Exploration Talk Series
December 3, 2013

PROSPERITY GOLDFIELD'S KIYUK LAKE PROJECT
A POTENTIAL NEW GOLD DISTRICT IN SOUTHWESTERN NUNAVUT

Presented by

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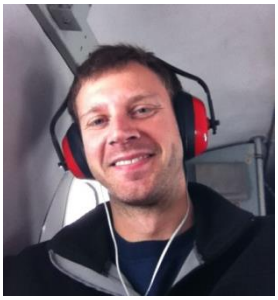

Gold mineralization at Prosperity Goldfields' Kiyuk Lake Property, Nunavut is hosted in altered, veined, and brecciated clastic sedimentary rocks of the Proterozoic Hurwitz and Kiyuk groups that unconformably overlie Archean basement. The dominantly sedimentary package is thought to represent an intracratonic basin that formed during extension and was subsequently infolded with basement rocks during the Trans Hudson Orogen (2.0 to 1.8 Ga; Aspler et al., 2002). The rocks are typically unfoliated and evidence of deformation in mineralized areas is rare.

Although the presence of gold-bearing boulders and rare outcrop showings were documented in 1992, significant gold mineralization was not intersected in drill core until 2011 (eg. 37.8m @ 4.18 g/t Au from 2.4 m). To date four gold showings have been drilled (Rusty, Gold Point, Cobalt, Amundsen) and many untested targets have been identified through prospecting, till sampling, and geophysics.

Gold mineralization is associated with calcic and sodic alteration consisting of pervasive albite-quartz-carbonate ± actinolite alteration of the host sandstone and conglomerate, and cross cutting veins or breccia matrix of actinolite-calcite-dolomite-quartz ± scapolite ± tourmaline ± magnetite. Pyrrhotite and pyrite are prevalent in the gold zones as disseminated grains and locally as semi-massive veins or lenses. Arsenopyrite occurs within and adjacent to gold zones. The relative abundance of these sulphides varies from showing to showing. The relationship between gold mineralization and magnetite is unclear. In certain gold zones magnetite occurs as part of the infill in the breccia matrix but in other areas gold zones are characterized by magnetite destruction. These characteristics are atypical of the well-known gold deposits in the region which are dominated by quartz and/or quartz-carbonate veins.

The mineralizing event at Kiyuk Lake has not been dated however iron formation-hosted gold deposits further north such as Meadowbank and Three Bluffs formed at ~1.8 Ga (Davies et al., 2010) suggesting a Hudsonian age is plausible. Various models of gold mineralization have been proposed including IOCG, orogenic gold, and intrusion-related gold, but a clearly defined model has yet to emerge. Possible analogues include the Otjikoto Deposit in Namibia, and the Tennent Creek District of Australia. Ongoing research aims to fully describe alteration patterns, constrain the timing of gold mineralization and hydrothermal fluid source.