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HEATHER PROJECT

M524

PRELIMINARY REPORT

DAVID SHAW

May 1984

SUMMARY

Nitinat and Myra volcanics were deposited during or before the Devonian and were initially deformed during a period of hydrothermal metamorphism in the Jurassic. An earlier orogeny has been inferred (Muller, 1977) but not documented.

These intensely folded rocks were faulted during the Tertiary, fault orientation was probably influenced by the orientation of a planar fabric generated during the earlier ductile deformation.

During the phase of faulting and shearing it is postulated that Sicker Group strata-bound massive sulphide mineralization was remobilized into the shear zones. This mineralization is now hosted by the quartz pods and lenses within the Heather showing and the along strike extension.

INTRODUCTION

During the period May 10th to 18th a total of eight days were spent by the author mapping or assisting R. Bruaset with a sampling programme on the Heather claims.

GEOLOGY

Stratigraphy

The rocks exposed on the claims are the Nitinat and Myra members of the Sicker Group and are structurally located within the Cowichan-Horne Lake Uplift. The Sicker Group is of Devonian or older age and comprises three members, the Nitinat and Myra being the lower two. Of these the Nitinat is the older and is composed of basaltic lavas, agglomerate and massive to banded tuff. The Myra is an interlayered sequence of massive green tuffs, light green cherty layers, red and green thinly interlayered tuffs and purple tuffs.

Structure

The structure on the Claims is a result of tight folding and normal and/or oblique faulting and shearing.

The earliest structures recognized are tight to isoclinal, asymmetric folds with axial surfaces that strike northwest-southeast (average strike orientation is 310° - 130°) and generally dip steeply towards the northeast (average amount of dip is 80°). All of the folds recognized appear to have been generated during a single phase and all vergences recorded are towards the southwest. These folds are recognized primarily in the Myra and the constant vergence indicates that the folded Myra rocks are structurally located on the upper, or northeastern, limb of a major antiform. Associated with the folds is a cleavage surface that is grossly axial planar in orientation. The present degree of penetration of this fabric probably owes more to stresses active during later faulting than to those active

during the ductile deformation. This younger faulting activity has utilized the pre-existing cleavage surfaces as planes of shearing. Where the cleavage is very closely spaced and where shearing has occurred along it, the rock is phyllitic and recessively weathers to a shaly talus. Such surfaces are 'coated' with a medium to dark green chlorite.

The belt of Myra on the Claims is in fault contact with Nitinat rocks to the northeast. The nature of the contact between the Myra and Nitinat rocks is such that the fault movement is either normal or oblique dip slip. The displacement occurs across a zone many metres wide (25 m wide to the north of station RB-136) that strikes northwest-southeast and dips towards the southwest (at RB-136 the overall attitude of the zone is 120/80). Slickensides on the surfaces within the shear zone plunge a few degrees (average is five) towards the northwest. This linear fabric may only be representative of the final movement in the zone however.

Intrusive Bodies

The northwest-southeast trending dioritic body on the Heather claims is probably of Early Jurassic age and is part of the Island Intrusive suite which regionally forms elongate bodies of granodiorite, diorite and minor agmite. Myra rocks to the northeast are in fault contact with the intrusive, the southwestern margin of the diorite is marked by the northwest-southeast striking Cowichan Lake fault.

The margin of the diorite is intensely sheared and fractured, in places it contains slivers of Myra, conversely within the Myra there are slivers of diorite. The degree of fracture and shearing recognized within the diorite, plus the lack of any recognized thermal effect on adjacent country rocks, may indicate that body was either intruded, or re-intruded, as a cold, completely crystallized mass.

MINERALIZATION

Mineralization at the Heather showing, now exposed in a 78 m long, partly slumped trench, occurs in a wide shear zone. (The trench does not appear to extend across the full width of the mineralized shear.) Elongated pods of white and grey quartz, aligned parallel to the cleavage surfaces, contain a massive sulphide type of mineralization. The quartz pods are hosted by a highly cleaved, phyllitic unit which was probably a tuff prior to deformation. This rock has little or no competency and readily forms a shaly talus. Recessive weathering associated with this zone develops a characteristic rusty brown soil. Where the contacts with adjacent rock units are visible the degree of shearing diminishes rapidly, the adjacent rocks weathering much less recessively.

The showing 'horizon' has been traced along strike for a distance in excess of two kilometres and has been recognized at six different localities. There are two simple explanations of the change in strike of the shear zone approximately 1/2 km west of Hooper Creek. Either a cross-fault, striking northeast-southwest, affects the northwest-southeast striking structure or more probably the shear zone orientation was influenced by the outline of a rigid mass of diorite. The structure is probably grossly concordant with the perimeter of the body, the margin of the diorite being intensely sheared and fractured also.

RECOMMENDATION

The lack of rhyolite on the Heather claims plus any associated mineralization requires that present and future work be concentrated on the Heather showing and its along strike/down dip extension.

Structural control of the mineralized shear zone has been established. Should the recent sampling of the zone return promising results then the various shear zone outcrop

locations should be trenched and bulk sampled. At the showing the width of the zone is in excess of 70 m, at a location along strike to the northwest a greater width has been measured. Outcrops occur in the floor of Hooper Creek valley and on the top of the ridge to the northwest, consequently down-dip potential exists should values prove interesting. The style of mineralization lends itself to bulk sampling rather than drilling. The main purpose of drilling would be to establish the limits, if any, of the shear zones' down dip extension.

As the type of mineralization is both different to the original model (Sicker Group, strata-bound, massive sulphides) and has probably been remobilized, I question whether it is worthwhile analysing for M.S. indicator elements, e.g. Na, K, Ba. It is probably more relevant to look at Au, Ag, Cu and Zn.

11524

June 27, 1984

Mr. John Gammon,
Regional Manager,
Falconbridge Nickel Mines Limited,
6415 - 64th Street,
Delta, B. C.
V4K 4E2

Dear John,

Please find enclosed a copy of the report by Vancouver Petrographics on rocks collected from the Cowichan claims.

Some of the samples were taken to see if there were any rocks with rhyolitic affiliation. Other samples were collected from the belt containing the main showing to study affects of the structural deformation in the belt on the sulphide mineralization and host rocks.

The report indicates that there are no rhyolites in the submitted samples and that sulphide mineralization was introduced or remobilized by the tectonism.

Yours sincerely,

CHEVRON CANADA RESOURCES LIMITED

C. V. DYSON

CVD:am
Encl.

al/20.

APPENDIX VI

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"TERMINATION REPORT"

Figure 4: Composite cross section

Geology Sheets: 2 of 3 & 3 of 3 Southern Myra belt

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