Chouinard RL, Winterburn PA, Ross M, Lee RG, 2016, Defining the surficial geochemical footprint of buried Cu-Mo porphyry mineralisation at the Highland Valley Copper deposits, south-central British Columbia, Abstract, Roundup, Vancouver, BC

The Highland Valley Copper (HVC) Cu-Mo porphyry deposits in south-central British Columbia are the focus of the CMIC-NSERC 'Footprints' Project's Porphyry Copper Subproject. The deposits at HVC comprise five main known clusters of porphyry-style mineralization, which vary in production state from active to undeveloped. The J.A. and Highmont South targets comprise two mineralized areas within these clusters that are both undeveloped and buried under cover of glacial and pre-glacial origin. Surficial geochemical studies at these two targets aim to fully characterize mineralogical and chemical changes manifested in the surficial environment after glacial dispersal and soil development over mineralized bedrock. Surface regolith mapping and sample collection was undertaken along multi-line transects that cross known mineralization and extend out into background. This work will be complemented by groundwater sample collection and a geophysical self potential (SP) survey. Vertical metal transfer from bedrock mineralization to the surface is being discerned from geochemical signals from mineralized fragments in the transported glacial cover, as well as anthropogenic inputs due to past and ongoing mining operations. Surficial geochemical studies were extended out from known bedrock mineralization to determine the spatial limit of the alteration halo expressed in the overburden. Multi-element inorganic and organic geochemistry has been undertaken on soil samples at commercial facilities to identify true anomalies generated from mineralization and discriminate these from false positives. Previous work at Highmont South indicated a positive response to mineralization through 5-6m of glacial cover. Robust parameters defined by the analysis of Highmont South will be tested over the J.A. target, which sits under much thicker (150-300m) glacial and fluvial-lacustrine cover. The robust, multi-parameter analyses of J.A. and Highmont South aim to develop surficial geochemical exploration models to apply in the search for other buried Cu porphyry mineralization.

NSERC-CMIC Mineral Exploration Footprints Project Contribution 063.