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Geology of the Ni-Cu-PGE showings near lakes Nadeau and Long, Portneuf area

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ABSTRACT

The Ni-Cu-PGE showings near lakes Nadeau and Long are located in the Portneuf-Mauricie Domain, about 60 km north of Trois-Rivières. Their location falls in NTS sheet 31I/16. The geology of the showings has not been studied in detail until now. The showings are located within the La Bostonnais Complex. They are hosted in three, little deformed, mafic to ultramafic plutonic bodies, dated at 1396 +6/-5 Ma, which are in contact with gneiss and diorite. The plutons are composed mostly of gabbro and, to a lesser extent, of peridotite and pyroxenite.

The showings contain disseminated sulfides (<1 to 10%), which are enriched in base and precious metals. Two samples from the West Zone contain average metal compositions of 9.5% Cu, 8.8% Ni, 28 ppm Pd, 19 ppm Pt, and 20 ppm Au (analyses recalculated to 100% sulfides).

Faults oriented NW-SE may have played an important role in the origin of the mineralized zones.

This preliminary petrographic and geochemical study complements our field observations. This study will improve our understanding of the origin of these showings and their host rocks, and will lead to the development of a metallogenic model applicable to other Ni-Cu-PGE showings in the Grenville Province.

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