Light Oil Exploration Potential for Devonian-Silurian (Fortin and Chaleurs Groups) Carbonates/Mudstones, Central Gaspe, Quebec, Canada, Near the Grande Riviere Transform Fault

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ABSTRACT

Recent (2015) success for oil production using horizontal drilling has been established at Galt Field. The play for light oil is likely to extend into the Central Gaspe Peninsula. Large undrilled structures await multistoried horizontal drilling of stacked reservoirs between world class source rocks roughly equivalent to the Marcellus and Utica shale. Improved seismic processing has made it possible to interpret complex thrusts and transform faults in the Central Gaspe Peninsula. The prospective section includes the Devonian Gres de Gaspe (York River) sandstones, Devonian Fortin Group mudstones and carbonates, Devonian-Silurian Chaleurs Group, and Upper Ordovician Matapedia Group (Whitehead Formation). These rocks have demonstrated light oil and gas potential in the eastern Gaspe Peninsula in the Galt and Haldimond Field areas currently under development near the York River Syncline. The play for light oil is likely to extend into the Central Gaspe Peninsula. The encouraging results of the ABBA Quebec Resources Mont-Alexandre #1 well (2009) have been integrated into an improved geological and geophysical interpretation. The Mont Alexandre #1 well provided much needed Lower Devonian stratigraphic information and log petrophysical measurements, including evidence of hydrothermal dolomitization of limestones and oil-condensate staining on samples. Current surface mapping and subsurface data integration is being done to assess additional areas for straight hole and directional drilling on several untested, thrust-related, anticlinal folds in permits PG 948 and PG 949. PSTM reprocessing (in 2014) of 2008-vintage Vibroseis lines in hills and valleys of the Central Gaspe permit area has improved the imaging of the thrust sheets. Key reflectors (Shiphead, Indian Point) are now mapped as over-thrust and sub-thrust Devonian and Ordovician traps. Cross-section log correlation of the Mont Alexandre #1 well log with productive Devonian well log horizons in Galt Field, show similar rock quality and hydrocarbon shows, and extend the regional potential of the Ordovician-sourced light oil play 45 kilometers southwest into Central Gaspe. The Forillion Limestone found in the Mont Alexander well correlates to the oil pay in the Galt #4.