

Mining Division

1986
WESTMIN
A.R.
885871

Additional Myra Falls Expansion

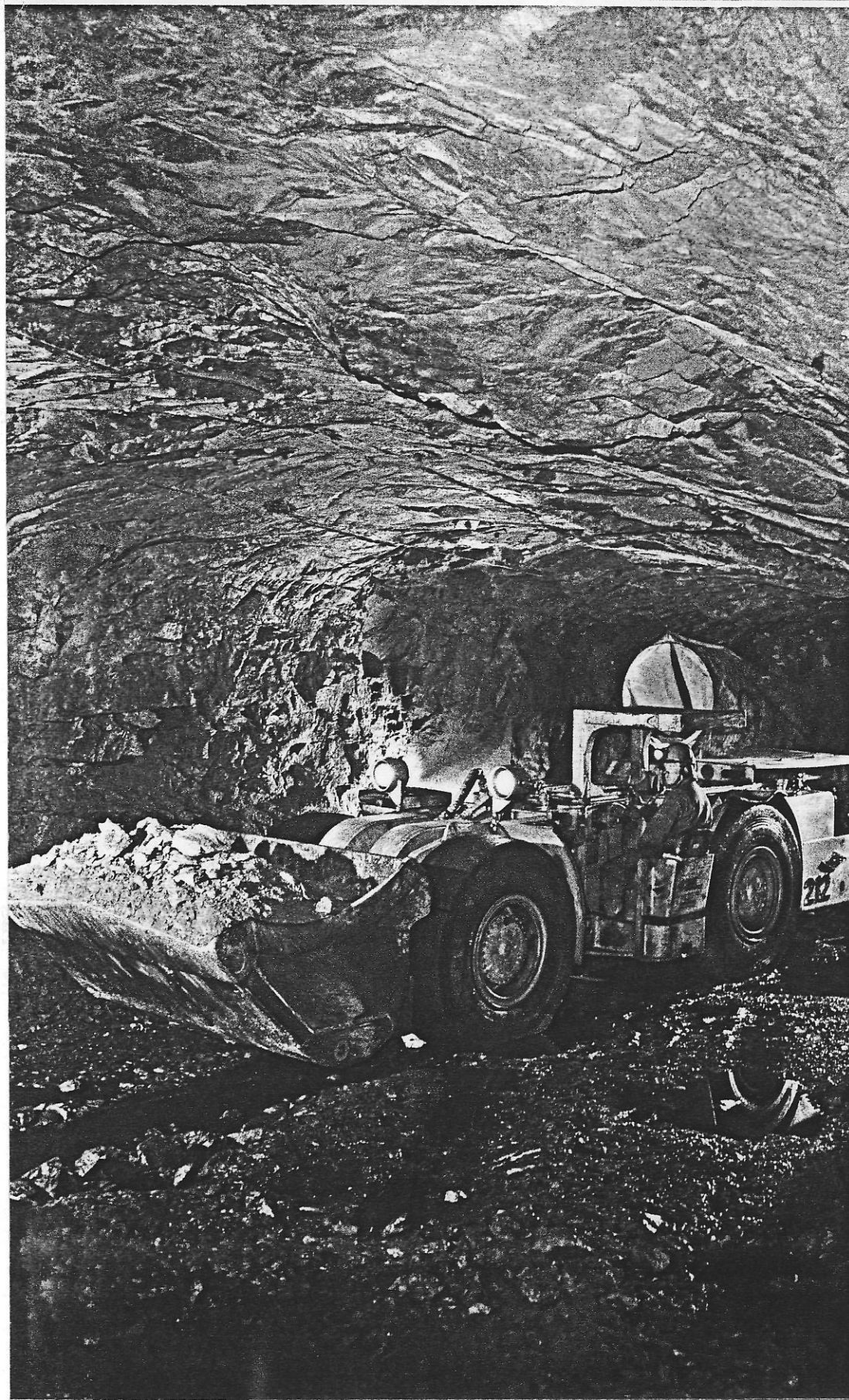
Westmin proposes to further increase the capacity of the H-W mine/mill complex (subject to appropriate regulatory approvals) by a third to 4,400 tons (4,000 tonnes) per day.

