

MEMORANDUM

To: MINE MANAGER

30 JULY 92

From: Engineering Supervisor

Subject: NEW CANAMIN RESOURCES - HUCKLEBERRY PROJECT

93E/11

INTRODUCTION

New Canamin has optioned the Huckleberry property located approximately 95 km south of Houston, B.C. The deposit is a large copper porphyry with minor molybdenum, gold and silver values. Reserves are stated as 85.6 mill. tons grading 0.40% copper, 0.01% molybdenum and 0.04 oz silver per ton at a 1:1.11 strip ratio. Mineralization is contained principally in a potassic halo on the east side of a quartz monzonite stock. Wide spread drill holes indicate the mineralization could extend around the stock with potential to triple the reserves.

This memorandum has been prepared to provide a preliminary economic review of the deposit assuming the tonnage can be increased.

FINDINGS

1. None of the stated reserves could be processed at the Equity millsite at a profit at projected metal prices.
2. The stated 85.5 mill. tons cannot be developed profitably at projected metal prices.
3. Tripling the reserves to 256 mill. tons provides a positive cash flow of \$152 mill., but still results in a negative net present value of 52 mill. at a 10% discount rate.

CONCLUSIONS

The property requires vastly increased reserves, better grades, lower capital/financing costs, higher metal prices or some combination of these factors.

PARAMETERS

1. Metal Prices (US\$'s): Copper \$1.10, silver \$4.25, gold \$400; exchange \$1 US = \$1.20 Can.

2. Metallurgy	<u>Feed</u>	<u>Concentrate</u>	<u>Recovery</u>
Copper	0.40%	26.8%	94%
Silver	0.04 oz	1.9 oz	67%
Gold	0.00126 oz	0.06 oz	67% (est)
Molybdenum	0.01%	Not incl	Not incl

Concentration ratio = 71 @ 0.40% copper.

3. Present Reserves	<u>Tons</u>	<u>Cu %</u>	<u>Au oz/ton</u>	<u>Ag oz/ton</u>
Total	85.5 mill	0.40	0.00126	0.04
Included	34.2	0.51	0.0016	0.051
	34.2	0.34	0.0014	0.034
	17.1	0.30	0.0009	0.03

4. Capital	<u>Tons/Yr</u>	<u>Tons/day</u>	<u>\$'s (mill.)</u>
	5.7 mill	15600	120
	11.4	31200	235
	17.1	46800	330

Interest costs on debt are assumed to be 10% PA

5. Operating Cost (property incl. head office)

Based on Gibraltar costs, but adjusted for a lower strip ratio and mill rates.

	<u>15600tpd</u>	<u>31200tpd</u>	<u>46800tpd</u>
Pit production	\$5.36	\$3.90	\$2.84
Stockpiles	\$4.29	\$3.12	\$2.27

6. Concentrate Transportation  
US \$77.78/ dry metric tonne

7. Smelter Terms

US \$130/dmt or Can \$141.5/dry short ton treatment charge.  
Refining charges (US \$'s)- Cu 0.13/lb, Au 5.00/oz, Ag 0.40/oz  
Payable % - Cu 92.3, Au 96.0, Ag 96.0  
No penalty charges

DISCUSSION

Property reserves are located in one area known as the Granby pit. Additional mineralization is indicated in target areas associated with the potassic halo around the quartz monzonite intrusive. Highest copper grades appear to be coincident with high potassic alteration. Prospects are good to increase reserves, but are not likely to exceed 260 mill. tons (D.Hanson).

Some improvement in grade and tonnage for the higher grade core area may be possible with additional drilling.

At present prices most of the value is in copper with gold and silver byproduct credits. Molybdenum values appear marginal and are not included in the analysis. Gold and silver values were obtained from metallurgical testwork and calculated back to a feed grade by assuming a 67% recovery for both metals. Copper recoveries are given as 94% at a fairly coarse grind.

Strip ratio for the Granby pit is quite low at .8 tons waste to 1 ton ore. Some improvement may be possible as pit design was done at 45 degrees.

Concentrate would appear to be readily saleable at 26-27% copper and no penalty charges.

Equity's concentrate and smelter charges were used as a basis for off property costs. Gibraltar's property costs were used as a basis but were adjusted for a lower strip ratio and for varying tonnage rates.

Capital costs are estimations based on Mt. Milligan and Mt. Polley costs.

Economics were reviewed over 10 and 15 year mine life and mill throughput ranging from 5.7 - 17.1 mill. tons/year.

Results of the analyses are not favourable.

Milling at Equity's mill is out of the question for such low grade ore. (Gross ore value \$11.84/ton; transport to Equity is estimated at \$5/ton).

