REPORT ON

THE ECONOMICS

of

COWICHAN COPPER CO. LTD.

SUNRO MINE, JORDAN RIVER, B.C.

by: H. Hill & L. Starck & Associates Ltd.

July 19, 1963.

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The following report is based on the ore reserves shown in the H. Hill & L. Starck & Associates Ltd. report of July 11, 1963, which is enclosed herewith. Operating costs used in this report are based on previous performance coupled with estimates for a future operation.

SUMMARY

Proven and indicated ore reserves at July 1963, are estimated at 1,695,000 tons, grading 1.57% copper after allowing for 5% dilution.

During the two year period, from July 1963 to June 1965, tonnage milled at the rate of 35,000 tons per month would total 825,000 tons grading 1.80% copper.

Ore reserves at July 1st, 1965, are estimated at 870,000 tons grading 1.33% copper providing no new ore is developed. Ore of this grade has a net smelter return value of $6.14 per ton after allowing for the reduced Consolidated Mining & Smelting Company royalty.

Operating profit during the two year period, after allowing for direct costs and the Consolidated Mining & Smelting Company royalty, but before allowing for capital expenditures or interest on loans, would amount to $2,722,550. Details are shown on Table I, which gives a forecast of operating profit for each month from July through December 1963, and for each quarter for the period January 1963 to July 1, 1965.

To maintain the costs used in the forecast will require maximum effort by all personnel. A close analysis should be made of the performance of all supervisors with a view to obtaining the greatest possible efficiency.

Summary (Continued)

The operating costs are based on the assumption that adequate finances will be available so that management can make the planned, necessary capital improvements when required.

TONS MILLED

The increase in tons milled to 35,000 per month is based on improvements in the crushing plant to provide 1,500 tons per day of minus 5/8" ore to the rod mills.

MILL HEADS

Estimated mill heads are based on the forecast for ore removal shown in Table 2 and Maps 1, 2 and 3.

Grades shown are based on the ore reserve report by H. Hill & L. Starck & Associates Ltd., dated July 11, 1963, after allowing for dilution by 5% of material assaying 0.1% copper.

NET SMELTER RETURN

The net smelter return per pound of copper in the mill heads was calculated as follows:

Assays: per metric ton (2204.6 lbs.) of concentrate

Copper - 25.12% (average of concentrates produced to June 21, 1963)
Gold - 4.25 gms. per metric ton
Silver - 42.5 gms. per metric ton

Quotations: Month of June 1963

Copper - E.M.J. export refinery quotation 28.39¢ per lb.
Gold - U.S. Treasury net price quotation $34.9125 per oz.
Silver - Handy & Harman, N.Y. quotation for foreign fine silver $1.2768 per oz. less discount of 0.004 = $1.2728 per oz.

Contents & Value:

Contents	Contents Paid For	Price	Value
553.80 lb. copper	531.75 lbs.	28.396¢-1	$145.68 U.S. funds
4.25 gms. or 0.137 oz. Au.	.137 x .95	$34.9125	4.54 U.S. funds
42.5 gms. or 1.37 oz. Ag.	1.37 x .90	$ 1.2728	1.56 U.S. funds
		Total	$151.78 U.S. funds
Freight and treatment - $18.26 per dry metric ton			18.25
			$133.52 U.S. funds

Net Smelter Return

Contents & Value (Continued)

Total carried forward from page 2	\$133.53 U.S. funds
Using June 25th exchange rate of 1.0775	\$143.88 Canadian funds
Hauling-mine to dock and loading on board ship	2.05
	\$141.83 Canadian funds

Net smelter return per lb. copper in concentrate $= \frac{141.83}{553.8} = 25.61¢$

Net smelter return per lb. copper in mill heads using a mill recovery of 95% $= 25.61 \times .95 = 24.33¢$

OPERATING COSTS

(a) Mining

During July, August and September 1963, most of the production will come from the broken ore in the B North stope. During October, November and December 50% of production will come from the narrower C ore body. After January 1, 1964, 50% to 55% of production will be hoisted from below the 5130 level and the remainder will come from the C ore body.

Allowance has been made in the mining cost estimate for the increased cost of mining the C ore body and increased wages and supply costs.

(b) Development and Exploration

This item includes stope preparation, development and diamond drilling to outline the ore bodies, and exploratory diamond drilling. For the River Zone, the cost of already completed development plus an estimate of that still required to complete development of the zone is \$0.60 per ton. This is the figure at which development has been written off over tonnage milled to date, resulting in the deferred development item in the April 30, 1963 balance sheet. In view of the fact that development of the narrower ore bodies, remaining after the River B ore body has been extracted, will cost more per ton, a figure of \$1.00 per ton has been used in Table 1. Allowance has been made to maintain a workable broken ore reserve ahead of production.

