

The Lac Volant Cu-Ni-Co showing and the mineral potential of the eastern Grenville Province, Québec north shore

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The discovery of the Lac Volant Cu-Ni-Co showing generated a staking rush on the Quebec North Shore that had never been seen before. Companies ground staked over 12,000 claims in less than 3 months. At one time, more than 300 stakers were in the field and over 25 companies were involved in the staking rush. Over \$4.5 million of staking expenditures and \$1.5 million of exploration work were recorded from late August to December 1996.

The Lac Volant Cu-Ni-Co showing is located 60 km northeast of Sept-Îles in the Polycyclic Allochthons of the eastern Grenville Province. The mineralization is found in a late to post-Grenvillian mafic dike injected along a major northeast trending lineament. The country rocks, belonging to the Matamec igneous complex, are composed of granulite facies metagabbro and highly deformed "augen" K-feldspar and pyroxene-bearing monzonite and leucogranite. The dike is characterized by multiple injections of gabbroic phases. The mineralization, composed of pyrrhotite, chalcopyrite, pentlandite, pyrite and magnetite, is associated with the later gabbroic phases. A mean average content of 2.3% Cu, 2% Ni and 0.12% Co is found on a series of channels with a total length of 6 m. The mineralization occurs as disseminated and massive sulphide, and the highest Ni content is 2.5%. The massive mineralization occurs in 3 zones, with

the dike zone, traced over 100 m with widths of 1 to 10 m, being the most important. Airborne EM and magnetic surveys indicate that the massive mineralization of the dike zone extends at shallow depths and appears to plunge to the northeast.

Except for localized Cu-Ni exploration in the 40's and from the early 60's to the late 80's, and U-REE exploration in the 60's and 70's, the eastern Grenville Province was known as unfavorable ground for exploration, except for the Wakeham Terrane. Most of the exploration work in the Wakeham Terrane was on Cu, Cu-Au-Ag, Au-Ag and U mineralization. The discovery of a major Cu-Ni-Co deposit at Voisey's Bay attracted companies to look for similar settings in the eastern Grenville Province. In 1995, prospectors and junior companies discovered over 15 new Cu-Ni-Co showings in the Quebec part of the eastern Grenville Province. Most of these showings are associated with mineralized mafic to ultramafic layers in marginal zones of anorthositic complexes. Today, the eastern Grenville Province provides a new "play" for exploration companies. Despite the complicated structural geology and high grade metamorphism, which might scare some geologists, the Lac Volant Cu-Ni-Co discovery demonstrates that unremobilized primary mineralization does exist in the eastern Grenville Province, and that more exploration and investment are needed in the near future.