

Quantifying Shale Gas Potential of the Triassic Montney and Doig Formations, Northeast British Columbia

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Abstract

Interest in the shale gas potential of Northeastern British Columbia has been increasing as demand for natural gas grows and conventional resources are reduced. BC hosts several shale intervals that have been identified as potential shale gas horizons. Collection and analysis of data to evaluate prospective Devonian aged shales was completed and presented in a report by the Ministry of Energy, Mines and Petroleum Resources in 2005. The Ministry is continuing its evaluation of the province's shale gas potential with an analysis of the Triassic Montney and Doig formations, which have previously been identified as having high potential for shale gas type reservoirs.

The Triassic Montney and Doig formations span over seven million Ha of Northeast BC, range from 100 to 4400 m deep and are up to 500 m thick. They are present through several physiographic zones, such as the foothills, outer-foothills, Peace River Arch and Fort St. John plains, with differing potential and styles of natural fracturing. Major facies include fine grained shoreface sandstone, shelf siltstone to shale, fine grained sandstone turbidites and organic rich phosphatic shale. Limited development of conventional reservoirs in shoreface sandstone, shelf siltstone to fine grained sandstone and turbidites has occurred.

This study focuses on the evaluation of the shale gas potential of the Triassic Montney and Doig formations through quantifying the potential gas in place via spatial analysis. The independent variables of depth, isopach and total organic carbon are combined with regional estimates of porosity and temperature to estimate total gas in place and highlight trends of higher gas potential.