

NEW SILVER-LEAD-ZINC-ANTIMONY POTENTIAL

OF MAYO DISTRICT YUKON

By: A.E. also 1964

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SUMMARY

Comparison with other metalliferous regions of western North America shows that mineral districts with productive capacities in excess of a billion dollars in gross value must exist undeveloped in Yukon.

In the Mayo district, recent work is already proving that rich silver mineralisation is much more extensive than previously thought and that the total potential could easily exceed a billion dollars.

Up to 1964 the 20-mile length of the original Keno-Galena Hills part of this district had produced a total of about 133 million ounces of silver, 409 million pounds of lead, 233 million pounds of zinc, and 3.0 million pounds of cadmium valued at \$275 million at present prices. Most of this has been produced by United Keno Hill Mines in the last 16 years, making this company Canada's largest silver producer and the world's third largest.

Recent work, however, has shown similar rich deposits in similar favourable host rocks for an additional 15 miles farther westward and 10 miles farther northward, thus doubling or tripling the size and potential of the district.

This larger new potential is owned or controlled by Pace Silver Mines and associates, and accelerated exploration this season is starting to prove up this potential according to expectations. Increased development is proposed.

### ORE OCCURRENCE

The producing mines occur in northeast-trending vein zones which dip southeast within favourable brittle quartzite host rocks. The main favourable host rocks are 2500 feet or more thick and extend for over 35 miles along both north and south limbs of a broad anticlinal arch. They are cut at varying intervals by the vein zones, which are up to several miles in length. These vein zones have been explored and mined only locally, therefore a much greater potential exists in the known zones and in the newly discovered ones.

The entire vein pattern is now found to be co-extensive with, and related to, the major anticlinal arch. Thus the silver-rich district now appears to be at least 35 miles long and 15 miles wide, with outlying mineralisation that could make it even more extensive. This overall district is similar in characteristics and potential to the famed Coeur D'Alene silver-lead district of Idaho, but has remained unrecognized as such until now.

Aside from the main silver-lead mineralisation, parts of the Mayo district also have significant prospects of gold, tungsten, and especially tin. Since 85% of the world's tin comes from the circum-pacific region, 20% of it from a geologically similar silver district in Bolivia, the unexplored tin possibilities are also well worth consideration.

### PRODUCTIVITY

Since the first small scale mining in 1913, a number of veins were discovered by individuals using hand methods, and between 1921 and 1942 nearly all the mining was done on rich ores near the surface. Between 1942

and 1946 the mines were shut down, but the greatest production was achieved in the last 16 years with improving economics, and with mining extending to deeper levels. Most of the production has come from six vein systems. The mining has been very profitable even on the scale that has been developed to date, as shown by the accompanying summary of operating data :

Comparative Statement of Production by Years

Fiscal Year	Tons Milled	Production			
		Silver Ozs.	Lead Lbs.	Zinc Lbs.	Cadmium Lbs.
Dec. 31, 1947	20,880	735,195	2,157,090		
Dec. 31, 1948	37,593	1,308,267	5,089,554		
Dec. 31, 1949	29,494	1,403,360	5,330,736	3,272,397	
Dec. 31, 1950	77,465	3,349,048	13,916,231	7,040,569	80,585
Dec. 31, 1951	89,026	3,420,965	13,036,638	7,174,657	94,608
Sept. 30, 1952 (9 mos.)	102,269	3,408,966	14,436,073	10,280,241	139,654
Sept. 30, 1953	156,684	6,252,483	27,313,584	21,245,493	304,722
Sept. 30, 1954	180,249	6,191,599	30,663,549	26,134,700	312,931
Sept. 30, 1955	162,307	5,670,137	26,350,198	24,035,999	302,297
Sept. 30, 1956	155,702	5,582,979	25,083,145	24,107,851	322,379
Sept. 30, 1957	159,885	5,694,850	22,569,908	18,119,454	236,271
Sept. 30, 1958	175,058	5,964,373	22,255,501	18,610,970	229,908
Sept. 30, 1959	173,477	7,307,815	22,065,276	17,717,019	220,281
Sept. 30, 1960	176,745	7,249,101	21,986,887	14,440,774	181,132
Sept. 30, 1961	186,116	7,231,908	17,911,672	15,512,624	202,432
Sept. 30, 1962	184,123	7,000,837	17,587,767	13,885,884	104,364
Sept. 30, 1963	186,721	5,978,075	16,751,012	14,759,821	199,708
<b>Total</b>	<b>2,252,794</b>	<b>84,430,758</b>	<b>305,304,821</b>	<b>235,338,453</b>	<b>3,010,672</b>

