M E M O

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RE : RISBY TUNGSTEN

I. In addition to the evaluations in the report of Mr. Wayland Read of December 12, 1978, the data were analysed in the following way:

1) Taking the intrusive as a base and reference horizon stratigraphic sections were reconstructed from drill holes and trenches to see if the metasomatic mineralized zones can be correlated stratigraphically indicating a reasonable consistency which alone would warrant mining. Fig. 1 shows that three ore zones are concentrated at the hanging wall of the second skarn zone and that reasonable stratigraphic control exists.

2) The drill holes have not been surveyed and are plotted as undeflected in the report of Risby Tungsten. In the drill logs the core angles to the schistosity are given. Assuming the dip of the schistosity as $\pm$ constant a deviation of the hole was reconstructed (Fig. 2 and 3). Based hereon the intercepts of the plane of mineralization was reconstructed (Fig. 4, representing the inclined plane of the skarn bed).

Correcting the deviation of the holes increases the thickness at depth, however it reduces the tested depth extension. The potential indicated would now be in the order of roughly 200,000 tons in the drill tested zone.

II. Mineralogical studies of three samples were done by Metallgesellschaft's (Frankfurt) mineralogist, Mr. H. Westenberger, who worked for a long time on the scheelite deposit of Mittersill (Austria). His report is attached.

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III. 9 pulps from the samples of the trenches (samples from the ddh were not available) were re-assayed by the central laboratory of Metallgesellschaft in Frankfurt which is also doing assays for Mittersill.

The data (Table I and Fig. 5) show that there is a systematic error of 15% in the assays of Risby Tungsten.

IV. Economic model studies were performed by Mr. E.P. Graham, Mining Consultant for Metallgesellschaft Canada Limited, assuming a model of a 300 TPD plant. (His report is also attached.)

Vancouver, March 12, 1979
DrWe/hw

T R A N S L A T I O N

Memo re: Mineralogical tests of scheelite skarn ores/
RISBY TUNGSTEN, Yukon

We received from F. Wellmer 4 thin sections and 5 samples measuring approximatively 3 cm x 2 cm. When exposed to ultraviolet light the samples show macroscopically a relatively uniform fine grained scheelite mineralization. The fluorescence colour of the scheelite is bluish-white which means that the material does not contain Mo.

The microscopical test showed the following mineral assemblages listed in the order of frequency of occurrence:

diopside
plagioclase
quartz
fluorite (in one sample)
chlorite (in two varieties)
opaque components (pyrite?)
calcspar
sericite
scheelite
microcline
sphalerite
titanite.

The predominant rock forming components are diopside (approx. 60 - 70 volume %), plagioclase, quartz and calcspar. They build the host rock in a pattern of partly mosaic-like intergrowth. Also quite frequent is the needle-like habit of diopside with crystal sizes of several mm (this is possibly texture related, the small samples do not allow an unequivocal definition whether or not it is a mechanical texture). In the microscopical range there are often mottled to schlieric enrichments of diopside, plagioclase or quartz respectively. Quartz shows undulating extinction under crossed nichols; the rock seems to be under minor stress. One sample shows schlieric enrichment of fluorite (the presence of CaF_2 should be checked individually by assaying). The fluorite occurs quasi as matrix forming.

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The crystal size of the rock forming entities is 50 µm up to 250 µm, rarely coarser (diopside).

All other phases with volume percentages of less than 2% form accessory components. Chlorite and sericite bear spotty enrichments only locally . Microcline, titanite and sphalerite are rare and their sizes only $\ll$ 50 µm. One thin section is abundant in opaque phases (pyrite?) that cannot be defined.

Scheelite occurs as well in the form of very small xenomorphous disseminations with sizes ranging between 20 to 50 µm as in the shape of coarser intergrown aggregates and hypidiomorphic crystals of up to 1 mm size. In this case however the coarser individual crystals are always poecilitically intergrown with diopside and/or plagioclase. Scheelite is predominantly associated with plagioclase-rich parts of the host rock. Scheelite seems to avoid the immediate neighbourhood of diopside when diopside constitutes the main component of the host rock.

The few samples supplied do not allow mineralogical statements as to relative quantification, only statements about the qualitative composition of the ore are possible. We deal with a real skarn formation in the broadest sense carrying spectacularly high amount of plagioclase indicating the neighbourhood of an intrusive rock. The association of scheelite/plagioclase in the microscopic range could mean that the source of WO_3 is in the intrusive rock.

Compared with the Mittersill mineralization the studied material is from a completely different type of deposit. The material will require another mill scheme than Mittersill where after the flotation scheme of the Wolfram Bergbau- und Huettengesellschaft all minerals containing Ca as a cation are floated out. The percentage of such minerals besides scheelite is very low in the Mittersill ore so that this is not detrimental.

We attach a copy of a paper on a new flotation procedure developed in Sweden which makes it possible to produce saleable concentrates of an ore type similar to the Risby Tungsten ore.

The results given here can only be considered as preliminary because of the small amount of sample material provided. It is hoped that some more material is made available.

