

PRELIMINARY REPORT

on Valuation of

**CREAM SILVER MINES PROPERTY**

Strathcona Park, Vancouver Is.

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## PRELIMINARY REPORT ON VALUATION OF CREAM SILVER MINES LTD

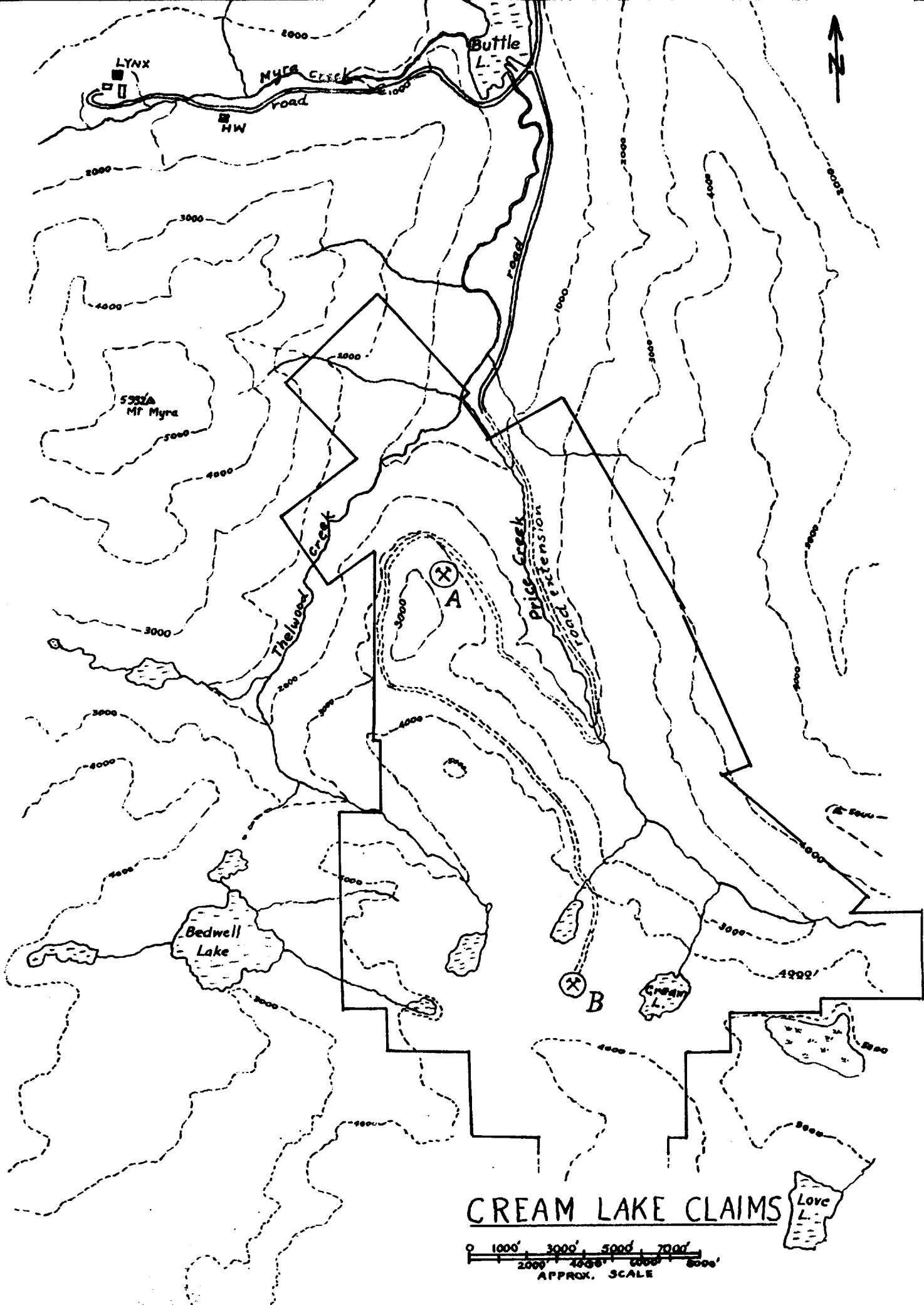
### Terms of Reference:

The Author of this report was requested by M. David Wilder, Counsel for Cream Silver Mines, to cooperate with N.C. Carter in preparing a joint valuation, or separate valuations, of the expropriation value of the Cream Silver property in Strathcona Park. This request was made initially by telephone on September 11, and confirmed by letter on September 13, which also suggested a draft report available for discussion by mid November. The author's discussions with N.C. Carter and others in Vancouver during October 22-24 determined that preparation of a formal report containing ore reserves, mine planning, capital costs, operating costs and revenue was not possible, because insufficient exploration work had been done to define ore reserves, and any further exploration work was prohibited.

