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File

April 17th, 1972.

M E M O

To: T.L. Horsley

From: W.R. Bacon

Re: COMINCO PROPERTY, KAMLOOPS M.D.

INTRODUCTION

The following is a brief resume of what has been done and what has been learned on the Cominco property during several programs in the past 45 years.

No maps are included herein and, in fact, this memorandum involves just one day's work, as agreed upon.

PROPERTY

The Cominco property consists of eight (8) Crown granted claims - Ajax, Neptune, Sultan, Grassroots, Wheel Tamar, Monte Carlo, Forlorn and Copper Star; plus five (5) located claims - Jacko No. 4, Jacko No. 6 Fr., Jacko No. 8 Fr., Jacko No. 10 Fr. and Jacko No. 18 Fr.

The 13 claim property is about 6 miles south of Kamloops in an area of open, rolling rangeland that varies in elevation from 2900 feet in Jacko Lake and Peterson Creek valley to 3300 feet on the ridge of rock above the lake. The claim area is covered for the most part, by varying thicknesses of boulder clay which reaches its

greatest depths in a series of small, southeasterly trending drumlins. The drumlins have a relief of about 50 feet and some of them have rock cores.

Rock outcrops occupy less than 10 per cent of the claim area. Consequently contacts and structural features, as they occur at the surface, are to a considerable extent inferred.

DEVELOPMENT

Trenches -	Numerous.
Adits -	4 (totalling 500 ft.), 2 of which were caved in 1967.
Sinking -	28 feet in a winze plus numerous shallow test shafts.
Diamond Drilling -	Cominco (1928) 5,319 ft.
	Newmont (1952) 1,380
	Cominco (1955-57) 15,200
	Cominco (1961) 1,004
	Cominco (1967) <u>4,171</u>
	27,074 ft.

In 1928, and 1955-61, Cominco's drilling was mainly concentrated on the Ajax claim and the Neptune which adjoins the Ajax on the southeast. Newmont's drilling was on the Monte Carlo claim, near the adit.

In 1966, Cominco undertook a program of geological mapping, magnetometer and induced polarization surveys. In addition, Vanco carried out a geochemical survey on the property, the results of which were made available to Cominco. The results of the geochemical and geophysical surveys appeared to be extremely encouraging. Coincident anomalies indicated that a large area on the Wheal Tamar and Monte Carlo claims merited further attention and the 1967 drill program was to test these anomalies.

GEOLOGY

The property is on the southern margin of the Iron Mask batholith. The batholith intrudes Nicola andesites, basalts and fragmentals.

Until 1967, it was thought by Cominco (but not by J.M. Carr) that the Ajax deposit was a contact type and that the mineralization was deposited in an albitized assemblage of Nicola volcanics. In 1967, Cominco came to the conclusion that the significant mineralization occurs in the finer grained batholithic rocks (As for the writer, he finds it extremely difficult to differentiate between microdiorite and recrystallized Nicola andesite.)

Picrite-basalt occurs along the margin of the batholith. It is almost invariably serpentinized and is generally porphyritic with small black ovoid phenocrysts in a grey, aphanitic ground mass. This rock is not a favourable host rock but it does occur in the immediate vicinity of the Ajax mineralization - and occupies a similar strategic position elsewhere in the batholithic area.

The finer grained batholithic rocks are bordered on the north by coarsely crystalline rocks.

Structure

The dominant structure on the property is a breccia zone on the northern edge of the property which occupies the position of the contact between the coarse crystalline rocks of the batholith and the finer grained younger intrusive types. Fragments are nearly invariably of gabbro or pyroxenite and rarely of diorite. The breccia

matrix is variable in texture but is dioritic in composition and is quite likely microdiorite. Petrographic study is necessary for confirmation here. The width of the breccia zone is difficult to assess since the nature of the breccia changes from a very tight breccia (95% fragments) with little volume expansion to the north in the coarse crystalline rocks of the batholith, to a very open breccia (95% matrix) with only occasional isolated fragments of gabbro, over a distance of about 1000 ft. In most cases, there has been little, if any, assimilation of the fragments, but occasionally there are zones in the breccia in which the fragments have been partially digested and outlines of individual fragments are difficult to discern.

For the most part, fragments are angular to sub-angular but in one outcrop, near the eastern corner of the Ajax claim, the fragments are sub-rounded to well-rounded, but show little or no evidence of assimilation. One may speculate that the rounding of fragments resulted from abrasion in a breccia pipe which was subsequently filled with microdiorite. In any case, the breccia appears to have resulted from a removal of support rather than from any forceful emplacement of material.

Small, localized shear zones within the breccia contain weak sulphide mineralization but the breccia zone itself is not an ore control.

Mineralogy

Chalcopyrite is the primary ore mineral. It occurs mainly in fractures and shear zones, in veinlets with calcite and less commonly as disseminations replacing the mafic minerals of the diorite.

Minor amounts of bornite and pyrite are associated with the chalcopyrite. Pyrrhotite and hematite have been noted, and trace amounts of molybdenite in polished sections. Magnetite is an accessory mineral not genetically related to the sulphides.

Coatings of calcite, epidote and pyrite on joints are also not genetically related to the economic sulphides.

Malachite and azurite occur to depths of 150 feet.

With regard to alteration, the bulk of the mineralization occurs in the zone of albitization but the best disseminated mineralization occurs in only moderately altered rocks. Sections of porcelaneous albitite are commonly barren.

Ore Control

Nearly all the known ore occurs in the alteration zone on the Ajax claim. Examining the surface of this claim one gains the impression that the trend of the mineralized fractures is primarily with the grain of the country, i.e. northwesterly. According to Cominco, however, mapping in the South Ajax adit indicates that the mineralization is associated with two principal shear directions as follows:

1. Strike N60°E, dip 60°N.
2. Strike N35°E, dip 45°E.

The picture is complicated by post-mineral faults, the whole resulting in a lack of continuity to the mineralization. It may be stated that the mineralization occurs in irregular, discontinuous, northeasterly trending shoots which form a porphyry copper deposit.

GEOPHYSICS

Drilling of IP anomalies on the eastern part of the property indicated the probable cause of anomalous readings to be the polarization of pyrite in a widespread assemblage of calcite, epidote and pyrite that occurs on numerous joints and fractures in the area. In contrast, the main mineralized zones on the Ajax claim gave only a moderate ("probable" or "possible") geophysical response. A local high IP response to the northwest of the main mineralized zone was tested by a drill hole which cut serpentized gabbro and practically no sulphides.

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