(H. Westenberger)

Table I

METALLGESELLSCHAFT AG
CHEMISCHES LABORATORIUM ANALYTIK

Frankfurt (Main), den
13. Februar 1979/AJU

FEB 2 8 1979

Analysenschein 2241/49 - 79

CLA 1011

Vorgang: Auftrag von Metallgesellschaft Canada Ltd.,
vom 06.02.79 Herrn Dr. F. W. Wellmer
auf Bestimmung von s. Befund

Gegenstand: 9 Pulverproben

Bezeichnung: Projekt-Kto. 013, Reconnaisance West

Befund:

	% P	% Mo	% WO_3	% WO_3 Risby
82070	0,42	0,02	0,55	0,59
82067	0,14	< 0,01	1,28	1,56
82072	0,13	< 0,01	1,58	1,84
82073	0,13	< 0,01	0,33	0,39
82126	0,60	< 0,01	0,80	0,94
82138	0,17	< 0,01	0,22	0,26
82142	0,13	< 0,01	0,10	0,12
82143	0,13	< 0,01	0,09	0,07
82146	0,19	< 0,01	0,48	0,58
			ϕ 0,60	ϕ 0,71

METALLGESELLSCHAFT AG
CHEMISCHES LABORATORIUM ANALYTIK

D. Heese

Dr. D. Heesen

Sachbearbeiter: Göllrich

D: CLA

MG Vordr. Nr. 30 D: Herrn Dr. Weisser/Bergbau-Abt.

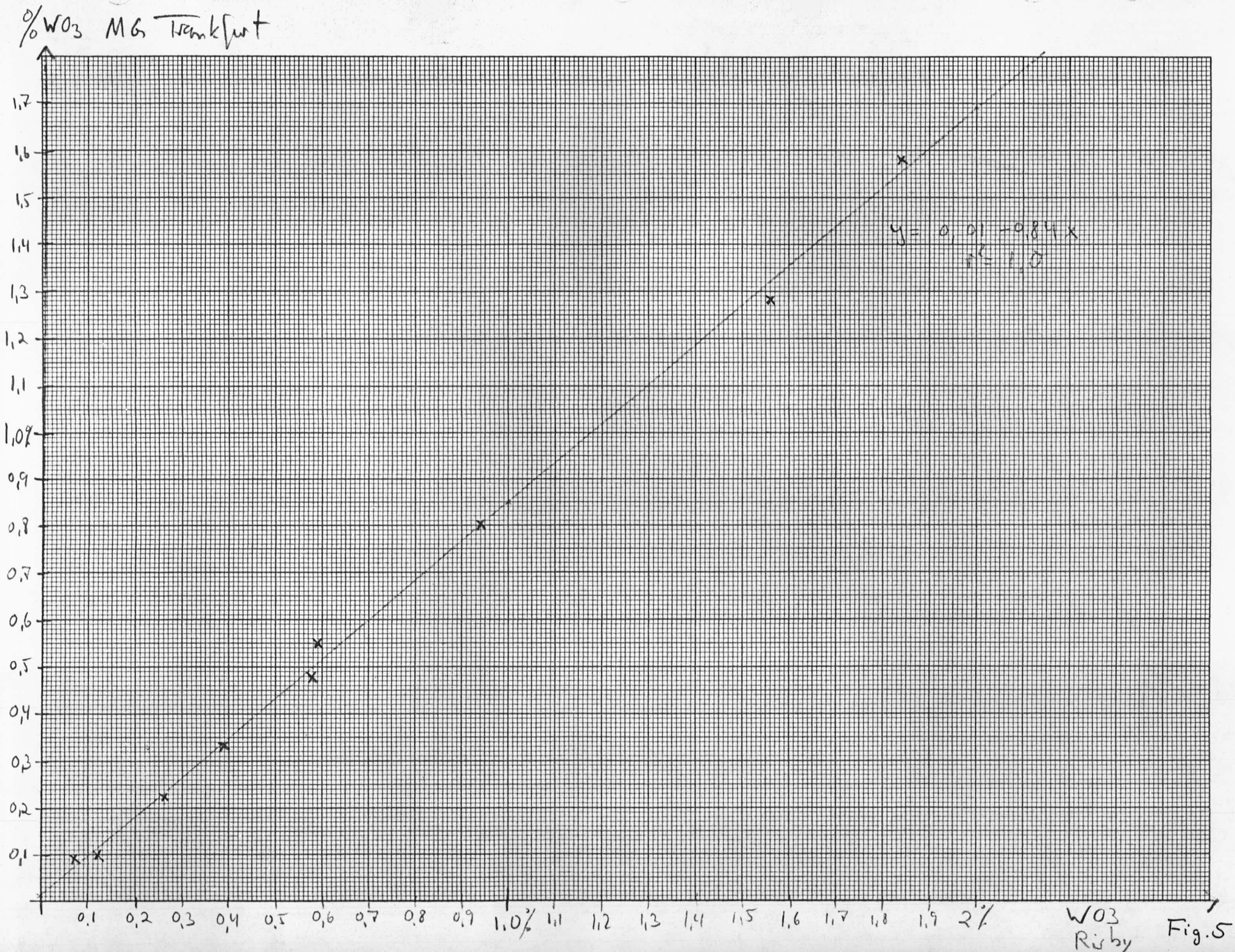

Fig. 5