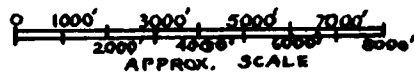
It was agreed in discussion with N.C. Carter that the only feasible approach to a property valuation, was to assume several hypothetical orebody sizes and grades, calculate the theoretical valuations of these orebodies, and by geological evidence, judge the percentage probabilities of a similar orebody or orebodies being found by detailed exploration of the Cream Silver property. The calculated property valuation would then be the most similar theoretical valuation multiplied by an assessed probability less than 100%.

It is assumed that, for an orebody to have any value, it must be capable of producing revenue sufficiently in excess of operating costs and taxes, that the initial investment in developing the mine and building the plant can be recovered with interest during the life of the mine. The sizes and grades of hypothetical orebodies discussed in this report have this capability, and any orebody intermediate in size and grade between any two hypothetical orebodies should also have this capability.

The valuation of any orebody depends on the prices of metals to be produced from the mine when it is in operation. Because it may require several years to develop the mine and build the plant, the current low prices for base metals and precious metals are not significant, but the expected metal prices three years from now are important. This report assumes metal prices in three years time will be: Lead 26c/lb, Gold \$440/oz., Silver \$12/oz., Copper 87c/lb., and Zinc 51c/lb., all expressed in Canadian currency in constant money terms ( i.e. excluding inflation allowance over the next three years). This report also assumes that metal prices will rise somewhat more rapidly than the overall inflation rate over the next decade and this assumption is consistent with most knowledgeable forecasts of future metal prices.



# CREAM LAKE CLAIMS



Love L.

### Characteristics of hypothetical orebodies:

The sketch of the Cream Lake property shows the location of the Westmin H-W mine and the Lynx mine to the Northwest of Cream Lake. The shear zone in which Westmin's mines have been found, may extend southeast on to Cream Lake property and it is thought that site A as shown on the sketch is a likely location for an orebody of the H-W type.

The largest hypothetical orebody assumed is similar in size and grade to the H-W orebody, but since the H-W orebody is exceptional in size, the hypothetical #1 orebody is not very probable. The smaller #2 and #3 hypothetical orebodies are much more likely than the large #1 orebody, but these smaller orebodies need to be somewhat higher in grade to be equally viable as operating mines. It is also likely that high grade silver veins of narrow width and with steep dips may be found in the plateau area and this possibility has been considered by assuming a small 250,000 ton orebody at site B as described in Table 6.

All three orebodies are assumed to be thick and flat lying, similar in attitude to the H-W orebody. Table 1 shows the physical dimensions of the three orebodies with tonnages of 12 million, 4 million, and 2 million tons of ore, and it is assumed that each orebody will be mined at a rate which will last for at least a decade. Table 1 also shows the expected size and capacity of mine equipment and services, plus the number of employees required to establish the probable capital costs and probable operating costs of each of the three mines.

Table 2 shows the estimated capital costs of developing the mine, installation of mine services, and project overhead. It is assumed that a bunkhouse camp will be established to house the construction crew, and that this camp will become the work-week accommodation for employees residing in Cambell River on weekends. It is not known whether this concept will be acceptable to Park authorities, but it is certain that the original concept of Western Mines of providing a mine townsite within the Park limits would never be approved by the B.C. Government. Working Capital allowance corresponds to operating costs for 4 months, by which time revenue should be received from the smelter. Working Capital will be recovered in the last year of operation. It should be noted that the capital costs are approximate only, and are not based on personal knowledge of the conditions at the site, or any detailed planning of the hypothetical mines.

From the author's experience in similar mine projects, it is estimated that about 15% of the capital costs will be spent in the first year of construction, with 40% in the second year, and the final 45% in the third year. It is judged that it would be desirable to omit building a mill as long as Westmin would be willing to mill the ore and sell the concentrates. Westmin's willingness would be a function of the terms of an agreement negotiated between Westmin & Cream Silver, which could be mutually beneficial to both companies.

