KERR ADDISON MINES LIMITED
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June 25, 1964.

Mr. W. S. Row, President,
Kerr Addison Mines Limited,
Suite 1600 - 44 King St. W.,
Toronto, Ontario.

Dear Mr. Row:

A preliminary reassessment of the Vangorda Project has been made by General Engineering Co Ltd , and an interim report prepared.

The study concerned itself primarily with the design of a basic open pit and a determination or ore grade and tonnage which could be physically mined from that pit. The result of metallurgical testing by Noranda re a bulk lead-zinc concentrate was given due consideration and, using the Northgate-Metallgesellshaft smelter contract as a base line, an order of magnitude net smelter return was established.

No attempt was made to estimate precise operating or capital costs, but general unit figures of reasonable magnitude were applied and a basic profit-loss forecast established.

The General Engineering report will be available later this week.

I have personally worked with Mr. Merritt on the open pit ore determination, and have studied and assessed all data available on the Vangorda project.

My comments and recommendations are as follows:

General Summary

1. Approximately 6,200,000 tons of ore can be mined by open pit at reasonable waste: ore ratios.

2. On the basis of initial metallurgical tests and the Northgate-Metallgesellshaft smelter contract, the ore body, as now known, is sub-marginal and would not in itself support a profitable mining operation.

3. The deposit would become profitable if a Mitsui contract would pay equivalent returns to those paid for split concentrates or if split concentrates could be produced with recoveries of Pb and Zn above 80 - 85%.

4. The deposit would be an important additive to a possible Swim Lakes discovery if such were realized.

Recommendations

1. Suspend further analysis by General Engineering.

2. Explore the Swim Lakes prospect as soon as possible in as much as its success or failure would have a direct bearing on the worth of Vangorda.

3. Review metallurgical implications and study the means available and procedures necessary to carry out further tests both on bulk and on split concentrates. This could involve the drilling of a series of large diameter holes.

4. Approach Mitsui with regard to order of magnitude smelter charges and payments.

Summary of Open Pit Ore Position

	Zero Dilution		10% Dilution @ Zero Grade	
	Overall Grade	Open Pit Grade	Overall Grade	Open Pit Grade
Cu (%)	0.277	0.277	0.246	0.252
Pb (%)	3.16	3.256	2.88	2.963
Zn (%)	4.96	5.344	4.51	4.863
Ag (Oz./ton)	1.76	1.773	1.60	1.613
Au (Oz./ton)	0.02	0.026	0.018	0.024

Pit Data at 10% Dilution

Tonnage @ S.G.=3.6	6,200,000
Overburden: Ore (Volume)	2.00:1
Waste Rock: Ore (Volume)	2.17:1
Total Waste: Ore (Volume)	4.17:1

Notes: a) Cut off grade taken @ 4.0%. Combined Pb and Zn.

b) The ore lenses are erratic inclusions in larger lenses of massive sulphides and comprise approximately 50% of these sulphides. The waste sulphides average 0.5% Pb and 0.8% Zn with contacts gradational. Dilution will be difficult to visually control.

c) The S.G.=3.6 figure was given by Noranda, but actual tests of ore samples here showed a S.G. above 4.0.

Summary of Possible Revenues

Economic possibilities have been based on the surmise that the No. 3 Cleaner concentrate of Test No. 73 can be approximated in practice. The grade of the ore sample from which Test No. 73 was run is not identical to the estimated mill heads. Although, recognizing the upsetting of the concentrate balance, the unit values of Test No. 73 have been applied to the estimated mill heads to determine net ore value.

Based on Northgate-Metallgesellshaft Contract and metal prices as noted, net smelter return becomes:

Metal	Assumed Price	Ore Grade Test	Ore Grade Pit @ 10%	Recovery	Conc. Grade	*Net Smelter Return ¢/unit In Ore	*Net Smelter Return $/ton Pit Ore
Cu	32¢	0.24	0.252	69.5	1.56	3.34	0.17
Pb	11¢	3.10	2.963	82.3	24.6	3.60	2.14
Zn	13¢	4.0	4.863	84.8	32.5	1.43	1.39
Ag	$ 1.40	1.27	1.613	72.4	8.74	88	1.42
Au	$37.80	0.02	0.024	52.2	0.11	1790	0.42
							$5.54

*Transportation taken @ $28.00 per short dry ton.

Summary of Operating Costs

(Figures in $ Canadian per ton milled)

Mining	$1.95		
Milling	1.15		
Admin. & Gen.	0.50		
		$3.60	
Head Office		0.15	($150,000 min. per year)
*Write Off		2.75	
		$6.50	

*Write off of $11,000,000 plus one year's interest over a period of 6 years @ 10% interest.

Economics of Split Concentrates

Based on the metal recoveries as obtained in the No. 73 test 3rd Cleaner concentrate being obtainable in split concentrates (50% Zn and 55% Pb) a calculation of net smelter return can be made.

Metal	Assumed Price	Recovery	Conc. Grades	One Grade	*Net Smelter Return ¢/unit In ore	$/ton Pit Ore
Cu	32¢	69.5	---	0.252	10.9	0.55
Pb	11¢	82.3	55	2.963	4.76	2.82
Zn	13¢	84.8	50	4.863	2.64	2.56
Ag	$ 1.40	72.4	---	1.613	93	1.50
Au	$37.80	52.2	---	0.024	1,730	0.41
						$ 7.84

*Transportation assumed @ $28.00 per short dry ton. See Appendix I for representative smelter calculations.

Mining and Mining Costs

a) The pit is basically correct. Selective mining of sulphides would shallow the pit, improve the waste to ore ratio, and reduce costs accordingly.

b) The overburden removal cost of 51¢ per yard may be low if any unexpected problems are encountered. A major part of this cost of $2,106,000 must be expended prior to any metal return.

Mining & Mining Costs (Cont'd)

c) The unit mining costs of 51¢ per ton of rock are reasonable, but probably conservative. Comparative costs are as follows:

Gaspe Copper	-	40¢/ton inc. write off
Brynnor	-	32¢/ton waste
	-	25¢/ton ore
	-	No write off inc.
Gunnar	-	50¢ - 60¢/ton inc. write off
Don Rouyn	-	50¢ - 60¢/ton
	-	No write off inc.

Selective mining requirements and power costs would justify the 51¢ per ton estimate.

Metallurgy and Milling Costs

a) Metallurgical recoveries and smelter charges dwarf all other cost factors.

b) No definite proposals have been forthcoming from Mitsui, although it is anticipated that the Metallgesellshaft-Northgate contract can be improved upon.

c) Testing to date is inconclusive as to whether a satisfactory bulk concentrate can be produced.

d) Separate concentrates for Pb and Zn, even with recoveries as low as 65-75% and concentrate grades as low as 50% Zn and 55% Pb would be competitive with the bulk concentrate under Metallgesellshaft prices.

e) This would appear to be a difficult ore, well warranting more metallurgical testing -- the ore body is marginal -- adverse metallurgy will make it submarginal.

f) Under a bulk concentrate process and assuming grinding to 100 mesh only, the $1.15 unit milling cost figure appears reasonable.

Respectfully submitted,

Edward Futterer.

EF:sr