Investigating the potential for economic mineralization in the Jumping Brook Metamorphic Suite, Cape Breton Highlands, Nova Scotia, Canada

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The Jumping Brook Metamorphic Suite (JBMS) underlies a large part of the western Cape Breton Highlands east of the village of Cheticamp. It consists of the mainly metavolcanic Faribault Brook Formation overlain by the main metasedimentary Dauphinee Brook Formation. Numerous mineral occurrences are known to occur in the JBMS, including native gold, silver and sulphide minerals including chalcopyrite, arsenopyrite, galena, and sphalerite. The rocks are strongly deformed and hence stratigraphic relationships between the formations of the JBMS and the nature of the mineral occurrences that they contain are poorly understood. The purpose of this study is to further investigate these relationships by examining in detail core from two drill holes, GM-08- 08 drilled at 45 degrees to a depth of 50 m by Globex Mining Enterprises Limited in 2008, and FB-01-86/08 drilled vertically to 128 m by Selco BP Resources Canada Ltd in1986 and deepened to 277 m Globex Mining in 2008. The core will be logged and magnetic susceptibility measured. Representative samples will be taken for thin section preparation and petrographic study to enable definitive identification of rock types. A portable XRF instrument will be used to obtain detailed analysis of chemical variations in the core, and igneous samples will be submitted for whole-rock chemical analysis to investigate chemical affinity and tectonic setting in which the rocks formed. Previous studies have suggested that the mineralization is syngenetic polymetallic volcanogenic massive sulphide (VMS) mineralizing event in MORB-type basalt associated with turbiditic sediments in a back-arc basin, but there is also evidence of epigenetic vein-related mineralization. The area will be compared mineralized rocks units of similar Cambrian-Ordovician age in Newfoundland and New Brunswick. Ultimately, the implications of this research may provide new exploration targets and/or genetic models for the Jumping Brook Metamorphic Suite. [Poster]

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