**TABLE 1: HYPOTHETICAL MINES AT SITE "A"**

	<b>*1 mine</b>	<b>*2 mine</b>	<b>*3 mine</b>
Ore Reserve Tonnage	12,000,000 T	4,000,000 T	2,000,000 T
Ore grades in %Pb,Cu,Zn	0.3,2.2,5.3	0.5, 2.6,7.2	0.7,3.0,11.0
" " in oz/ton Au,Ag	0.07, 1.1	0.10, 1.3	0.13, 1.5
Ore specific gravity	3.4	3.4	3.4
Cubic feet of ore	113.04 mill.C.F	37.68 mill. C.F.	18.8 mill. C.F.
Ore thickness	40 ft	25 ft	15 ft
Ore length	2800 ft	2000 ft	1750 ft
Ore width	1000 ft	750 ft	700 ft
Tons mined/day (5days/wk)	4000 T	1500 T	700 T
Tons mined/yr. (250 days)	1,000,000T	375,000 T	175,000 T
Years of mining	12.0 yrs	10.7 yrs	11.4 yrs
Shaft Depth below surface	2200 ft	2200 ft	2200 ft
Concrete shaft Dia. in ft	18 ft	16 ft	14 ft
Hoist drum dia. inches	144 "	110 "	96 "
Hoist motor h.p.	2500 hp	900 hp	500 hp
Hoist rope speed	2070 fpm	1400 fpm	1030 fpm
Headframe height	150 ft.	105 ft	85 ft
compressor capacity	9000 cfm	5400 cfm	3700 cfm
Peak load in KW	2990 KW	1500 KW	880 KW
Water supply	4 mile pipeline from Buttle Lake		
Water Gall./ minute	660 gpm	390 gpm	250 gpm
Pipeline size	2 x 6"	2 x 4"	1 x 6"
Access road	6 miles at 10% gradient for all mines		
Employees:			
Mine crew	247 men	158 men	119 men
Mine staff	40	25	19
Surface crew	29	17	14
Admin. staff	20	13	10
<b>Total employees</b>	<b>336</b>	<b>213</b>	<b>162</b>
Mining method	mechanized cut & fill for all mines		
Ore treatment	Ore crushed and trucked to Westmin mill, Pb & Zn concentrates treated at Trail, and Cu concentrates shipped to Japan smelter. Classified tailings from Westmin mill back hauled to mine for fill.		

**TABLE 2: CAPITAL COSTS OF HYPOTHETICAL MINES**

	*1 mine	*2 mine	*3 mine
Shaft sinking	\$ 7,383,000	\$ 6,810,000	\$ 6,216,000
Und gd developm t	14,940,000	8,158,000	5,730,000
Hoist cost	2,967,000	1,660,000	1,220,000
Hoist inst n	548,000	337,000	264,000
Hoistroom	1,354,000	572,000	370,000
Headframe	2,726,000	1,038,000	590,000
Compressors	1,113,000	747,000	556,000
Und gd equip. & inst n	7,070,000	3,925,000	2,484,000
Und gd maintenance	1,760,000	1,078,000	736,000
<b>Total Mining</b>	<b>\$ 39,861,000</b>	<b>\$ 24,325,000</b>	<b>\$ 18,166,000</b>
Electrical distrib n	995,000	573,000	312,000
Crushing plant	5,083,000	3,113,000	2,126,000
Water supply	948,000	612,000	423,000
Access road & site	3,000,000	3,000,000	3,000,000
General plant services	1,515,000	1,057,000	845,000
Bunkhouse camp	12,145,000	7,751,000	5,858,000
<b>Total services</b>	<b>\$ 23,686,000</b>	<b>\$ 16,106,000</b>	<b>\$ 12,564,000</b>
Technical & design	4,000,000	2,500,000	1,950,000
Project management	5,788,000	3,680,000	2,800,000
Admin., legal, & acct g	3,500,000	2,250,000	1,700,000
Working capital	7,770,000	4,633,000	3,351,000
<b>Project overhead</b>	<b>\$ 21,058,000</b>	<b>\$ 13,063,000</b>	<b>\$ 9,801,000</b>
<b>Total for project</b>	<b>\$ 84,605,000</b>	<b>\$ 53,494,000</b>	<b>\$ 40,531,000</b>

Note: capital costs are estimated in current \$ as of October 1985, and these costs would be somewhat higher in future years. Mine projects of these sizes would require at least three years to complete.

## Operating costs

Table 3 shows operating costs for the three mines assuming the mines are worked 5 days per week, for 250 days per year. This would mean that the only employees needed on weekends would be caretakers or the overtime maintenance employees as required. The operating charges of custom milling by Westmin would be higher than the operating costs of an owned mill, but custom milling would save on capital costs to Cream, and would also permit Westmin to recover part of the capital costs of their own mill as well as making a profit on their operating costs.

It is judged that the arrangement that should be sought with Westmin would not be custom milling Cream ore with retention of concentrates produced from Cream ore for sale by Cream, but rather the direct purchase of Cream ore by Westmin with Westmin marketing the concentrates produced along with concentrates produced from Westmin ore. The value of Cream ore purchased by Westmin would be established by careful sampling, weighing, and sampling procedures which would require the Cream ore to be finely crushed at Cream's cost prior to sampling. Cream may perform their own check sampling and require that Westmin preserve all samples for referee sampling in case of disputed assays.

## Smelting revenue:

Table 4 shows the expected recovery and grades of concentrates produced from Cream ore by the Westmin mill. The author of this report was not able to get any mill performance data from Westmin's new mill, possibly because mill performance has not yet become stabilized, and hence the performance figures shown in Table 4 may be seriously in error although they are consistent with the performance of other Pb/Zn/Cu milled ores.

