
Host lithologies and ore characterization of the Dumont Sill, Quebec

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The Dumont Sill is a komatiitic Archean copper nickel ore body hosted in a large layered ultramafic sill. This sill is located 25 km west of Amos in the Abitibi greenstone belt of Quebec. The sill is completely owned by the Royal Nickel Corporation (RNC) and their property covers 4,080 hectares. The Dumont Sill is 7.5 km long and averages 700 m thick. The sill itself is thought to contain 5.1 billion tonnes of nickel (0.25% cutoff). The nickel mineralization is concentrated in the dunite unit. In 1987 platinum was discovered in the eastern sill through a drill program.

The dunite is variably mineralized with pentlandite, heazlewoodite, and awaruite containing nickel and chalcopyrite containing copper. This project is hoping to gain more insight into which lithologies host the different types of ore, as there were two major phases of ore generation: primary magmatic sulphides and secondary ore formed during serpentinization. This project will also try to determine which minerals host the platinum group elements and their concentrations.

This project will use approximately 30 of the samples collected in the summer of 2008 by Dr. E. Burden and possibly some PGE samples supplied by the RNC. Nine field samples from the north section of the sill represent six field stations and thirteen samples from the south of the deposit represent twelve field stations. An additional two samples were taken from a diabase to the south of the sill and five samples were taken from a mafic to ultramafic section to the west of the main deposit; this section appears to be parallel in strike. These samples will be analyzed using a petrographic microscope with polished thin sections and by using a scanning electron microscope, mineral liberation analyzer (SEM-MLA). There will also be access to whole-rock lithochemical data for samples collected on and around the Dumont Sill.

By using microscopy, geochemical analysis, and advanced imaging techniques it is hoped that more will be learned about the host lithologies of the Dumont Sill and the character of the ore mineralization.