

Newfoundland hosts several well exposed ultramafic complexes that have been central to mineral exploration and mining activities for decades. These ultramafic bodies have undergone variable degrees of serpentinization: a low grade, retrograde metamorphic reaction in which minerals such as olivine and pyroxene break down to form one of the serpentine family of minerals and magnetite. Strongly reducing conditions caused by the release of H_2 during the formation of magnetite provide conditions amenable to the formation of Ni-rich mineral phases such as awaruite (Ni_3Fe). The nature of these Ni-bearing minerals is further defined by the available sulphur content of the system. Awaruite is formed under reduced conditions in the absence of sulphur and represents hydrous-metamorphic remobilization of nickel from its silicate residence in olivine.

The scope of this project is i) to document awaruite and associated nickel mineralization in the Pipestone Pond Complex in central Newfoundland and ii) to constrain the geological conditions under which Ni-Fe alloy mineralization formed. Detailed mapping, core logging, polished petrographic thin sections, and the SEM-MLA will be utilized to investigate awaruite and associated minerals. The results of this research will be used to help guide exploration for Ni-Fe alloy minerals by identifying rock types which host the most significant awaruite, as well as provide some insight on the controls of mineralization.

**An evaluation of awaruite in the Atlantic Lake area
of the Pipestone Pond Complex, Newfoundland**

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