No data on smelting schedules is available for Westmin lead and zinc concentrates shipped to Trail, or for copper concentrates shipped to Japan. Consequently the smelter revenue shown in Table 4 is based on pure guesses as to smelting terms, smelting costs per ton, and freight costs per ton. The guessed smelter terms are as follows:

1. Lead concentrates: Pb payment based on 95% of lead content/ton at a lead price of 26c/lb minus 5c/lb. Au payment based on gold content per ton minus 0.3 oz/T at 96% of gold price at \$440(Can) per oz. Ag payment based on silver content per ton minus 1oz/T at 94% of Silver price at \$12(Can) per oz.
- 2 Copper concentrates: Cu payment based on copper content less 1.1% Cu/T at a copper price of 87c/lb minus 9c/lb. Au & Ag payments same as for lead concentrates.
3. Zinc concentrates : Zn payment based on 85% of zinc content at zinc price of 51c/lb. No payments for gold or silver.

**TABLE 3: OPERATING COSTS PER MINING DAY ( 5 DAYS/ WK)**

	Mine #1	Mine #2	Mine #3
<b>Labour cost:</b>			
Mine crew	33,345	21,330	16,065
Mine staff	6,480	4,050	3,078
Fringes @ 35%	13,939	8,883	6,700
Electrical crew	1,170	650	520
Surface crew	1,100	700	600
Camp crew	855	475	380
Gen. admin.	3,200	2,080	1,600
Fringes @ 35%	2,214	1,367	1,085
<b>Total Labour</b>	<b>\$62,303</b>	<b>\$ 39,535</b>	<b>\$ 30,028</b>
<b>Mining supplies</b>	<b>\$18,720</b>	<b>\$8,504</b>	<b>\$4,746</b>
Crushing supplies	1,280	540	273
Electric power	1,000	627	368
Gen service supplies	607	371	254
Camp costs	7,120	4,541	3,432
Gen admin. costs	2,312	1,475	1,115
<b>Total Supplies</b>	<b>\$ 31,039</b>	<b>\$16,058</b>	<b>\$ 10,188</b>
<b>Total cost /day</b>	<b>\$93,342</b>	<b>\$55,593</b>	<b>\$ 40,216</b>
<b>Total cost/ yr.</b>	<b>\$ 23.335 mill.</b>	<b>\$ 13.898 mill.</b>	<b>\$ 10.054mill.</b>
<b>Aver cost /ton</b>	<b>\$23.33</b>	<b>\$37.06</b>	<b>\$ 57.45</b>

Westmin's milling charges ( guesstimated) per ton milled.

	Mine #1	Mine # 2	Mine #3
<b>Tons milled per day . 350 days/yr</b>	<b>2857</b>	<b>1071</b>	<b>500</b>
Sampling & assaying Cream ore	\$ 0.10	\$ 0.16	\$ 0.20
Milling cost (excl. crush g) Cream ore	5.00	6.50	8.00
Tailings deposition	0.15	0.18	0.20
Amortization of mill ( \$57 mill)	2.08	2.95	3.30
Westmin's profit @ 15%	1.10	1.45	1.75
<b>Cost per ton milled</b>	<b>\$ 8.43</b>	<b>\$11.24</b>	<b>\$ 13.45</b>
<b>Milling cost per day</b>	<b>\$24,084</b>	<b>\$ 12,038</b>	<b>\$ 6,725</b>
<b>Milling cost per yr. (350 days)</b>	<b>\$8.429 mill</b>	<b>\$4.213 mill</b>	<b>\$2.354 mill</b>



**TABLE 4: ESTIMATED METALLURGY & SMELTING REVENUE**

	Mine #1	Mine#2	Mine #3
Tons milled per day	2857	1071	500
Grade of ore % Pb,Cu,Zn.	0.3,2.2,5.3	0.5,2.6,7.2	0.7,3.0,11.0
" " " oz/T Au, Ag.	0.07, 1.1	0.10, 1.3	0.13, 1.5
% Recoveries of Pb,Cu,Zn	47.5,78.0,79.8	65.2,80.7,83.2	73.4,82.8,87.0
% Recovery of Au,Ag: Pb Conc	38.0,47.5	55.9,65.2	58.7,73.4
" " Au,Ag: Cu Conc	48.3,32.8	38.7,22.4	34.2,17.6
Tons per day Pb Conc	9.9298 T	7.6735 T	5.4312 T
Grade %Pb,oz/T Au,Ag	41.0,7.65,150.3	45.5,7.26,118.3	47.3,7.03,101.4
Tons per day Cu Conc	185.0 T	83.85 T	46.0 T
Grade %Cu, oz/T Au, Ag	26.5,0.523,7.85	26.8,0.495,3.73	27.0,0.483,2.87
Tons per day of Zn Conc	246.6 T	129.09 T	93.824 T
Grade of Zn in Zn Conc	49.0%	49.7%	51.0%
Smelting Revenue/day: Pb @ 26c, Cu @ 87c, Zn @ 51c, Au @ \$440, Ag @ \$12			
Pb in Pb Conc	\$ 1624.42	\$ 1393.08	\$ 1025.03
Au in Pb Conc	30,842.30	22,549.63	15,439.83
Ag in Pb Conc	16,726.51	10,153.15	6,151.00
Smelting & freight @ \$190/T	- 1,886.66	-1,457.96	-1,031.95
Net Revenue Pb Conc	47,306.56	32,637.90	21,583.91
Cu in Cu Conc	73,304.40	33,617.02	18,585.84
Au in Cu Conc	17,410.48	6,906.53	3,555.76
Ag in Cu Conc	9,526.24	2,579.36	970.30
Smelting & freight @ \$140	-25,900.00	-11,738.95	-6,440.00
Net Revenue Cu Conc	\$ 74,341.12	\$31,447.81	\$16,671.90
Zn in Zn Conc	104,763.08	55,624.28	41,485.95
Smelting & freight @ \$260	-64,116.00	-33,563.14	-24,394.11
Net Revenue Zn Conc	\$40,647.08	\$22,061.14	\$17,091.84
Total Revenue all Concs	\$162,294.76	\$86,146.85	\$55,347.65
Total Revenue per yr.	\$56,803,000	\$30,151,000	\$19,372,000