The three-fold expansion, which was officially opened September 19, 1985, had sufficient built-in infrastructure to facilitate the latest increase with a minimum incremental investment in mining and milling facilities.

Total cost is estimated at approximately \$24 million, with approximately \$7 million going toward underground development and \$15 million to be spent on underground equipment, modifications to the mill and auxiliary systems.

It is estimated that the resulting economies of scale will pay back the net expansion cost in less than one year.

Reserves at Myra Falls are sufficient to carry the operation well into the next century. Furthermore, the main orebody is still open in several directions and the extensive property has yet to be fully explored.



Myra Falls Operations

This was the first full fiscal year of operation for the new H-W mine/mill complex, following the official opening ceremonies on September 19, 1985. Financial results of the H-W mine for 1985 were capitalized, since this was a start-up period.

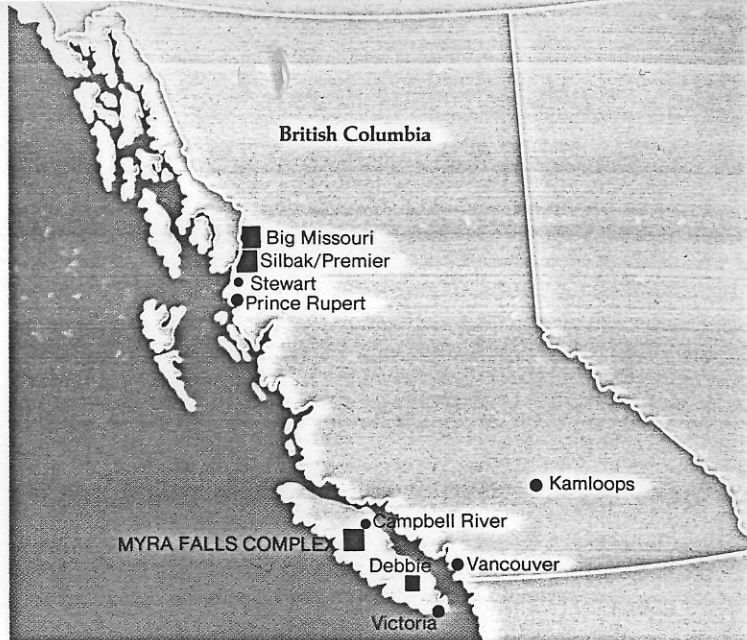
The mill eventually surpassed its daily rated capacity of 3,000 tons (2,700 tonnes) and readily adapted to treatment of complex new ores. Over the year, the concentrator processed a total of 1,175,794 tons (1,066,664 tonnes) for a daily average of 3,257 tons (2,955).

As with any new, highly-sophisticated facility, numerous modifications and adjustments were made to various systems during the year. These enhanced mechanical efficiencies and improved concentrate quality and the overall milling operation.

The value of concentrate produced totalled a record \$78,738,000 despite lower than expected metal prices. The per unit cost of production averaged \$44.04 per ton (\$48.55 per tonne) well within the planned cost range for the expanded operation.

H-W Mine Operations

The H-W mine produced 919,492 tons (834,150 tonnes) of ore during 1986. Stope preparation has been concentrated toward development of the longhole mining blocks in the central portion of the orebody adjacent to the current production area. Longhole mining is ideally suited to extracting thick sections of relatively uniform grade in an orebody. It involves drilling patterns of "long" holes which are systematically blasted to create large volumes of broken ore.



