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RUTH VERMONT

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RUTH VERMONT PROPERTY

E.W. GROVE

October 1975

PROPERTY FILE

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REPORT ON THE
RUTH VERMONT PROPERTY
OF
CONSOLIDATED COLUMBIA RIVER MINES LTD.

Del. 75

OBJECT

To investigate the mine development and operation proposal with special reference to the data requirements under Section 64 and 72 of the Mineral Act. My review of the company submission indicated (memo of Sept 9) that the ore reserves as presented were not acceptable.

LOCATION AND ACCESS

The underground workings and mine buildings are located on Vermont Creek about 34 miles by gravel road from Parson. The road has been well maintained and appears suitable for two way traffic. At the mine the valley of Vermont ^{Creek} is very narrow and obviously subject to snowslides from both sides.

CAMP

Since the snowslide of January 1974, which demolished the old mill, part of the camp buildings (one bunkhouse) and roadways, the property has been largely rehabilitated. A new concentrator is the major addition. The manager, Mr. Jake Learmonth, informed us that it is very likely that the property will be shut down in mid-December because of the snowslide potential.

GEOLOGY

At the time of our visit the mine geologist, Mr. George Keir, had been on the property only ten days and was still feeling his way. He was able to find enough of the old drawings for us to make a preliminary interpretation of the ore bodies and to recalculate the mine ore reserves.

The detailed local geology of the mine area has not been completed (or started ?) and the detailed underground mapping does not appear to have been updated since 1967 (see T. R. Tough map). As a result Mr. Keir is in the process of drawing new 20 scale plans and sections to show the most recent diamond drill results. These were used in

our calculations.

A general description of the ore bodies and host rocks was included in the company submission by T. R. Tough on the basis of his work at the property as mine geologist (Dec. '65 through Aug '67).

ORE BODIES

Silver-lead-zinc mineralization has been mined from the Nelson replacement ore body and the Pine Tree vein. The company has reported that the mineable ore reserves include both replacement and vein-types.

Nelson Ore Body.

The Nelson replacement zone can be crudely represented as an irregular, cigar-shaped zone localized along the south limb of the Ruth syncline. This zone is near and crudely parallel to the axial plane of the fold and relatively flat lying. That is, the upper major part of the zone plunges at about 5 - 10 degrees east from the portal (20,000E) for about 800 feet (20,800 E) then plunges at about 20 degrees east and appears to diminish in size and continuity at depth.

On the basis of only a few hours examination of the Nelson zone it was not possible to unequivocally relate the vein and replacement ore in a simple hypothesis. In fact the opposite seemed more likely. It was noticed that the replacement ore was surrounded by a conspicuous halo of coarse grained pyrite, and as Addie indicated (report of Sept. 30), the pyrite appears to be syngenetic. As he also noted the Pine Tree vein is slightly radioactive whereas the replacement zone was not. In addition, both these ore types have been cut by younger scheelite bearing quartz veins. In effect then, a single stage ore genesis hypothesis with simple structural controls is not immediately acceptable.

The recognition of the apparent structural controls is important in that future ore search and development will be guided (economically or not) by geological concept.

Vein Ore

Where seen in the stoping areas the Pine Tree vein had a width of up to 3 feet. Sulphide mineralization was somewhat sporadic. No other veins were seen and the mine personnel implied that exploration for the other veins (Blacksmith, Wind Lass) had not been fruitful.

ORE RESERVES

As I indicated previously the company estimates of ore reserves and potential were contradictory.

Utilizing the newest sections and drill information I came up with the following figures:

NELSON ORE BODY

Tons - 184,290 - including measured, drill indicated, and potential.

Ag - 5.67 oz

Pb - 4.28 %

Zn - 5.94 %

- the September 3rd, 1975 George Cross figure was:

		<u>Ag (oz)</u>	<u>Pb (%)</u>	<u>Zn(%)</u>
Proven -	242,500	4.66	3.76	5.52
Probable -	350,000	3.73	2.70	3.95
Inferred -	<u>450,000</u>	--	--	--
TOTAL	1,042,500 <i>tons</i>			

This corresponds to the T. R. Tough (1972) figures released before mining. During the search through the files we discovered a separate rough draft of ore reserve estimates by a previous geologist (Scott, 1973) which gave a total of 167,033 tons (mineable) for the replacement ore. My figures were slightly optimistic and still agree very closely with Scotts'.