Smelting charges and freight:

The smelting charges per ton of concentrate, plus trucking from the mine to Campbell River, storage at Campbell River, shipping freight, rail freight to Trail are estimated as follows:

Lead concentrate .....	\$ 190 per short ton.
Copper concentrate .....	\$ 140 " " "
Zinc concentrate .....	\$ 260 " " "

The smelting revenue per day shown in Table 4 is the total revenue received by the shipper, Westmin, and it can be expected that Westmin will receive a minor portion (perhaps 10%) for marketing the concentrates, utilizing their concentrate trucking and storage facilities and general superintendance of concentrate movement. Cream will be paid for the assays of their ore by a formula that will reflect about 90% of the value of concentrates produced from their ore by Westmin's mill.

The ore payment formulae may be as follows:

1. Pb At lead price of 26c/lb will pay 9c /ton for each 0.1% Pb in excess of 0.8% Pb. Tonnage payment will be increased (or reduced) by 1c for each increase ( or reduction) of 1c in lead price above(or below) 26c for each increment of 0.1% Pb above 0.8%Pb. Ore containing less than 0.8% Pb will be penalized by 2c/T for each 0.1% below 0.8%Pb if the lead price is 26c/lb or lower.

2. Cu At copper price of 87c/lb, copper content will be paid for at \$ 8.74 for each 1% Cu above 0.47%Cu. The tonnage payment of \$ 8.74 for each 1% above 0.47%Cu will be increased( or reduced) by 13c/ton for each 1c increase( or decrease) in copper price of 87c/lb

3. Zn. Zinc content will be paid for at \$3.10/ton for each 1% Zn in excess of 1.2%Zn assuming a zinc price of 51c/lb. The tonnage payment of \$3.10/ton per 1%Zn in excess of 1.2%Zn will be increased( or reduced) by 15c/ton for each 1c increase(or reduction) in zinc price of 51c/lb

4. Au. Gold content of ore less 0.02 oz/T will be paid for at \$306/oz when gold price is \$440 /oz. If gold price varies from \$440, 70% of the variation in price will be added or subtracted from the payment price of \$306.

5. Ag. Silver content of ore in excess of 0.3 oz/T will be paid at \$10.60 per oz when silver price is \$12/oz. If silver price varies from \$12, 88% of the variation will be added(or subtracted) from the payment price of \$10.60.

**TABLE 5: CALCULATION OF ORE PAYMENT BY FORMULAE**

The following table shows the ore payments per ton of ore, based on assays of ore, which are approximately equivalent to 90% of the net smelter revenue after deducting smelting costs and concentrate freight.

	Mine #1	Mine #2	Mine #3
Tons milled per day	2857	1071	500
Grade of ore in % Pb, Cu, & Zn	0.3,2.2,5.3	0.5,2.6,7.2	0.7,3.0,11.0
" " " in oz/T Au, & Ag	0.07, 1.1	0.10, 1.3	0.13, 1.5
Pb, Cu, Zn prices in c/lb	26, 87,51	26, 87, 51	26, 87, 51
Au, & n Ag prices in \$ /oz	440, 12	440, 12	440, 12
<hr/>			
Lead payment per ton of ore	-\$ 0.10	-\$ 0.06	-\$ 0.02
Copper payment " " "	15.12	18.62	22.11
Zinc payment " " "	12.71	18.60	30.38
Gold payment " " "	15.30	24.48	33.66
Silver payment " " "	8.48	10.60	12.72
<hr/>			
Total payment per ton of ore	\$51.51	\$72.24	\$98.85
Total payment per day	\$147,164	\$77,369	\$49,425
Compare with:			
90% of net smelter revenue:			
90% lead smelter revenue/ton	-\$ 0.09	-\$ 0.05	-\$ 0.01
90% copper smelter revenue/ton	14.93	18.38	21.86
90% zinc smelter revenue/ton	12.80	18.54	30.76
90% gold smelter revenue/ton	15.20	24.75	34.19
90% silver smelter revenue/ton	8.27	10.70	12.82
<hr/>			
90% total smelter rev./ton	\$51.11	\$72.32	\$99.62

There is close agreement between the ore payments per ton based on assays, and 90% of the net smelter revenue. It will be more convenient to calculate revenue per ton based on assays, than to compute 90% of smelter returns, when estimating revenue per ton for different grades of ore.