Areas of Activity

With diamond drilling underway in the north flank lenses, efforts are being directed toward development of these zinc-rich mining blocks in 1987. In the

Production	1986		1985	
Ore Milled — tons (tonnes)	1,175,794	(1,066,664)	645,590	(585,670)
Daily Average — tons (tonnes)	3,257	(2,955)	1,783	(1,618)
Source of Ore (%) —				
Lynx	22		40	
Myra	—		4	
H-W	78		56	
Head Grades —				
Gold:oz/ton (g/tonne)	0.07	(2.47)	0.06	(2.09)
Silver:oz/ton (g/tonne)	1.44	(49.30)	1.73	(59.40)
Copper (%)	2.33		1.64	
Lead (%)	0.47		0.55	
Zinc (%)	5.85		6.18	
Mill Recovery —				
Copper (%)	86.6		83.5	
Lead (%)	—		32.6	
Zinc (%)	83.0		79.4	
Concentrate production:				
Copper:tons (tonnes)	99,347	(90,126)	36,423	(33,042)
Lead:tons (tonnes)	nil		3,301	(2,995)
Zinc:tons (tonnes)	110,521	(100,263)	59,502	(53,979)



Westmin's H-W headframe, shops and office buildings with conveyor taking ore to the mill in the distance.

early stages of any new mine, considerable time and effort must be expended in reaching and developing new work areas. In the process, significant amounts of waste and/or varying grades of ore have to be moved. As the mine "matures" less development work is required.

During the year, the main H-W ventilation system was completed and the hydraulic sandfill plant and distribution system became operational. Modifications on the 80-ft. thickener and backfill cyclone plant were completed during the first quarter of 1987 . . . increasing the quantity of available fill.

Total Reserves AS OF JANUARY 1, 1987

	Proven and Probable Reserves	GRADE				
		Gold	Silver	Copper	Lead	Zinc
	Tons (Tonnes)	oz/ton (g/tonnes)	oz/ton (g/tonnes)	% Cu	% Pb	% Zn
H-W Mine	12,163,770	0.07	1.11	2.58	0.34	5.25
	(11,034,800)	(2.40)	(38.21)			
Lynx Mine	302,805	0.08	2.26	1.14	0.90	7.87
	(274,700)	(2.67)	(77.49)			
Price Mine	230,934	0.04	1.55	1.10	1.07	8.31
	(209,500)	(1.23)	(53.14)			
Total Proven and Probable . . .	12,697,509	0.07	1.15	2.52	0.37	5.37
	(11,519,000)	(2.39)	(39.42)			
Possible Reserves						
H-W Mine	2,490,339	0.07	0.97	1.57	0.22	6.39
	(2,259,200)	(2.35)	(33.34)			
Lynx Mine	110,451	0.08	2.26	0.90	0.90	7.51
	(100,200)	(2.67)	(77.49)			
Total Possible	2,600,790	0.07	1.00	1.54	0.25	6.44
	(2,359,400)	(2.27)	(35.21)			
Combined Total: Proven, Probable and Possible	15,298,299	0.07	1.13	2.35	0.35	5.35
	(13,878,400)	(2.36)	(39.70)			

Lynx Mine Operations

Ore production from the Lynx mine amounted to 256,302 tons (232,514 tonnes) approximately 22 per cent of the total for the complex. Some 72 per cent of this tonnage was from the west 'G' ore zone; 13 per cent from the east 'G' zone and the remaining 15 per cent from the 'S' zone. Of the total Lynx production tonnage, 13 per cent was mined using less cost efficient cut and fill methods. The remaining cut and fill stopes will be mined to completion during 1987.

About two-thirds of production came from room and pillar stopes. No work was done at the Price or Myra mines in 1986.

Development

At the Lynx mine, emphasis continued to be placed on the west 'G' zone. Detailed diamond drilling within that zone enabled the transfer of some 179,566 tons (162,900 tonnes) of ore from possible reserves to the proven and probable category. No additional reserves were added to the possible category, resulting in a net loss of reserves at the Lynx mine.

