

Hydrocarbon Pools of the Colville Hills, Northwest Territories

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ABSTRACT

The Colville Hills exploration region occupies a semi-circular area north of Great Bear Lake and offers some of the best tested but undeveloped gas resources in northern Canada. The National Energy Board of Canada estimates (50 % probability level) a resource of 11933 106 m³ (420 Bcf) for three gas discoveries made in the 1980's.

Interest has been recently renewed in this region with the prospect of a Mackenzie Valley pipeline passing within economic tie-in distance. Several wells were drilled and new seismic was shot in 2003 and 2004; this data is confidential at this time.

Volumetric reserve estimates for the 1980's discoveries were derived using non-confidential data contained in well files, drill cuttings, core and other sources. Pool sizes are largely based upon previous seismic interpretations done by the original operating companies.

The Bele discovery is located on a gentle anticline with a pool extent of 7840 hectares and gas reserves estimated at 2323 106m³ (82 Bcf) in the Cambrian Mount Clark Formation. Mount Clark reservoir rock at Bele is comprised of fine-grained, well-consolidated quartz arenite with an average porosity of 11%.

The Tedji discovery has an area of 3681 hectares with gas reserves of 882 106m³ (31 Bcf) in Mount Clark sandstone. A fining-upwards sand lens, developed in a near shore environment, provides reservoir rock with 14% porosity. The gas is trapped in an anticlinal structure interpreted as a product of strike-slip adjustments of crustal scale Proterozoic faults.

The Tweed discovery has gas reserves of 3347 106m³ (118 Bcf) in the Mount Clark (pool size 8272 hectares) and 104 106m³ (3.7 Bcf) in Cambrian Mount Cap sandstones (pool size 1685 hectares). The Mount Clark pay zone is a fine-grained quartz arenite with porosity of 11%; Mount Cap pay consists of two dolomitic siltstone beds each with an average porosity of 10%. Gas is trapped in an anticline ten's of kilometres long and recognizable at surface.