### Calculation of operating profits, taxes, and cash flow.

Table 7 shows the yearly project capital costs, operating profits, taxes, and cash flow for the four hypothetical mines considered in this report. 15% of the total project costs are considered to be spent in the first year, thereafter 40% and 45% in the 2nd and 3rd year of mine development. Operating costs in the fourth year are calculated in uninflated \$ 1985 and remain constant for each subsequent year of operation. Revenue is also computed in uninflated \$1985 for the first year of operation, but because metal prices are expected to rise at a faster rate than operating costs, revenue is increased by 1% annually for each subsequent year of operation. Thus the operating profits are shown to increase for each successive year of operation.

The allowance for the cumulative effect of B.C. mining taxes, Federal income taxes, and B.C. income taxes includes 17.5%, 27%, and 16% of taxable income, where taxable income consists of operating profits less allowances for preproduction development, 30% of depreciable capital costs, processing allowance, and resource allowance. It should be noted that invested capital spent in acquiring the property, and exploration funds spent in exploring the property to define orebody reserves will also qualify for favourable taxation treatment.

Table 7 also shows the negative cash flow of capital expenditures during the first three years, plus the positive cash flows from operating profits less taxes during the operating years. All four mines show a positive cumulative cash flow at the end of operations, but it will be noted that mine #3 takes 2 years longer than the other mines to recover initial capital costs from operating profits less taxes. This adversely affects its valuation. The yearly cash flow, computed in uninflated \$ 1985, when discounted at 5% annually, shows the true profitability of the mines in uninflated terms, and hence may be judged as the opportunity value of each potential mine to be capable of generating profits which will recover the initial investment at an interest rate which is 5% higher than the normal rate of inflation, whatever that happens to be in the future years.

If the rate of inflation is high, say 8%, the 5% interest in uninflated dollars amounts to 13.4% in terms of inflated dollars. This may be compared with a common accounting guide of 15% earnings in relation to assets in measuring corporate financial health. But the accounting guide of assets may have been based on capital funds spent many years ago in acquiring assets or improving assets, and is normally much less than would be required to acquire these assets in current dollars.

Consequently 15% return on assets may be substantially lower if the asset valuation is based on current replacement value. For the purpose of establishing a valuation for purchase of a potential mine, a 5% return on capital measured in uninflated terms is judged to be conservative in establishing a zero base for valuation.

**TABLE 6: HIGH GRADE SILVER MINE AT SITE "B"**

Ore Reserves: 250,000 tons

Grade of ore : Pb 3.0%, Cu 3.0%, Ag 14.0 oz/T, Au 0.30 oz/T

Tons mined per day: 100 T, 5 days/week, 250 days /year for 10 years

Shaft : 14' x 6' timbered shaft with balanced skip-cage units, 950 ft

Orebody dimensions: 8' wide, 370 ft long, 800 ft deep, steeply dipping.

Capital Cost

Shaft sinking & equipping Shaft @ \$1500/ft	\$ 1,425,000
Lateral development 5500 ft drifts & Raises	990,000
60" dia. hoist 100hp	400,000
Hoistroom & hoist installation	200,000
65 ft headframe & truck loading bin	230,000
1500 cfm compressor	200,000
Compressor Rm/mech-electr. shop	140,000
Office/dry/dining rm/warehouse	360,000
200 gpm water system & sewage	260,000
600KW Diesel generator & fuel storage	1,070,000
Electrical distribution	100,000
Bulldozed road & project overhead	1,545,000
Working capital 4 months costs	1,120,000

TOTAL CAPITAL COST

\$ 8,140,000

Operating Costs

Cost/ton

Cost/day

36 shrinkage mining crew at \$135/day	\$ 48.60	\$4860
6 mine staff at 170/day	10.20	1020
2 electrical at 130/day	2.60	260
4 general surface at 110/day	4.40	440
4 gen. admin staff at 165/day	6.60	660
Fringe benefits @ 35%	25.30	2530
Mining supplies	9.60	960
diesel fuel & supplies	10.80	1080
Service & admin. supplies	6.00	600
Meals for employees @ \$20	10.40	1040

Total direct operating cost \$3,362,500/yr	\$134.50/T	\$13,450
Indirect milling charges by Westmin	41.50/T	4150

Total direct & indirect oper. costs	176.00/T	17,600
90% of smelting revenue	254.00/T	25,400
Operating profit /year \$1,950,000	78.00/T	7,800