Pine Tree Vein

It is virtually impossible to make any reasonable tonnage estimate for the Pine Tree reserves because of the paucity of drilling and sample data. In reviewing the mine sections I found that drill intersections had not been recalculated to true widths, thus greatly exaggerating indicated tonnage figures. My crude estimate of Pine Tree tonnage follows:

Measured ore	-	4,200	tons
Drill indicated ore	-	20,000	tons
Potential ore	-	<u>20,000</u>	tons
TOTAL		44,200	tons

N.B. Grade impossible to calculate accurately but probably close to reported figures.

As reported by Tough and in George Cross, the Pine Tree vein had an ore reserve including the following:

		<u>Ag (oz)</u>	<u>Pb (%)</u>	<u>Zn (%)</u>
Proven	60,000	10.00	6.61	5.80
Probable	35,000	10.00	6.61	5.80
Inferred	<u>164,400</u>			
TOTAL	259,400			

There was no information available on which to recalculate the potential of the Blacksmith and Wind Lass veins.

ORE RESERVE SUMMARY

The total of vein and replacement ore within the developed mine over a possible length of 1,200 feet and above the 5,750 haulage level is about 228,000 tons. Further replacement ore might be indicated by extending and drilling from 5,750 level and vein ore must be upgraded by close-spaced drilling.

MINING RATE

At the 300 tons per day for the new mill the mine has a life of at least 2.5 years. As Mr. ^{Lang} ~~Levy~~ pointed out in his report, it will be very difficult to mine 100 tons per day from the Pine Tree vein with the proposed development schedule and layout. Our attempt to get this across to the operators was pressed and may have been noticed.

MILLING

The new concentrator appears to be designed for the ore (tailings used) and should be more efficient than the previous plant. A composite random sample of the 1973 mill tailings shows:

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Au - 0.03 oz/ton
Ag - 1.9 oz/ton
Cu - 0.054 percent
Pb - 1.03 percent
Zn - 4.0 percent

A single sample of pyrite concentrate shows:

Au - 0.03 oz/ton
Ag - 2.00 oz/ton
Cu - 0.053 percent
Pb - 0.98 percent
Zn - 2.55 percent

Tin, Cadmium, and tungsten were checked and found insignificant (ie. $0.02 \pm \%$) in the tailings.

The management has indicated that they will reclaim these tailings and put them through the new mill. The tonnage of tailings is not known for certain but an estimate of 20,000 tons was heard. This was not checked at the site.

The mine produced 29,000 tons of ore of which 26,957 tons were milled grading 5.02 oz Ag, 3.69 percent Pb, and 5.08 percent Zn. Concentrates produced included 1,161.64 tons lead conc., 1,150.13 tons zinc conc., and 2,311.77 tons combined Pb/Zn concentrates. Because of the lack of concrete figures it is difficult to calculate the recovery but a quick appraisal indicates it was exceptionally poor. The Bacon and Donaldson report on metallurgy indicates an expected recovery of 83.9 percent for lead, and 79.2 percent for zinc with the new mill

SOCIAL COST

The mine will employ about 45 men who will reside at the site and commute to their various homes on their days off (10 and 4). The employees will be from various parts of B. C. and will not require extra services at the mine or add significantly to the problems of nearby communities.

CONCLUSION

The Ruth Vermont Ag-Pb-Zn mine ^{has sufficient} ore reserves for operation at 300 tons per day for 2.5 years. Further exploration and development could increase the life expectancy.

Development, planning, and layout appears to be either lacking or a result of the inexperience of the operators. Continuous production from the Pine Tree vein at 100 tons per day will be a serious problem if the plans are not reconsidered. If so, the planned 300 tons per day to the mill will be difficult to meet and the replacement ore body will suffer rapid depletion and excessive dilution as a result.

The new mill appears to have been soundly designed and should be reasonably efficient. The 1973 tailings which are almost of ore grade will be treated in the new mill and should provide a cushion during mine production problems.

The previous operation period obviously suffered from a lack of geological control, reasonable mine development and poor milling methods.

RECOMMENDATIONS

The employment of 45 men for at least 2.5 years is probably a sufficient reason to allow the mine to operate. But there should be reasonable periodic checks as to the efficiency of the mine and mill operation, the continuity of geologic mapping and exploration to upgrade ore reserves and of course to promote safety.

Had these stipulations been imposed in the past, it would have led to the earlier recognition of the mine and mill problems.

'As I indicated in my 1974 Resource Management proposal, mine monitoring by a small group of experience professionals, can lead to more efficient operations and the conservation of the mineral resource.'

A handwritten signature in cursive script, likely belonging to the author of the report, located at the bottom right of the page.