(c) Milling

The reduction of this figure to \$1.28 per ton from the \$2.00 per ton which milling has cost to date, is based on the improvements in the crushing plant which will provide 1500 tons per day of minus 5/8" ore to the rod, and on other improvements in the mill, if found necessary, to maintain a monthly tonnage of 35,000.

ADMINISTRATION

During the fiscal year ending April 30, 1963, the cost of administration was $0.72 per ton milled for an average of 19,000 tons per month. The figure of 0.45 per ton, used in Table I, is this cost spread over 35,000 tons per month.

ROYALTY

The current royalty arrangement with Consolidated Mining & Smelting Company per ton of ore milled is based on the following formula:

(.90 x grade x export refinery price ÷ 30) converted to Canadian funds.

It ends with the milling of 900,000 tons of 1.8% ore. Remaining ore is subject to a royalty per ton calculated by the following formula:

(.25 x grade x export refinery price ÷ 30) converted to Canadian funds.

The change occurs in the period October to December 1964 in Table I.

CAPITAL EXPENDITURES

The figures shown in Table I allow for completion of the shaft installation, new crusher and installation and miscellaneous expenditures.

H. HILL & L. STARCK & ASSOCIATES LTD.

Henry L. Hill

L. P. Starck

HLH:LPS/mjr

Period	July 1963		August 1963		September 1963		October 1963		November 1963		December 1963	
Tons Milled	25 000		30 000		35 000		35000		35000		35 000	
Mill Heads Per Cent Copper	1.86		1.92		1.91		1.80		1.95		1.91	
	Per Ton	Per Month	Per Ton	Per Month	Per Ton	Per Month	Per Ton	Per Month	Per Ton	Per Month	Per Ton	Per Month
Net Smelter Return	$9.05	$226250	$9.34	$280 200	$9.29	$325150	$8.76	$306600	$9.49	$332150	$9.29	$325 150
Operating Costs Mining	$0.85		0.85		0.90		1.00		1.20		1.30	
Development & Explor.	0.85		1.00		1.00		1.00		1.00		1.00	
Milling	1.55		1.40		1.25		1.25		1.25		1.25	
Administration.	0.63		0.52		0.45		0.45		0.45		0.45	
Total	3.88		3.77		3.60		3.70		3.90		4.00	
Operating Profit	5.17		5.57		5.69		5.06		5.59		5.29	
Royalty (C.M.&S)	1.71		1.76		1.75		1.65		1.79		1.75	
Operating Profit less C.M.&S. Royalty	3.46	86500	3.81	114300	3.94	137900	3.41	119 350	3.80	133 000	3.54	123900
Cumulative Operating Profit less Royalty		86500		200800		338 700		458050		591050		714950
Capital Expenditure $240,000		20000		20000		20000		20000		10 000		10000

TABLE I

January - March 1964			April - June 1964			July - September '64			October - December '64			January - March '65			April - June '65			Total
105000			105000			105000			105000			105000			105000			825000
1.88			1.70			1.76			1.81			1.79			1.66			1.80
Per Ton		Per Period	Per Ton		Per Period	Per Ton		Per Period	Per Ton		Per Period	Per Ton		Per Period	Per Ton		Per Period	
	$9.15	$960750		$8.27	$868350		$8.56	$898800		$8.81	$925050		$8.71	$914550		$8.08	$848400	
1.45			1.45			1.45			1.45			1.45			1.45			
1.03			1.03			1.03			1.03			1.03			1.03			
1.28			1.28			1.28			1.28			1.28			1.28			
0.45			0.45			0.45			0.45			0.45			0.45			
	4.21			4.21			4.21			4.21			4.21			4.21		
	4.94			4.06			4.35			4.60			4.50			3.87		
	1.73			1.56			1.62			1.41			0.46			0.42		
	3.21	337050		2.50	262500		2.73	286650		3.19	334950		4.04	424200		3.45	362250	
		1052000			1314500			1601150			1936100			2360300			2722550	
		30000			30000			30000			16700			16700			16600	

Note -
Proven & Indicated ore reserves as at July 1st 1965 estimated at 870,000 tons @ 1.33% Cu.
Net smelter returns after allowing for reduced royalty = $6.14 at present metal prices & exchange

NOTE - The above forecast is based on the following:

(1) Suitable improvement in the crushing plant to guarantee 1500 tons per day at minus 5/8" ore to the Rod Mills to maintain minimum of 35,000 T/Month

(2) Close supervision of all operations

H. Hill & L. Starck & Associates Ltd.
July 10 1963