

November 12, 1990

MEMORANDUM

TO: ARTHUR DALFEN
FROM: N.C. CARTER
SUBJECT: GIANT COPPER - BETHLEHEM RESOURCES CORPORATION

Summary and Conclusions

The Giant Copper project is only marginal, based on current defined reserves and economic factors. Financial analyses based on a partially defined 6 years of underground reserves indicate a real rate of return on investment of 5.2%.

Open pit reserves are indicated but no feasibility studies have been undertaken. The property has demonstrated potential for the definition of additional, possibly higher grade reserves; additional drilling is required to substantiate these.

Environmental concerns pose the greatest impediment to further exploration and development of this project. Foremost of these is the fact that the property is bounded on three sides by Manning Provincial Park and the Skagit River Recreation Area.

Introduction

As per your request, the writer reviewed information provided by Bethlehem Resources Corporation and made enquiries re environmental concerns. Summary comments are as follows:

Reserves

Best defined reserves are within the AM Breccia pipe on which most of the historic and recent work has been concentrated. Both underground and open pit reserves are reported as follows:

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	<u>Tons</u>	<u>Copper(%)</u>	<u>Gold(oz/ton)</u>	<u>Silver(oz/ton)</u>
Underground	3.35M	1.17	0.015	0.60
Open Pit	20M+	0.75	0.012	0.35

Two-thirds of the underground reserves are reported as proven/probable; the remainder as possible.

No geological control has been applied to reported open pit reserves nor have any definitive feasibility studies been undertaken.

Financial Analyses

Underground reserves only have been considered by Wright Engineers and Tonto Mining in preparing a financial analysis.

Capital costs of \$30 million are anticipated for underground development and mill (2000 tpd) construction.

Operating costs (mining, milling, administration, etc) are estimated to be close to \$20/ton.

Gross value per ton of material mined is estimated to be in the order of \$40/ton.

A real rate of return of 5.2% is suggested by Wright Engineers for a 6 year mine life - this figure assumes no debt and no interest charges.

Exploration Potential

The No. 1 Breccia, 1 km northeast of the AM Breccia, is believed to represent the faulted southern extension of the AM Breccia. Limited diamond drilling has indicated sections of higher grade copper within this zone. More work is warranted for this and other mineralized systems present on the property.

Environmental Problems

As noted previously, the main problem is the location of the property which is contiguous with both Manning Park and the Skagit River Recreation Area.

There has been pressure on and off over the past 15 years to have the Skagit River Recreation Area added to

Manning Park - obviously, if this were to happen, it would only compound the present problem.

The Skagit River Planning Process, designed to address the future of the Recreation Area, included a number of public meetings one year ago. Presumably recommendations have been made which would allow some sort of development of the Giant Copper project but a political decision is needed.

The Minister for Parks, Ivan Messmer, conducted an aerial inspection of the project and surrounding areas in August and apparently was almost ready to announce some sort of decision but held off in view of the then impending fall election. My feeling is that it's doubtful that there will be any decision prior to the next Provincial election which will probably take place next spring. In the event the government changes, it should be noted that various members of the NDP are on record re adding Skagit Valley to Manning Park.

Another potential problem is the presence of some uraninite in the ore. The property and a 5 km area around it is designated by the Mines Act Regulations and is subject to baseline studies for uranium/thorium concentrations. This is another "red flag" for environmentalists.

Finally, because of the property's proximity to an existing park, it's doubtful that open pit mining would be allowed even in the best circumstances - recent studies indicate that underground mining of defined reserves is a marginal proposition at best.