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MEMORANDUM

DATE: December 13, 1983
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COPIES TO:
DE FROM: I. D. Pirie
SUJET SUBJECT: UNDERGROUND VISIT TO HOMESTAKE MINE

824536

Attached is a brief summary of my observations on the geology of the Homestake "Mine" of Kamad Silver's. We actually did go underground, although less than 10% of the previous development is ?safely? accessible. Also included are some points pertinent to the property's potential gleaned from Watson's report for Mine-Met Consultants.



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IDP/ik

On December 8th I visited Kamad Silver's barite-silver operations known as the Homestake Mine in the company of Hartley Graham. We had the opportunity to go underground at the 2250 level (where current activity is centred) and also at the unused 1750 level. HRG will report on the mining aspects of the operation. This memo briefly gives my impressions of the geology.

Very little of the workings is currently accessible (cf. Fig. 1 - Watson's report for Min-Met Consultants - for drift plans). The 150' or so of open drift at the 2250 level includes about 75' of strongly sericitic schist with considerable quartz veining. Some of this quartz veining crosscuts bedding (as defined by the attitude of the barite lenses) but much occurs as stratiform bands a few centimetres thick which are probably derived from original cherts. Finely disseminated pyrite and occasional base metal sulphides are pervasive. Limonitic weathering of the sulphides and the sericite extends for some 20-25' from surface into the portal.

The remaining 75' is drifted in almost massive barite containing small pods (generally less than 30cm long), partings and veinlets of galena, sphalerite and lesser chalcopyrite. Finely disseminated throughout is a silver grey mineral suspected to be tetrahedrite. Another mineralizing phase is represented by up to 50cm wide white to blue quartz veins containing coarse grained, semi-massive pyrite. These veins although locally cross-cutting, are usually stratiform in nature and probably represent a remobilization of silica and sulphides during metamorphism. They appear to be essentially barren.

The 1750 level adit was driven in 1972/73, supposedly as a haulage adit to serve the upper workings. Only the first 300-400 feet is currently accessible due to caving. Much of this length is timbered and grouted. No intersection of any of the ore zones was ever made as they are all well above the level of the adit in this area. Currently exposed are quartz-sericite-talc schists, probably derived from the alteration of cherty tuffs. Bedding strikes NW and dips NE at about 30° . Of particular interest are numerous stratiform pods of quartz and pyrite up to a few metres long by half a metre wide. Although undoubtedly recrystallized, these may be relicts of exhalative horizons. This would suggest the presence of numerous potentially mineralized horizons within the altered felsic pile in this area.

Structure appears to be relatively simple. One major fault (2250 fault) and several smaller ones were noted but there is no sign of folding.

The degree of remobilization and recrystallization suggests moderate to strong deformation but in the absence of primary features in the highly altered rocks, no evidence of plunge direction could be found.

Because of the limited underground access at this time an assessment of the potential of the area has to be based largely on available data, principally the Watson report. These are some of the major considerations.

- 1) This is definitely an exhalative-stratiform situation with barite and silver as principal commodities. Zinc, lead, gold and copper are minor constituents.
- 2) Tonnage estimates vary from an ultra-conservative 45,670 tons of 36.34% BaSO_4 , 10.48 oz/ton Ag, 2.97% Zn, 1.86% Pb, 0.41% Cu and 0.02 oz/ton Au using a cut off of 6 oz/ton Ag and an extremely optimistic 800,000 tons of 30% BaSO_4 , 6.6 oz/ton Ag, 2.8% Zn, 1.6% Pb, 0.3% Cu and 0.027 oz/ton Au using an unrealistic 2 oz/ton cut off.
- 3) Existing workings and drillhole information can reliably support only the 45,000 ton estimate. Any exploration program mounted would involve substantial drilling to expand and delineate potential reserves. At least 2000' of AQ core is available for relogging.
- 4) Drilling would be fairly expensive because of topography. Underground drilling would require some rehabilitation of workings and maintenance.
- 5) The 2250 fault abruptly terminates the ore horizons. No continuation has yet been found to the east of the fault (but no serious attempt has been made to find them either).

- 6) On the 2250 level the lenses pinch to the west but no allowance has been made for possible plunge. If the shallow NW regional plunge holds in this area the down plunge potential is virtually unlimited.
- 7) A minimal amount of exploration has been carried out on the bulk of the property.

Consequently there is excellent potential for economic mineralization on the property, but that potential is a long way from being realized. The geology is poorly known and the nature of the alteration, although extensive, virtually undocumented. Our early experience with the neighbouring Rea Gold property indicates the variable nature of mineralization in the area (barite-arsenopyrite-pyrite as opposed to barite-tetrahedrite-galena-sphalerite at Homestake). Obviously an extensive program of geology and geochemistry, CFC style, is required to unravel the mysteries of this exotic hydrothermal system. However, in the meantime there are immediate targets and good potential for early success.

The following samples were taken from mineralized rock.

BCS 603	Massive barite 'ore'	500 zone
	0.43% Cu, 0.93% Pb, 1.97% Zn, 10.3 oz/t Ag, <0.002 oz/t Au	
	0.25% Sb, 280 ¹⁷⁰ ppm As, 30.3 ^{30.3} % BaSO ₄	
BCS 604	Sheared barite 'ore'	500 zone
	0.18% Cu, 1.04% Pb, 2.98% Zn, 5.4 oz/t Ag, 0.006 oz/t Au	
	0.06% Sb, 170 ¹⁷⁰ ppm As, 9.41 % BaSO ₄	
BCS 602	Coarse grained semi-massive pyrite with quartz	500 zone
	0.09% Cu, 0.15% Pb, 0.10% Zn, 0.3 oz/t Ag, 0.012 oz/t Au	
	170 ¹⁷⁰ ppm As, 0.32 % BaSO ₄	
BCS 605	As 602 from 1750 adit	

0.02% Cu, 0.07% Pb, 0.02% Zn, <0.01 oz/t Ag, 0.020 oz/t Au
0.08% BaSO₄

BCS 606 As 605

0.01% Cu, 0.01% Pb, 0.03% Zn, <0.01 oz/t Ag, 0.020 oz/t Au
0.03% BaSO₄