TABLE 7: OPERATING PROFITS, TAXES, & CASH FLOW

Year	Mine*1 (oper. cost \$ 31.764 mill/yr)				Mine*2 (oper. cost \$18.111 mill./yr)			
	-Capital cost oper. profit	Taxes	Cash Flow	5% Disc. Cash flow	-Capital cost oper. profit	Taxes	Cash flow	5% Disc. cash flow
1985	-12.691		-12.691	-12.691	-8.024		-8.024	-8.024
1986	-33.842		-33.842	-32.230	-21.398		-21.398	-20.379
1987	-38.072		-38.072	-34.533	-24.072		-24.072	-21.834
1988	19.359		19.359	16.723	9.025		9.025	7.796
1989	19.870		19.870	16.347	9.296		9.296	7.648
1990	20.386	5.269	15.117	11.845	9.570	.210	9.360	7.334
1991	20.908	6.691	14.217	10.609	9.847	1.766	8.081	6.030
1992	21.435	8.180	13.255	9.420	10.127	2.899	7.228	5.137
1993	21.967	9.306	12.661	8.569	10.409	3.737	6.672	4.516
1994	22.504	10.180	12.324	7.944	10.694	4.368	6.326	4.078
1995	23.046	10.876	12.170	7.471	10.982	4.855	6.127	3.761
1996	23.595	11.451	12.144	7.100	11.274	5.243	6.031	3.526
1997	24.148	11.940	12.208	6.798	11.567	5.560	6.007	3.345
1998	24.707	12.371	12.336	6.542	8.305	3.999	8.939	4.740
1999	25.272	12.762	12.510	10.243				
<b>Total</b>	<b>182.657</b>	<b>98.926</b>	<b>82.731</b>	<b>40.156</b>	<b>47.499</b>	<b>32.637</b>	<b>29.497</b>	<b>7.646</b>

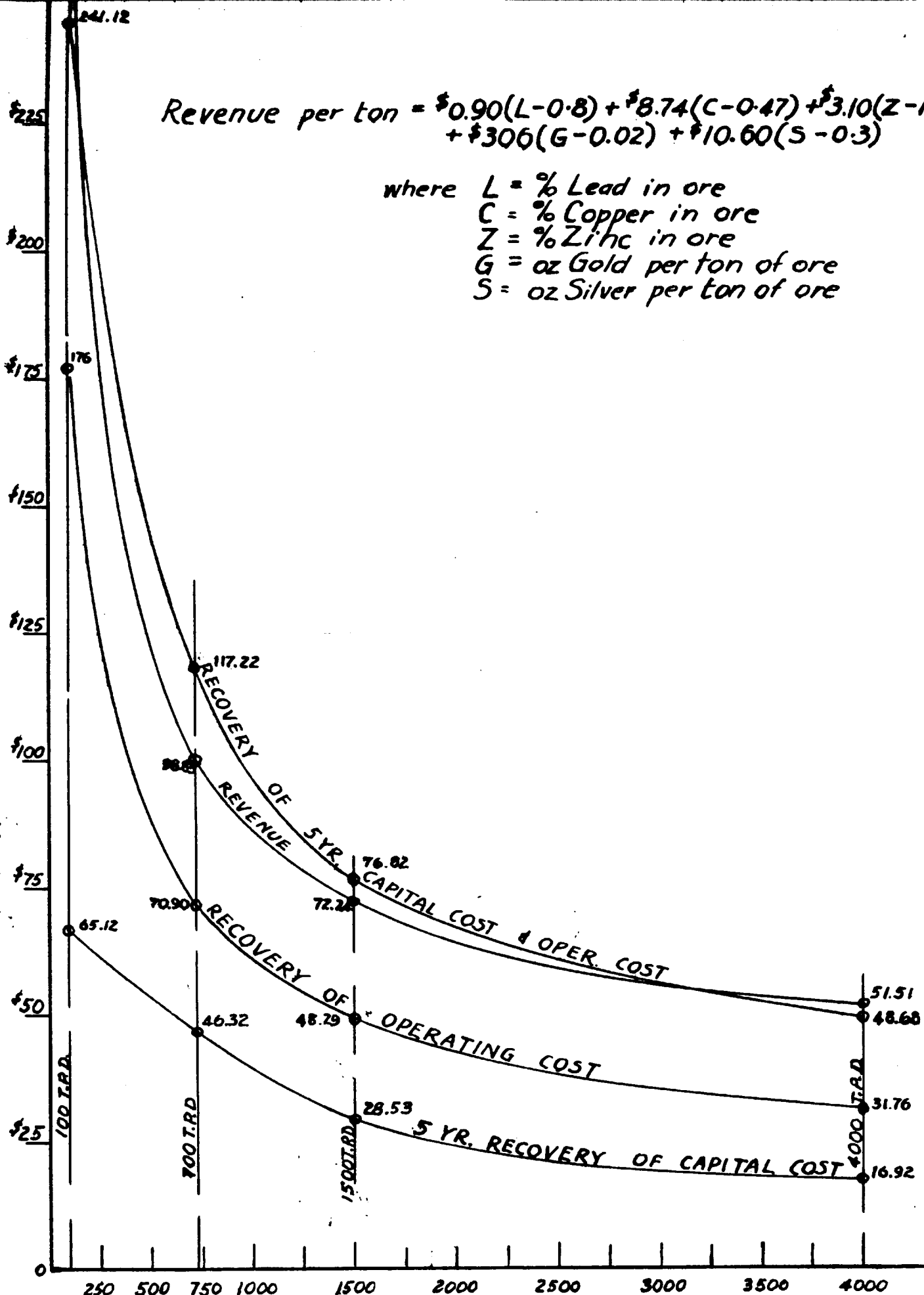
Year	Mine*3 (operating cost \$12,408,000/yr)				High grade Silver mine (oper. cost \$4,400,000 /yr)			
	-Capital cost oper. profit	Taxes	Cash Flow	5% Disc. Cash flow	-Capital cost oper. profit	Taxes	Cash flow	5% Disc. cash flow
1985	-6.080		-6.080	-6.080	-1.221		-1.221	-1.221
1986	-16.212		-16.212	-15.440	-3.256		-3.256	-3.101
1987	-18.239		-18.239	-16.543	-3.663		-3.663	-3.322
1988	5.027		5.027	4.136	1.950		1.950	1.684
1989	5.201		5.201	4.075	2.014		2.014	1.656
1990	5.377		5.377	4.013	2.078	0.597	1.481	1.160
1991	5.555		5.555	4.145	2.142	0.772	1.371	1.023
1992	5.735		5.735	4.075	2.208	0.904	1.303	0.926
1993	5.916	0.680	5.236	3.544	2.274	1.008	1.266	0.857
1994	6.099	1.483	4.616	2.976	2.341	1.091	1.250	0.806
1995	6.285	2.074	4.210	2.585	2.408	1.159	1.249	0.767
1996	6.471	2.518	3.954	2.312	2.476	1.218	1.258	0.735
1997	6.660	2.858	3.802	2.117	2.545	1.270	2.395	1.333
1998	6.851	3.126	3.725	1.975				
1999	2.817	1.171	4.997	2.523				
<b>Total</b>	<b>27.463</b>	<b>13.910</b>	<b>16.904</b>	<b>0.413</b>	<b>14.296</b>	<b>8.019</b>	<b>7.397</b>	<b>3.303</b>

