

SUMMARY: SUMMERS CREEK COPPER (AXE CLAIMS), PRINCETON, B.C.

INTRODUCTION

The Axe Property situated some 12 miles north of Princeton, B.C., has undergone intensive exploration by Amax since June 1969, under option from Adonis Mines Ltd. of Vancouver. Expenditures to date by Amax and others exceed \$500,000.

Results so far indicate three complex mineralized zones within a large pyritic zone developed in Nicola Volcanics and younger acid intrusives. Preliminary estimates of drill-indicated reserves total 45-50 m.s.t. grading .4% Cu in two of the three zones, with potential for additional tonnage in at least one of these and a third relatively undrilled area. While these figures do not bring the deposits into the category of ore they are quite promising considering the locality and potential for further development.

Amax having completed their initial work commitment of \$375,000 and payments of \$75,000 are now required to make a further payment of \$25,000 by June 1972, after which if the property is not in production by 1st April 1974, Adonis is to receive \$100,000 per year as advances against 30% of net profit earnings in any future mining operation until production is achieved. Facing such annual payments in addition to work commitments Amax have relinquished their option having failed to re-negotiate the terms of their agreement.

It is considered that further expenditures in the order of \$200,000 would indicate if exploitable ore bodies exist.

GEOLOGY

Andesitic flows, flow breccias and tuffs of the Nicola Volcanics underlie most of the central and eastern parts of the property. Intrusive acid rocks varying in composition from syenite through monzonite and diorite to granodiorite are exposed over large areas of the southern part of the claims and also occur as small stocks outcropping on the west slopes of Summers Creek. Structurally the area is quite complex with extensive major faulting trending roughly north-south, parallel to the regional grain, and numerous offsetting east-west faults. Mineralization is concentrated in and around acidic plugs giving rise to a large pyrite zone the margins of which appear to be the best locus for copper and minor molybdenite mineralization.

PREVIOUS WORK

Previous work involving detailed geological mapping, soil geochemical and geophysical surveys with extensive I.P. coverage have resulted in 22,000 feet of drilling including,

3,300' of rotary, 10,500' of percussion and almost 9,000' of diamond drilling. Most of the rotary and percussion drilling was concentrated within the pyrite zone exploring a wide area to relatively shallow depths. Three main areas of mineralization were encountered namely the South Zone sub-divided into southeast and southwest sections; the Adit Zone north of the South Zone and separated from it by relatively barren ground, and a West Zone situated somewhat to the west of the main pyrite anomaly but itself supporting a pyritized zone.

WEST ZONE

The zone is developed in a mineralized quartz-monzonite intrusion in Nicola Volcanics. Mineralization occurs as chalcopyrite with pyrite and minor molybdenite both in the intrusive material and brecciated and altered country rock. Sections based on present data indicate two fairly regular sheets of mineralized material dipping southeasterly and terminating to the west on a strongly developed northerly fault. The upper horizon appears to sub-outcrop but the lower is interpreted as terminating up dip before reaching surface.

If this interpretation is correct some 10 m.s.t. of .4% Cu can be anticipated from present drilling. As a number of holes terminate in ore grade within the lower horizon its thickness is not known and may provide additional reserves. Lines of percussion and/or rotary holes to the north and south would appear to effectively cut off the zone, at least insofar as readily accessible open pit reserves are concerned.

If the ore zones are flat lying this would provide a small open pit operation of up to 15 m.s.t. to a depth of 600' with a waste to ore ratio of less than 1:1. However the diamond drill data is relatively sparse and the zone could just as easily be made up of a number of narrower steeply dipping zones chopped up by post mineral faulting, which may alter the tonnage calculations considerably.

Grade is established mainly on the basis of rotary and percussion samples to which an upgrading factor of 16% has been applied by comparison with diamond drill data over the whole drilling program. In the only closely comparable holes in the West Zone an apparent upgrading factor of 30% would appear to be more likely. However it must be conceded that grade appears to alter rapidly both vertically and laterally in this zone. No drilling was carried out in 1971 on this zone and recovery in the two 1969 BQ holes was unsatisfactory at approximately 60% and 35%.

SOUTH ZONE

This zone received most of the diamond drilling attention in both 1969 and 1971 and was confined mainly to the southwestern subdivision. Here mineralization is best developed in altered and brecciated country rocks of volcanic origin, in close

association with a fine grained microdiorite to monzonite intrusive. The subdivision of the zones appears to result from a saddle shaped sulphide deposit plunging generally southwards in which the west limb is considerably steeper and thicker than the east limb.

The material blocked off by Amax as potential ore is of marginal grade in many blocks and some ore intersections have been extrapolated fairly freely to obtain a reserve of 35-40 m.s.t. From holes drilled there appears to be little likelihood of additional ore except at depth to the south, which might preclude their being included in open pit reserves. The present easterly slope of the surface would facilitate stripping of the defined reserves. Core recovery is indicated as being satisfactory in this area although again there is a good deal of dependence on percussion drilling for grade estimates, and better grades might be established by more thorough drilling of the known zones and their extensions in depth.

ADIT ZONE

Except for a number of shallow percussion and rotary holes the Adit Zone remains relatively unexplored and from its comparative marginal location on the pyrite zone and the extended I.P. anomaly, could provide additional reserves at least of the order of the West Zone, possibly with increased grade as indicated by surface sampling results and percussion holes. A NQ borehole 71-6 was designed to test a north-northwest trending zone picked up by percussion holes P.A. 20 and 22, but was apparently mis-directed to the south-west and is not as shown on the map. Amax geologists indicate that the zone may comprise westerly dipping mineralized zones which could explain the failure of this hole to cut the mineralization indicated in the percussion holes regardless of the questionable direction of the hole.

SUMMARY AND CONCLUSIONS

Amax concluded that there was insufficient ore in sight to continue on the basis of their original agreement and in this it is difficult not to agree. However, it would seem that a modest drill program on the Adit Zone could change the picture appreciably and the West Zone may well be amenable to improvement both as to grade and tonnage. Any further development on the property should be based on the fact that 100 m.s.t. of .4% Cu would be more than doubling the present reserves, and even at that would not be economic in the immediate future. The possibility of the Adit Zone turning up better grade and more extensive reserves cannot be discounted, but if participation is considered some provision should be made to maintain a holding position. A large pyrite zone with a partially coincident but weak copper/molybdenum soil geochemical anomaly is situated some ten thousand feet north of the West Zone and the opposite side of the cutoff fault. This zone lying in low swampy ground has not been drill tested and may be a faulted extension of the West Zone.

It would seem unlikely that anything less than a first year commitment of \$25,000 payment and \$100,000 work program, would be adequate to get a 70% option on the property. The present vendor is fairly intractable, but may get more reasonable as potential buyers are put off by his terms. One company who have already refused Adonis Mines proposals, but might be available as a third party in a joint venture is Imperial Oil, with whom discussions have been arranged.

In spite of the obvious detractors the property is at an interesting stage with a fair tonnage of marginal grade material indicated. A large proportion of the initial risk capital has already been expended, and large areas of potential search have been nullified by drilling. If suitable terms can be arranged it may well be the next stage of exploration that will come up with the necessary grade and/or tonnage increase required to turn the mineral deposit into a potential orebody.