

82M025 (4W) Homestake
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PROPERTY FILE
HOMESTAKE MINE
G.P.E. White JULY 1974

82 M / 4W

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PROPERTY FILE

July 1974

SUMMARY

A brief study was made underground and other of the Kamad-
Homestake Mine located near Adams Lake, B. C.

A mineralogically complex rock is hosted in a quartz-
sericite-talc schist containing variable quantities of alumina.

The rock is considered difficult to mine because the
body is neither steep nor flat, and because the host rock slimes
with the addition of water.

A split metals concentrate is necessary if the material
is to be sold to Cominco. Recovery percentage possibilities are
discussed briefly when making a triple concentrate.

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INTRODUCTION

A study was made mid-July 1974 of the Kamad Homestake Mine located north of Adams Lake in the central B. C. Interior.

Several reports by A. Goring, A. MacKenzie, F. Hodgson, John Britton and Parsons-Jurden (a division of Ralph Parsons) dating from 1969 to this year were examined. The bulk of the reports are by MacKenzie and Hodgson. A long distance telephone call was made to Mr. W. G. Siddall, Cominco ore buyer in Trail, and one to Mr. Evan Loue of the Bethlehem Mines laboratory.

Approximately one hour in total was spent on both levels at the mine site. Mr. Hans Guhr of Theissens Construction conducted the tour.

The material included in this report is predominantly from other sources than first hand.

LOCATION AND ACCESS

51°07'
118°49.5'

The mine is located about four miles from Adams Lake, 82 M/6 W, ~~51°28'~~, ~~119°27'~~, on a west facing slope on Homestake Creek. / 4

The mine is easily accessible from the Louis Creek turn-off just south of Barriere, B. C.

TOPOGRAPHY AND VEGETATION

The west facing slope probably averages 35 degrees at the mine site. Access to the 1750 foot lower haulage portal is practically at valley level while the upper system is reported at various levels near the 2200/2300 foot level. The level of Adams Lake is 1326 feet.

Vegetation consists of shrubs, moss, grass and fir trees. Old workers used local timbers for mining purposes for square-sets and cribbing but timbers for recent mining were brought in from other areas.

The outcrop at the immediate mine site is relatively void of trees although poplar, alder and fir are present immediately below the mine site.

CLIMATE

This is an area of relatively heavy snow and usually warm summers; under normal circumstances there is little climatically that would effect this operation.

HISTORY

Prior to 1929 silver was high-graded using the upper portal; mining has been carried out intermittently up until 1974 when the lower haulage drift was completed and a raise driven 475 feet to the old workings.

PRESENT MINE STATUS

The mine is presently on stand-by and water pumping is carried out once a week. At the time of the visit, pumping was due but nowhere in the mine was water much deeper than one foot except for older inclined workings which are water-filled.

Access to some of the upper workings is possible with little risk; access to the lower workings is possible with relatively no risk; no auxiliary air was used.

The host rock at the mine is a quartz-sericite-talc schist that slimes readily with the addition of water. Competency of the backs is usually in direct relations to the inter layering or in cases the more massively layered content of silica present. From analysis it would appear that the more competent schist layers are cemented with alumina. Therefore, conditions of all workings are either competent backs without support which have stood for two years or much longer, complete caving in old workings, layered slash dropping from backs taking roof bolts and metal 2 inch strapping with the bolts, timbered areas where square-set 10 x 10 inch timbers are bowing, and, timbered area where cribbing has been done extensively. In summary, less of the mined area is incompetent than is competent. Gunnite type of concrete has been sprayed on the walls of the haulage drift; this material does not always hold and has been pushed out. The floor of the drifts where water is present is very "muddy". In sections of the 1750 drift, there are 1.5 foot deep ruts from the mucking wheels.

MINING

Near the entrance of the 10 by 10 foot 1750 level haulage drift, 10 by 10 inch timbers have been square-set 3 to 4 feet apart for support.

All of the drift has not been timbered but timbering and cribbing are very essential in some areas.

This is not an impossible property to mine, but a lot of the mining would be relatively costly because of the usual mineralogical composition of the host rock.

The mineralized zones dip from 15 degrees to 50 degrees and changes fairly rapidly along strike. The zones would be easier to mine if they were steeper or consistently shallower. The mining method may be a subject of controversy amongst mining engineers.

GEOLOGY AND MINERALOGY

As previously mentioned, the host rock is a quartz-sericite-talc schist striking NW and dipping from 15 to 50 degrees NE. Chloritic bands are present and as evidenced by variable dips, the rocks are folded and local crenulations and faulting are present.

