

Volcanic, structural, and hydrothermal controls on mineralized environments on the Onaman property, northern Ontario

K Strongman¹, H Gibson¹, AE Howard²

¹Harquail School of Earth Sciences, Laurentian University, Sudbury, Ontario; ²Nebu Consulting LLC, Williamsville, New York

Sage Gold Inc.'s Onaman property is located 60km northwest of Geraldton, Ontario, within the 2770-2780Ma Onaman-Tashota greenstone belt, a subdivision of the larger Wabigoon subprovince. The property hosts extensive Cu-Ag-Au-Pb-Zn mineralization that is associated with a range of mineralization styles and textures. Mafic and felsic volcanic rocks of the Onaman assemblage underlie the property and form a large, steeply northwest dipping, homoclinal succession that is bordered to the northwest and southeast by granite batholiths. Approximately 70 percent of the volcanic rocks are mafic flows dominated by massive and pillowed basalts. The flows are intercalated with thin (30-200m by 2-4km) intervals of highly altered felsic volcanic rocks comprised of tuffs and crystal tuffs along with minor massive and porphyritic rhyolite flows. Coarse volcanoclastic units are rare and comprise felsic heterolithic lapilli-tuff and tuff-breccia units containing both disseminated mineralization and pyrite-pyrrhotite clasts. The property contains a large, metamorphosed, Archean alteration assemblage of kyanite-quartz, and chloritoid-sericite as well as a more typical volcanogenic massive sulfide (VMS) assemblage of chlorite-sericite. Preliminary interpretations suggest the kyanite-quartz and chloritoid-sericite assemblages overprint the chlorite-sericite assemblage. Structurally, the sequence shows strong bedding-parallel foliation that is partitioned into 0.5-15m wide shear zones near lithological contacts. Preliminary mapping has revealed five mineralization styles present on the property: (1) chlorite associated Cu sulfide stringers; (2) kyanite-quartz associated massive and stringer style pyrite-pyrrhotite; (3) conformable Zn-Pb-Ag±Cu-Au massive sulfide; (4) sheared chlorite-sulfide Zn-Pb-Ag stringers; and (5) chloritoid associated Ag telluride and sphalerite veins. The anomalous Al-rich alteration may represent the metamorphosed equivalent of a high sulfidation epithermal system.