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B.A.Sc. Thesis

MINOR ELEMENT STUDY OF PYRITE FROM THE MORRISON LAKE
PORPHYRY COPPER DEPOSIT, CENTRAL BRITISH COLUMBIA

by

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ABSTRACT

Seventy-five samples from the Morrison deposit of Noranda Exploration Co. Ltd. in Central British Columbia were analyzed for Co, Cu, Mn, Ni, Pb and Zn by atomic absorption spectrophotometry. A detailed examination of these data leads to the following conclusions: (1) Co and Ni are positively correlated with each other and negatively correlated with the remaining elements; (2) Cu, Mn, Pb and Zn include a number of pairs of strong positive correlation and each is negatively correlated with Co, Ni, or both; (3) cumulative probability plots and histograms show that all elements have approximately lognormal distribution, and (4) in the case of two elements (Cu and Mn) the presence of 2 lognormal populations is obvious. For each of Co and Pb, a single lognormal population occurs above the detection limit and a second population below the detection limit is implied. A corresponding mineralographic study strongly suggests that in cases of 2 populations, high populations are result of mineral contaminations in the pyrite concentrates analyzed.

Co:Ni scatter plots do not distinguish between (1) pyrites with different wallrocks, or (2) pyrite in vein form as opposed to disseminated form.

Computer contoured plots of analytical data are useful in examining any systematic variations that might be present. Significant Ni lows and Mn highs are located over the ore zones with less prominent Cu, Pb and Zn lows positioned peripheral to the orebodies.

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