

## Memorandum

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**To:** File  
**From:** Jeff Cornoyer  
**Subject:** **Mineralogy Of The Rosemont Deposit**  
**Date:** April, 28 2011

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The Rosemont Deposit contains copper-molybdenum-silver primarily hosted in an east-dipping package of Paleozoic-age sedimentary rocks. The mineralization is primarily in garnet-diopside (with minor magnetite) skarn which formed in the Paleozoic rocks as a result the intrusion of quartz latite to quartz monzonite porphyry. Marble is developed in the more pure carbonate rocks, while the more siliceous, silty rocks converting to hornfels. Bornite-chalcopyrite-molybdenite mineralization occurs as veinlets and disseminations in the garnet-diopside skarn and associated marble and hornfels, accompanied by quartz, amphibole, serpentine, vesuvianite, wollastonite, forsterite, calcite, chlorite, epidote, talc and clay alteration. (M3 Engineering and Technology, 2009 p27-28)

The skarns can be characterized by the dominant, but variable garnet and diopside content that resulted from the calc-silication of the hydrothermal mineralization event. The amphibole group of minerals is subordinate constituents in these type of deposits. The amphibole group includes a variety of minerals with a similar crystal structure, and includes hornblende, actinolite, tremolite, and others.

At Rosemont, tremolite-actinolite was observed in very minor and locally limited occurrences in the drill core collected from throughout the deposit area. The tremolite-actinolite was not observed to have silky fibers or aggregate mats typical of asbestiform, but rather occurred as local disseminations near a contact in acicular crystals. When observed, commonly only the pseudomorph remains, with tremolite-actinolite altering to chlorite, talc and carbonates.

Also present in the Rosemont drill core is hornblende  $(Ca,Na)_{2-3}(Mg,Fe,Al)_5Si_6(Si,Al)_2O_{22}(OH)_2$ . The color is green to dark green and the crystal habit is columnar, acicular crystals. If dark green, actinolite and ferro-actinolite cannot be distinguished from hornblende (Nesse 2000 p284).

### References

M3 Engineering and Technology, 2009. *NI 43-101 Feasibility Study, Technical Report Volume 1*. Prepared for Augusta Resource Corporation. Report dated January 2009, Amended March 17<sup>th</sup> 2009.

Nesse, W., 2000, *Introduction to Mineralogy*, Oxford Press, New York 442 p.