Assumptions used in the economic review are:-

1. One year pre-production.
2. Higher grades milled first.
3. No additional capital expenditures during mine life.
4. Interest on capital at 10%PA.
5. Taxes at min. 2%; otherwise 43% after utilizing depreciation.
6. Depreciation at 30% on a declining balance basis.
7. Debt repaid from 100% of cash flow.
8. Net present value discount factor at 10%.

The best case, tripling the reserve to 256.5 mill. tons, gave a positive cash flow of \$152 mill. However net present value was a negative \$52 mill. using a 10% discount rate. Payback was not achieved until year 7 of a 15 year mine life. It appears that the Huckleberry deposit requires more than a large increase in reserves to become attractive for development.

Positives for the property are a low strip ratio, good recovery at a coarse grind, high concentrate grade and no penalty elements.

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HUCKLEBERRY  
t256.5m; 17.1m/yr

YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TONS		17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
CU GR		0.51	0.51	0.51	0.51	0.51	0.51	0.34	0.34	0.34	0.34	0.34	0.34	0.3	0.3	0.3
AG OZ		0.051	0.051	0.051	0.051	0.051	0.051	0.034	0.034	0.034	0.034	0.034	0.034	0.03	0.03	0.03
AU OZ		0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0008	0.0008	0.0008
CU \$/LB		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
AU \$/OZ		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
AG \$/OZ		4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
CU REC		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
AU REC		0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
AG REC		0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
CU REV		146.79	146.79	146.79	146.79	146.79	146.79	97.86	97.86	97.86	97.86	97.86	97.86	86.347	86.347	86.347
AU REV		6.5167	6.5167	6.5167	6.5167	6.5167	6.5167	5.6478	5.6478	5.6478	5.6478	5.6478	5.6478	3.4755	3.4755	3.4755
AG REV		2.1595	2.1595	2.1595	2.1595	2.1595	2.1595	1.4397	1.4397	1.4397	1.4397	1.4397	1.4397	1.2703	1.2703	1.2703
CU GR CONC		26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
TONS CONC		0.2711	0.2711	0.2711	0.2711	0.2711	0.2711	0.1807	0.1807	0.1807	0.1807	0.1807	0.1807	0.1595	0.1595	0.1595
TREAT CHGE		35.252	35.252	35.252	35.252	35.252	35.252	23.501	23.501	23.501	23.501	23.501	23.501	20.736	20.736	20.736
TRANS CHGE		19.13	19.13	19.13	19.13	19.13	19.13	12.753	12.753	12.753	12.753	12.753	12.753	11.253	11.253	11.253
PENALTIES		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NSR CAN \$'S		121.3	121.3	121.3	121.3	121.3	121.3	82.43	82.43	82.43	82.43	82.43	82.43	70.923	70.923	70.923

5.5 million tonnes

30

40 -  
x 5  
200 million

40  
29.1

HUCKLEBERRY NPVal  
t256.5m; 17.1m/yr

YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
PROP OP CST		48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	48.6	38.8	38.8	38.8	
PROP OP CSH FL		72.7	72.7	72.7	72.7	72.7	72.7	33.8	33.8	33.8	33.8	33.8	33.8	32.1	32.1	32.1	735.3
INT @10%PA		33	29.1	24.8	20.1	15	9.3	3.3	1								
TAX (MIN2%)		0.8	0.9	0.9	1.1	1.2	2.6	8.1	10.6	12.1	12.8	12.9	13.8	13.3	13.5	13.5	
CSH AFTER TAX		38.9	42.7	47	51.5	56.5	60.8	22.4	22.2	21.7	21	20.9	20	18.8	18.6	18.6	
REMAIN DEBT	330	291.1	248.4	201.4	149.9	93.4	32.6	10.2	0								
CSH AFTR DEBT		0	0	0	0	0	0	0	12	21.7	21	20.9	20	18.8	18.6	18.6	151.6
CSH PREDEBT RED	-330	38.9	42.7	47	51.5	56.5	60.8	22.4	22.2	21.7	21	20.9	20	18.8	18.6	18.6	
DISC FACT 10%	1	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	0.35	0.319	0.29	0.263	0.239	
PRES VALUE	-330	35.4	35.3	35.3	35.2	35.1	34.3	11.5	10.4	9.2	8.1	7.3	6.4	5.5	4.9	4.4	-51.7
AMT TO DEPR		330	231	161.7	113.2	79.2	55.4	38.8	27.2	19	13.3	9.3	5.6	3.9	2.7	1.9	
DEP @ 30%		99	69.3	48.5	34	23.8	16.6	11.6	8.2	5.7	4	3.7	1.7	1.2	0.8	0.6	