Other areas of attention at the Lynx in 1986 were 'S' zone, 6 level west and the 'G Crest' structure. Diamond drilling in these areas defined only minor additions to ore reserves.

Diamond drilling at the H-W mine was again concentrated on detailed work within the main lens area, defining stope boundaries for mining. The drill program to define the north lens ore zones began in the last

quarter and was successful in transferring some 169,315 tons (153,600 tonnes) from possible to proven and probable reserves. In addition, some 255,185 tons (231,500 tonnes) were added to that category through detailed drilling. These gains to proven and probable reserves were offset by a loss of possible reserves due to a structural re-interpretation of part of the north lens.

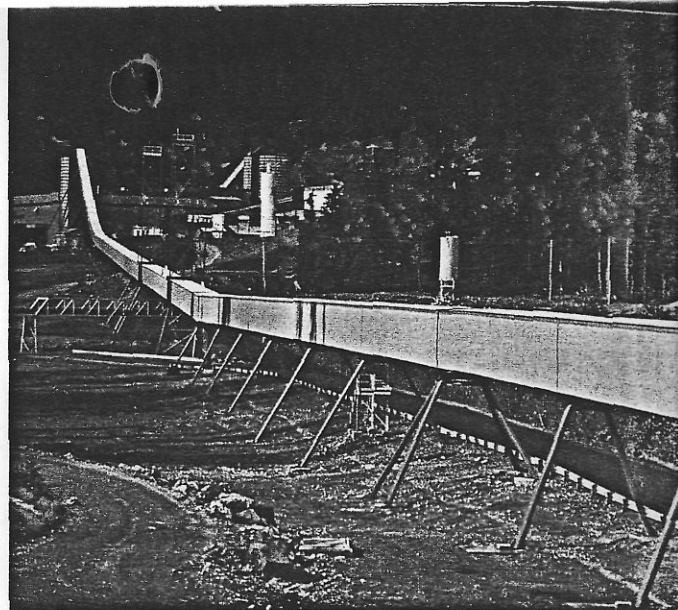
Power

Prolonged dry weather indicated that the water storage reservoir was lacking sufficient capacity for operating the Thelwood hydro plant continuously. Permits to store water in the Thelwood Lake system were granted and clearing of the area to be flooded has been completed. Construction of the low level dams and control system will be completed during the low water period of 1987.

Source	Megawatt Hours	
	1986	1985
Thelwood Hydro	49,766	23,780
Tennent Hydro	16,829	11,542
Diesel Power	13,561	26,734
Total	80,156	62,056

