REVIEW OF THE PORPHYRY CREEK MOLYBDENUM PROSPECT OMINECA MINING DIVISION, B.C.

for

Chevron Standard, Limited

Stewart R. Wallace
Lakewood, Colorado
February 26, 1980

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Mr. J. W. Simpson
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Dear Jim:

After all the hustle to get to the airport, my plane was two hours late. In any event, thanks for calling a cab and for all other courtesies extended; sorry to leave the reports, rocks, sections, maps, etc., etc., in such a jumble, but given the time "squeeze" it seemed prudent.

This report is a bit longer than I had anticipated and I think that it is perhaps considerably more than you wanted. Complete reports are not to be expected on the basis of short, rush jobs, but I always feel happier if a report can more or less stand on its own, and this is what I have tried to do. The result, as you might suspect, has ended up being somewhat of a cross between a letter and a report--a not altogether happy compromise. In any event, I hope you can find what you are looking for without too much difficulty.

I enjoyed meeting you, Peter Folk, and Earl Dodson, and want to thank you again for the opportunity of reviewing the data on your Porphyry Creek Prospect. Good luck!

Sincerely,

Stew

Stewart R. Wallace

SRW:ap

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SUMMARY AND CONCLUSIONS

Mineralization and hydrothermal alteration in the intrusive complex at the Porphyry Creek molybdenite showing are weakly developed, have no discernible gradients, are of mixed types, and do not exhibit zonal patterns of distribution. These features are characteristic of deuteric events, as opposed to those typical of true hydrothermal systems; I see no particular geologic evidence based on the data reviewed that suggests anything other to me than that "you are looking at it."

Without question, the property was very much worth drilling and it is unfortunate that the assay results from drill core and values in the soil samples are so disparate. I do not know of any bona fide case of significant up-grading of molybdenum in either soils or rock by secondary enrichment, residual concentration, etc., etc. I must say that I am surprised at the magnitude of the "geochemical enrichment" and concur in your suspicion that either the sample preparation or the analytical method are probably at fault. However, it would be very nice to know, and I suggest that a little time

and effort be devoted now to pinning down the cause of the discrepancy; it could be useful information in the continuation of your exploration program for molybdenum. In any event, a screen analysis (orientation survey) should indicate any sample preparation "errors" in short order.

INTRODUCTION

This report is the result of a one and one-half day review in the office of Chevron Standard, Limited, in Vancouver, of the Porphyry Creek molybdenite property being explored jointly by Chevron and Teck Exploration, Limited. During my review I discussed the technical aspects of the prospect with J. W. Simpson, Senior Geologist, Chevron, and Peter Folk, Geologist, Teck Exploration, examined reports describing and illustrating the geology, geophysics (magnetics) soil chemistry, and drill data from the 1979 holes. I also looked at hand specimens and some drill core slabs and thin sections from DDH 79-1.

TECHNICAL DATA AND INTERPRETATION

The Porphyry Creek Area although very inaccessible has

attracted sporadic interest by mining and exploration companies at least since 1936 when C M & S examined some gold veins near the main molybdenite showing on the southwest side of Porphyry Creek. The most recent activity prior to the present work by Chevron and Tech Exploration was by Riocannex in 1963, when they located (?) ground covering a large iron-stained area centered on an elongate stock about 3,000 feet long in a northwesterly direction and 600 to 900 feet wide intruded into a series of metavolcanic rocks of intermediate composition. The color anomaly is due to the oxidation of pyrite in the intrusion, and of pyrite and magnetite in the contact zone surrounding it. The main intrusive phase appears to be a medium-grained somewhat porphyritic biotite-quartz monzonite. This rock and the surrounding metavolcanics are cut by a variety of dikes identified as aplite, dacite, feldspar porphyry, and quartz-feldspar porphyry.

The most prominent dike direction is northeasterly expressed by strong dikes of biotite-quartz monzonite and quartz-feldspar-biotite porphyry on both sides of the stock. Interestingly enough, one of the two major molybdenum geochemical anomalies is at the "intersection" of this dike trend and the stock. The map shows that the dikes come from the stock and do not cut it; however, their trend clearly indicates a fracture direction. The other dominant fracture

direction is shown by elongate zones of pyritic alteration and bleaching and by quartz-feldspar porphyry dikes that parallel the altered zones and trend eastward into the southern part of the stock;* here is located the other area containing soils anomalously rich in molybdenum. It should be noted that the area between the two molybdenum anomalies is in part covered with glacial debris and thus, the distribution of bedrock mineralization suggested by the geochemistry may be more apparent than real.

Microscopic examination of the thin sections of drill core from DDH 79-1 show the presence of a variety of hydrothermal alteration products:

K-feldspar	- primarily as hairline veinlets
Biotite	- shreddy secondary biotite--in matrix of intrusive rocks and as fine-grained aggregates replacing hornblende
Chlorite	- after biotite
Sericite	- after biotite and plagioclase (albite)
Clay	- dusting on plagioclase
Quartz	- veinlets with or without K-spar and/or sericite
Gypsum-carbonate	- late veins, cut all others

The minerals listed above thus represent alteration products of varying intensity--from K-feldspathic through

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*This depends somewhat on which surface map one looks at.

phyllic and argillic (?) to propylitic. BUT, all the alteration minerals are weakly developed and sparingly present. Furthermore, they are not separated into distinct zones but are indiscriminantly mixed.

Except for the fact that magnetite and to some extent scheelite favor the metavolcanics (possibly an early "skarn" formation and/or host rock favorability) the metallic minerals are also not well separated, i.e., pyrite, chalcopyrite, and molybdenite seem to occur together and do not form well-developed separate zones.

The above aspects of alteration and mineralization in combination with the low molybdenite values and the lack of reasonably discernible gradients in the drill holes suggest that the bulk of the mineralization is deuteric in nature rather than truly hydrothermal.

The one feature that may suggest otherwise is the presence of molybdenite in the dikes. In this regard Folk notes that, "The fine-grained altered dacites and aplites are associated with molybdenite, whereas the grade of mineralization in the porphyritic dykes is relatively weak."

In discussion, Folk stated that the apparent preference of molybdenite for dacite and aplite may have been purely structural. I assume in the discussion immediately above that all of the dikes are closely related in time, space, and origin to the main quartz monzonite intrusive.

Although it might be nice to know in more detail exactly what sort of intrusive pattern the different dike types exhibit, the character and intensity of hydrothermal alteration in all of the rocks suggests to me that a molybdenite stockwork if present would be at least 1,500 to 2,000 feet below the present level of drilling. That is permissive only, and I see no discrete or encouraging evidence to suggest to me that such exists.