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B.Sc. Thesis

MINERALOGY AND COMPUTER-ORIENTATED STUDY OF THE
EAGLE VEIN COMPLEX, LIARD MINING DISTRICT
NORTHEASTERN BRITISH COLUMBIA

by

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ABSTRACT

The Eagle Vein Complex is one hundred and forty miles west of Fort Nelson, B.C. Access is via secondary road from the Alaska Highway. The Eagle Vein Complex occurs in Proterozoic sedimentary units characteristic of the eastern slope of the Rocky Mountains. Average altitude at the deposit is 6700 feet above sea level.

The Precambrian units, although unmetamorphosed, are extensively folded and faulted. Two phases of intrusion of gabbroic dikes and at least two periods of hydrothermal activity have occurred, all prior to the deposition of Cambrian sediments.

The gabbroic dikes and the veins resulting from hydrothermal activity have been emplaced in areas of intense folding and shearing. This activity is genetically related to the folding in that the dikes and veins are oriented in the ac plane of localized folding.

The Eagle Vein Complex is composed of silica-carbonate gangue containing economic quantities of chalcopyrite. Pyrite, limonite and covellite occur as accessory minerals. The textural relationships of these minerals may prove beneficial during the concentration process.

The Harris and Ridge Veins located on Davis Keays' property are mineralogically and genetically related to the Eagle. The Magnum Veins mined by Churchill Copper Corporation are mineralogically different from the other three, and it is thought that they represent an earlier pulse of hydrothermal activity and associated mineralization.

A combined statistical and geological study of the Eagle Vein Complex resulted in definition of two separate and distinct veins. The veins differ in mineralogy, structure and statistical definition. The method of evaluation encompassed preparation of a data file compatible with computer-orientated analysis methods used routinely at the University of British Columbia.

The study has provided a case history for future studies of similar deposits, and could provide data pertinent to mining such a deposit. It is recommended that serious consideration be given by the Directors of Davis Keays Mining Co. Ltd. (NPL) to a possible re-evaluation of the Eagle Vein Complex in view of the presence of two veins rather than one.