Environment

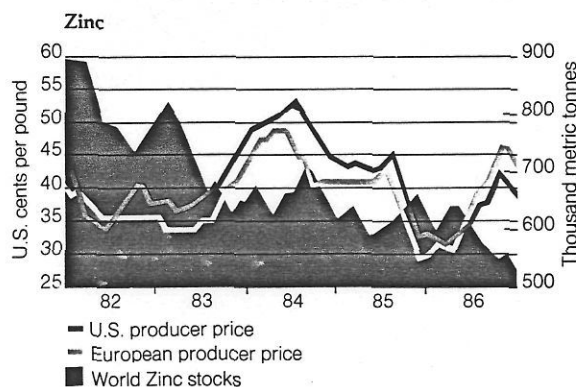
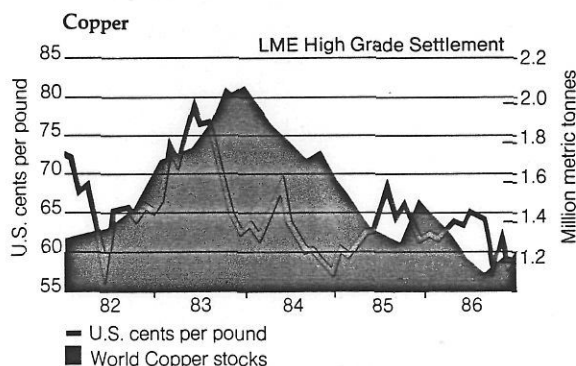
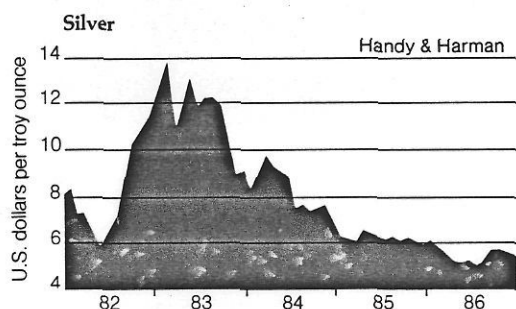
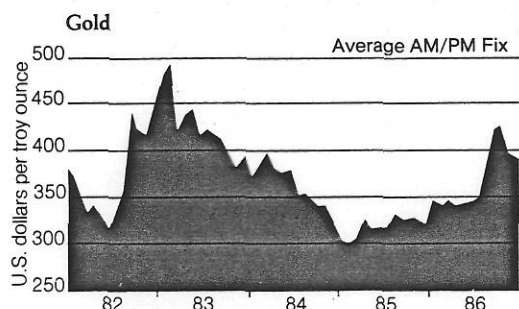
The on-land tailings deposition system operated satisfactorily during the year. Regular monitoring by the Company shows that water quality entering Myra Creek is well within the permit restrictions.



Mile-long conveyor transporting ore to silos and mill in background.

Payable Metals

(000)	1986	1985
Gold — oz	44	23
Silver — oz	966	707
Zinc — lb	96,238	54,165
Copper — lb	45,492	17,088
Lead — lb	770	2,648



Marketing

Economic activity grew at only modest rates in major metal consuming countries during 1986. This resulted in less than satisfactory growth in demand and prices for most metals. Although high inventory levels have been worked off over the last two years, most commodities still have excess productive capacity overhanging markets.

Gold and Silver

Japanese demand for physical gold, together with a weaker U.S. dollar, revived precious metal markets in 1986. However, booming equity markets tended to distract funds from precious metals investment as the year wore on. The average price for gold rose to US\$368 per ounce from US\$317 the previous year.

Silver remained featureless during the year as it continued to be affected by a supply surplus that has built up over recent years. The average price of silver in 1986 was US\$5.47 per ounce, down from US\$6.14 in 1985.

Copper

The western world copper market was in a slight deficit in 1986 with metal production marginally offset by consumption and trade offtake. Mine production worldwide continues to increase, up nearly two per cent over 1985, as the copper industry rationalizes and modernizes existing facilities to achieve cost reductions. Consumption was essentially unchanged from 1985.

Copper prices remained at a disappointing level throughout the year, averaging 62 cents(US) per pound on the LME compared to 65 cents(US) in 1985. Stock levels remain low, presenting some opportunity for price improvement through inventory building.

Zinc

The zinc market in 1986 was characterized by supply disruptions at strike-bound facilities in Peru, Canada and Australia. This enabled the European Producer Price to rebound sharply from a low of 30.4 cents(US) per pound in early 1986 to 41.7 cents by the beginning of the third quarter. U.S. Producer Prices (USPP) moved from a low of 30.5 cents per pound to a high of 46 cents. European Producer Prices retreated slightly to 39.5 cents per pound and the USPP to 43.5 cents, following resumption of production at the affected operations.

Lead

Primary lead production fell sharply in 1986 due to strikes in Australia and continuing rationalization within the U.S. lead industry. Through the first half of 1986 LME prices remained in a narrow range between 16.5 cents(US) and 18.5 cents . . . keeping idle primary production out of the market and attracting little secondary metal. It was not until late in 1986 that prices began to respond to the lower level of supply in the market and seasonal battery demand. By year end, prices on the LME had increased to 23.5 cents(US)