The mineralized zones are basically two near parallel, sinuous, usually sharply walled, bodies which are at a small angle to the plane of schistosity. The minerals are reported to be galena, sphalerite, tetrahedrite, chalcopryrite, pyrite, proustite and argentite, generally with white to grey veined barite. Barite and/or metallics may be present with interbanded schist material. Metallics have also been reported in the quartz-sericite-talc schist without barite.

The width of the zones are from one foot to twenty feet in width and variability in width seems to occur along strike and down dip. Increased vein thickness was noted in the old workings where the vein material had been subjected to local folding and faulting.

Based on sampling and assaying results, all vein material does not carry the same grade although ratios in analysis of one element to the other appear to be fairly consistent. Sampling and assaying in and near (D.D.H.'s) the old, upper workings has been extensive.

GRADE AND TONNAGE

Kamad/Canadian Reserve Oil and Gas Limited have reported 2,052,418 short tons of rock valued at \$171,280,578.00 or \$83.45 average per ton of rock in the ground.

Earlier work by MacKenzie reported 1,008,734 tons of proven, probable and possible reserves.

When the 475 foot raise was made, a mineralized intersection from 242 to 260 feet was sampled and returned the following average assays: Au 0.035 oz/T; Ag 8.96 oz/T; barite 70.21%; Pb 1.69%; Zn 2.69%; and Cu 0.28%. Based on this intersection and previous drilling, 1,043,648 tons of the 2,052,418 tons were added to the reserves by projecting the vein 300 feet "in both directions".

No tonnage or grade calculations have been made or are implied in any way in this report.

PRODUCT SALES AND MILLING

Often with multi-element and mineral ores, bulk concentrates are not readily marketable for one reason or another, depending on the specifications or requirements of smelting contractors. Often with multi-element bodies, one element or mineral is produced at the expense of another. With silver ore bodies, antimony may be penalized by some smelters depending on the quantity present.

Mineralogical testing and concentrate preparation studies have been carried out by F. Hodgson by M & S Contractors in Timmins, by Parsons-Jurden, Bethlehem Mines, and more recently by John Britton of Vancouver.

British Metals Corporation, metal concentrate brokers out of Toronto, have an exclusive with the property owners and during the early part of this year, a concentrate analysed by Britton Research was submitted to Cominco. The Britton analysis and suggested payment schedule are reported by Cominco as follows:

Au	0.245 oz/T	- free market price
Ag	88.57 oz/T	- Handy and Harmon
Pb	15.8%	- composite Can/U.S.A.
Zn	24.7%	- production price
Fe	11.5%	- penalty unit not specified.
SiO ₂	5.4%	- no payment, no penalty
CaCO ₃	0.8%	- no payment, no penalty
Sb	2.7%	- no payment, no penalty "we can handle this much okay"
As	0.3%	- no payment, no penalty
Cu	4.2%	- Atlantic Seaboard price.

Smelter charges were not asked for but these may run to \$100 ore more per ton of concentrate.

This Britton analysed concentrate was refused by Cominco because the Zn/Pb ratio was too high for their particular smelter requirements.

If the material is to be sold to Cominco, then over and above a barite concentrate, a split metals concentrate is essential. It would appear that studies by Britton are going on at this time along these lines, and Cominco will accept a Pb/Cu and a Zn concentrate. (Britton letter of May 15, 1974 to A. Goring). In this letter of May 15, an estimate of full scale mill concentrates is made on an assumed grade; this estimate suggests 75% Au recovery, 90% silver, copper and lead, 92% zinc, and 11% iron.

In a progress report dated October 22, 1973, Britton discusses recovery as a function of grinding; specifically, when 83% of the rock passes through a 200 mesh screen, barite recovery is increased but would lower a Ag/Cu/Pb by 1% (from 94.3%, 94.4%, 91.6% presumably) and the Zn by 1.9% (from 96.4% presumably). This refers to a one bulk metals concentrate.

Parsons-Jurden in their studies suggest an acid leach for the barite recovering greater than 97% BaSO₄ of 87% of the barite.

Bethlehem state that they feel a Cu/Pb, a Zn, a pyrite, and a barite concentrate is possible. Recovery figures were not discussed.

The purpose of the foregoing preamble under the heading of "Product Sales and Milling" is to illustrate hopefully that the ore is complex but that it is treatable. Recovery percentages for all material is not entirely clear and these again would be directly related to milling costs.

WATER SUPPLY

Water from a well drilled to 152 feet on a farm just below the projected mill site flowed at 120 GPM plus; the pH is 8.2, and the water contained 900 mg per litre, equated as CaCO₃. Domestic water usually contains 180 mg/litre and coastal water is presumably lower.

Yours truly,

G. White
Gordon White, P. Eng.
District Geologist

Recd.

± 26/7/74.