Note: All figures shown in \$ millions per year.

$$\text{Revenue per ton} = \$0.90(L-0.8) + \$8.74(C-0.47) + \$3.10(Z-1.2) + \$306(G-0.02) + \$10.60(S-0.3)$$

where L = % Lead in ore  
 C = % Copper in ore  
 Z = % Zinc in ore  
 G = oz Gold per ton of ore  
 S = oz Silver per ton of ore

REVENUE PER TON MINED



TONS MINED PER DAY

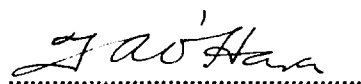
**Determination of orebody valuation:**

The four hypothetical orebodies considered in this report are judged to be capable of being mined to yield a profit which will exceed operating costs and recover the initial capital cost with interest. Accordingly the valuation of each potential mine is calculated to be the sum of money which exceeds the 5% discounted cash flow over the mine life, based on uninflated dollar terms. The valuations are as follows:

Mine #1.	12,000,000 tons mined at 4000TPD .....	\$ 40,156,000
Mine #2	4,000,000 tons mined at 1500 TPD .....	7,646,000
Mine #3	2,000,000 tons mined at 700 TPD .....	413,000
Silver mine	250,000 tons mined at 100 TPD .....	3,303,000

These valuations would be for an orebody with sufficient exploration completed that the shape, size, and grade of the orebody is well defined. But such exploration work requires expenditures which could be quite large for a large orebody such as #1 orebody. For the opportunity cost of acquiring an option on ground which could contain such an orebody, the value of such an option would be the percentage probability of such an orebody being found, multiplied by the valuation of the defined orebody, less the exploration cost of defining it. This can best be judged by the professional experienced geologist. The valuations above, however, show that orebody #3 probably has no value, because the cost of defining a 2million ton orebody would certainly exceed \$413,000.

The graph showing revenue per ton vs tons per day mined shows the revenue per ton required to exceed operating costs (the cutoff grade), and the revenue per ton required to recover initial capital costs within 5 years for 4000 TPD, 1500TPD, 700TPD, and 100TPD mines. The combined revenues to exceed operating costs and recover capital costs within 5 years provides a rough guide to which mines are feasible and which are not. This graph shows that only the large 4000 TPD mine and the small 100 TPD high grade silver mine have revenues per ton which exceed the rough guide. But these mines are less likely, the large mine because of the large tonnage required, and the small mine because of the high grade.

  
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November 14, 1985