

Structural geology and typology of the showings in the Lac Chevrier and Lac Dollier area (32G09-200-0201 and 32G09-200-0202)

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Abstract

Geological surveys and onsite verifications were carried out in the Lac Chevrier and Lac Dollier area (NTS sheets 32G09-200-0201 and 32G09-200-0202) in 2004 and 2005. This area is located approximately 25 km south of Chibougamau. It covers the Grenville Front Tectonic Zone, which separates the Abitibi Subprovince from the Grenvillian Parautochthon.

In the Chibougamau area, faults are known to exert a major control over ore deposit emplacement. These faults are classified into five groups: 1) synvolcanic faults (F₀) associated with the first or second volcanic cycle, 2) E-W shear zones (F₂) characterized by thrust movements, 3) poorly developed NE faults (F₃) emphasized by a crenulation cleavage, 4) NNE faults (F₄) with SE to NW-trending thrust movement and 5) E-W deformation zones (F₅) reactivated during the Proterozoic.

The study of the area's showings reveals at least five different mineralization types. Disseminated sulphides and volcanogenic massive sulphides occur in the area and may be, in some cases, associated with the Lemoine Member. Within the Queylus Member, Cu-Au veins show Au/Ag < 1. Mineralizations from a porphyry system centered on the Chibougamau Pluton include two mineralization subtypes: Cu-Au porphyries of the Chibougamau Pluton and Cu-Au veins of the Lac Doré Complex, typical of the Lac Doré mining camp. Orogenic gold veins associated with Archean E-W faults represent another type of mineralization. Finally, Cu-Au showings are associated with NNE faults, some of which are clearly late in relation to the Proterozoic gabbro dykes.