado Group of the foredeep of the Western Canada Sedimentary Basin is documented, the understanding of the Blackstone carbonaceous mudstones in the context of a self-sourced petroleum system remains rudimentary.

The project will characterize the burial history and reservoir properties of this organic-rich mudstone reservoir in order to develop a process-based petroleum system model. The resulting model is intended to provide guidance for exploration and development of a large conventional oil resource play hosted in “hybrid” carbonaceous silty mudstone reservoirs.

Rock Eval analyses of core samples representing potential source and reservoir intervals and a dense grid of allostratigraphic cross-sections will be the primary inputs for burial history analysis to evaluate timing and extent of the petroleum system. In addition, the intrinsic microporosity in the disseminated organic matter and clay fabrics will be compared to log-derived porosity estimates. This data will then be integrated into a geocellular petroleum system model to provide insights into the evolution of an unconventional petroleum system.