

Returning to the Rocks: Where's the Oil? Assessing the Oil-In-Place Volumes from Core Data for Bioturbated Viking Sand Reservoirs of Western Canada

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Fracture stimulation of horizontally drilled wells has opened up new opportunities to exploit tight oil bearing reservoirs in Western Canada. The Viking Sand has been exploited in this manner since 2007, with oil productivity generating highly economic results. Assessing the volume of oil-in-place associated with these Viking oil wells is problematic from conventional well logs and as a result, whole core analysis has been adopted to provide more accurate measurements for volumetric calculations.

Digital core processing under ultraviolet light conditions has been utilized to define the net reservoir thickness of the Viking oil accumulations, while conventional core analysis provides porosity and permeability values. Parameters derived from these analyses yield more accurate estimations of oil-in-place volumes and reveal low primary recovery factors in historical tight Viking oil pools.

This tangible whole core analysis provides greater certainty in evaluating potential ultimate oil recoveries and supports additional infill horizontal drilling and secondary recovery schemes.