

University of Waterloo

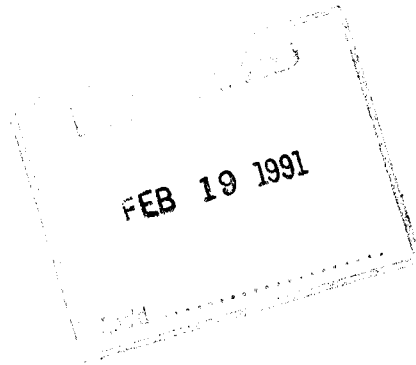


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February 14, 1990

Gary Wells
Minnova Inc.
Mining Innovation
311 Water Street, 4th floor
Vancouver, British Columbia
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Dear Gary Wells

Enclosed is a brief summary of the thin section analysis that has been done for the Lara Property, Vancouver Island. Twenty-seven polished thin sections were made at the University of Waterloo from the samples that were sent to me.

I am in the process of finishing off the thin section analyses and hope to have it completed by the end of this month. Carbonate staining has been done on seven of the sections to determine what carbonates are present.

Later in this month I will be at the University of Toronto for microprobe work. I intend to probe the sericites and chlorites as well as an unidentified hydrothermal mineral found only in the Coronation Zone. The mineral is granular and isotropic, and appears to be coeval with pyrite. The mineral is possibly hydrogrossular. Hydrogrossular, $\text{Ca}_3\text{Al}_2\text{Si}_2\text{O}_8(\text{SiO}_4)_1\text{-m}(\text{OH})_4\text{m}$, is a low temperature garnet that forms from the redistribution of calcite or from the metasomatic introduction of calcium.

From the probing, I will determine the exact composition of the mineral. I hope to find that the mineral is a manganese-rich garnet. Hydrothermal garnets have been found at Normetal and Aur Louvem, Quebec and are related to the ore zone. Manganese is a good indicator for ore zones at Aur Louvem.

Sincerely,

Elizabeth Bowslaugh

Elizabeth Bowslaugh

CORONATION ZONE

Sulphides consist of coarse-grained subhedral to anhedral pyrite, fine-grained anhedral chalcopryrite, fine-grained anhedral galena, and fine-grained anhedral sphalerite. Pyrite and hydrogrossular(?) formed first and appear to be coeval. Chalcopryrite fills fractures in large pyrite grains as well as calcite. Chalcopryrite, galena and sphalerite have formed between grains, along grain boundaries and are also found as isolated blebs. Massive calcite surrounds the sulphides and fills openings between the grains. Smearred muscovite is common within the bands. Small quartz and plagioclase phenocrysts may be present in the sulphide bands. The host rock consists of corroded quartz phenocrysts and anhedral feldspar phenocrysts in a groundmass of sericite and quartzofeldspathic material.

	TIME
pyrite	----
hydrogrossular(?)	----
chalcopryrite	----
sphalerite	----
galena	----

COUNTRY ROCK

ANDESITES

Andesine (minor oligoclase) phenocrysts are common with minor quartz. Quartz usually is found in pods of recrystallizing grains rather than phenocrysts and is dominant in the groundmass. Plagioclase shows sericite alteration, and in one section, shows partial to complete epidotization. Small grains of epidote are scattered throughout the sections and suggest a late formation. Quartz and chlorite form pressure fringes associated dominantly with pyrite and minor plagioclase. The groundmass consists of sericite and chlorite with quartz and feldspar. Calcite forms discontinuous layers aligned with the foliation and is found in pressure shadows. Calcite veins (minor ferroan calcite) cut the foliation.

RHYOLITES

Quartz and potassic and plagioclase feldspar occur as phenocrysts. Oligoclase-andesine phenocrysts appear to be more dominant than potassic feldspar. The amount of sericite alteration in the feldspars varies between sections. Quartz

phenocrysts are commonly corroded and some grains appear biaxial due to strain. The grains commonly show undulose extinction. Calcite has formed in the pressure shadows of plagioclase and form discontinuous layers parallel foliation. Calcite veins also cut the foliation. Sericite and quartz consist of the groundmass with minor chlorite, muscovite, and feldspar.

QUARTZ FELDSPAR PORPHYRY DYKES

Quartz has been highly strained and primarily forms pods of recrystallizing grains. Small andesine phenocrysts are present with minor sericite alteration. The section is heavily fractured along which ferroan calcite has precipitated. Blebs of ferroan calcite and ferroan dolomite are scattered randomly throughout the section. Sericite has formed in the groundmass and appears to have aligned before fracturing occurred. Chlorite has formed in pressure shadows and fine grained gouge is present.