

**The Canoe Landing lake deposit, Bathurst Mining Camp:  
an example of a distal transported massive sulphide deposit**

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The Canoe Landing Lake deposit has calculated geological reserves of 22.8 million tons grading 0.64% Pb, 1.82% Zn, 0.56% Cu, 0.94 oz/ton Ag and 0.034 oz/ton Au. The sulphides are hosted by grey to black graphitic slate of the Middle Ordovician Boucher Brook Formation at or near the contact with the mafic lavas, hyaloclastite, pyroclastic and epiclastic rocks of the conformably overlying Canoe Landing Lake Formation. The stratigraphic position of this deposit is atypical of other deposits along the Caribou Horizon, which usually occur lower in the Boucher Brook Formation, i.e., immediately above the contact with felsic volcanic rocks of the Flat Landing Brook Formation.

The sulphides form a semi-continuous sheet with a strike length of 1200 m. The sulphide sheet strikes 110° to 140° with dips between 60°N and 90°N, and has a down-dip length in excess of 925 m. The deposit varies in thickness between 2 m and 9 m and averages 5 m. Hanging wall contacts of the sulphide lens tend to be sharp. However, footwall contacts may be sharp

or gradational into disseminated pyrite that appears to be, in part, diagenetic. Footwall alteration features and stringer zone mineralization normally associated with proximal VMS deposits are absent at the Canoe Landing Lake deposit. Intraformational conglomerates (10 cm - 2 m thick) containing clasts of grey and black slate, and locally sulphides, in a black slate matrix are numerous in the immediate footwall of the deposit. The slate fragments range in size between 1 mm to 3 cm and tend to be tabular and quite angular, whereas, the sulphide clasts tend to be rounded. In most drill intersections the sulphide sheet comprises zones of massive, disseminated and clastic sulphides interlayered with barren slate, indicating numerous depositional episodes. These clastic textures are similar to textures seen in the "Transported ores" of the Buchans deposits and are consistent with a transported depositional model. These observations suggest that the sulphides are distal to the original vent complex and were emplaced by a combination of down slope transport and brine pool mechanisms.