

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

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Summary

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 Gaspé Peninsula. Large undrilled structures await multistoried horizontal drilling of stacked reservoirs between world class source rocks roughly equivalent to the Marcellus and Utica shale.

Introduction

Improved seismic processing has made it possible to interpret complex thrusts and transform faults in the Central Gaspé Peninsula. The prospective section includes the Devonian Gres de Gaspé (York River) sandstones, Devonian Fortin Group mudstones and carbonates, Devonian-Silurian Chaleurs Group, and Upper Ordovician Matapédia Group (Whitehead Formation). These rocks have demonstrated light oil and gas potential in the eastern Gaspé Peninsula in the Galt and Haldimond Field areas currently under development near the York River Syncline.

Examples

The play for light oil is likely to extend into the Central Gaspé 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 Gaspé 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 Gaspé. The Forillon Limestone found in the Mont Alexander well correlates to the oil pay in the Galt #4.