UNITED KENO HILL MINES LIMITED

Eleven Year Summary Of Operating Data

OPERATING RESULTS:	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
Sales of concentrates less smelter charges, freight and marketing expenses	\$6,143,115	\$7,001,730	\$7,311,760	\$7,691,701	\$6,659,348	\$6,117,968	\$7,416,590	\$7,280,964	\$7,101,507	\$8,301,313	\$8,805,518
Operating and administrative expenses	4,206,859	4,984,416	4,089,292	4,310,590	4,533,606	4,804,302	4,980,384	5,306,934	5,327,271	5,440,268	6,004,473
Operating profit before undernoted items	<u>\$1,936,256</u>	<u>\$2,017,314</u>	<u>\$3,222,468</u>	<u>\$3,381,111</u>	<u>\$2,125,742</u>	<u>\$1,313,666</u>	<u>\$2,436,206</u>	<u>\$1,974,030</u>	<u>\$1,774,236</u>	<u>\$2,861,045</u>	<u>\$2,801,045</u>
Deduct (add)											
Depreciation and amortization charges	\$1,107,992	\$ 867,349	\$ 743,505	\$ 700,290	\$ 684,150	\$ 470,624	\$ 515,426	\$ 522,131	\$ 522,624	\$ 519,985	\$ 450,629
Expenditures on exploration and development		169,140	255,540	217,434	169,909	278,236	426,258	412,623	441,471	586,616	1,029,639
Other Income	(4,329)	(88,861)	(29,044)	(41,919)	(50,065)	(84,034)	(48,314)	(144,373)	(97,894)	(118,687)	(155,135)
Income Taxes (estimate)	88,000	190,000	650,000	500,000	320,000	62,000	218,000	60,000	70,000	655,000	485,000
Earnings for the year	<u>\$ 744,593</u>	<u>\$ 879,686</u>	<u>\$1,602,467</u>	<u>\$2,005,306</u>	<u>\$1,001,748</u>	<u>\$ 586,840</u>	<u>\$1,324,836</u>	<u>\$1,123,649</u>	<u>\$ 978,035</u>	<u>\$1,218,131</u>	<u>\$ 990,912</u>
 <u>WORKING CAPITAL:</u>											
Current assets	\$1,568,983	\$2,333,786	\$3,598,468	\$4,096,601	\$3,575,016	\$3,196,637	\$4,155,269	\$4,587,299	\$4,804,099	\$5,976,401	\$5,626,616
Current liabilities	715,615	835,684	1,173,343	1,309,471	1,083,638	855,041	932,559	745,540	654,600	1,426,976	1,096,298
	<u>\$ 853,368</u>	<u>\$1,498,102</u>	<u>\$2,425,125</u>	<u>\$2,787,130</u>	<u>\$2,491,378</u>	<u>\$2,341,596</u>	<u>\$3,222,710</u>	<u>\$3,841,759</u>	<u>\$4,149,499</u>	<u>\$4,549,425</u>	<u>\$4,530,318</u>

During 1963 the company produced 11,921 tons of silver-lead concentrates, and 12,309 tons of zinc concentrates. After deducting smelting, freight and marketing expenses they received a net value of \$8,803,518 for their metals which resulted in an operating profit of \$2,801,063. The net earnings for the year were \$960,912, compared with \$1,218,131 in 1962. In 1963 all of the company's income was subject to tax as none of its operating mines now qualify for the new mine exemption under the Income Tax Act. Provision for taxes amounted to \$485,000 in 1963.

The ore treatment plant at Nisa operated throughout the year at an average milling rate of 511.5 tons per calendar day. The metal recoveries were silver 88.03%, lead 82.42%, zinc 84.32%.

Ore reserves as of September 30, 1963 totalled 493,955 tons with an average metal content of 34.58 ounces of silver per ton, 6.59% lead and 3.80% zinc. Reserves of the previous year totalled 445,630 tons grading 33.47 ounces of silver per ton, 7.12% lead and 5.03% zinc.

A more aggressive exploration attitude has been adopted within the last year with gratifying results in several localities.

Much of the profit of previous years has been absorbed by costs of opening up the district, which would not be faced by a new operation. Under present conditions the profitable operations of United Keno Hill Mines would represent a stable mining operation assuming no substantial improvement in new reserves, mining practices, or other cost factors. New operations may expect to start on near-surface orebodies with better metal prices, improved transportation and other favourable factors.

NEW POTENTIAL

A detailed report showing additional new potential in the district, entitled "Potential of the Mayo Mineral District" is enclosed for consideration.

The new potential owned or controlled by Feso Silver Mines and associates consists of claim holdings more extensive than those of United Keno Hill Mines, with a number of new potential ore zones, as shown on the accompanying 3-dimensional map. These have the following possibilities:

1. Original 20-mile long producing area  
Post production plus 1963 reserves (mostly United Keno) \$914 million.  
Future down dip and depth potential at least equal  
to or much greater (United Keno and others) say \$500 million
2. New 15-mile west extension  
Unknown, perhaps comparable say \$300 million (?)
3. New north side  
Unknown, perhaps comparable say \$300 million
4. Haggart Creek silver-lead-antimony belt  
(Feso's Rex vein and others)  
Unknown - may be similar.
5. Outlying areas to southeast, east, west and north - unknown.

The potential of any one major productive mine similar to the Hester-Calumet could easily change this "calculated guess" heavily in any area.

PROPOSED DEVELOPMENT

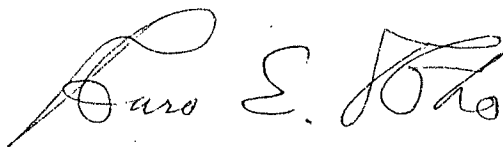
Development should consist of opening up several of the key vein systems to determine their productive potential and then setting up separate mine

operations which would feed into a central mill.

With all the known indications of potential, it is anticipated that with sound and aggressive exploration, a number of new mines would be developed in the high grade part of the district to yield greater and more efficient production than in the past and that lower cost operations might also be expanded to take in outlying areas.

This development could tie in well with an overall plan of proposed mining and metallurgical development of lead-zinc-silver ores in Yukon as a whole.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Aaro E. Aho".

Dr. A. E. Aho.

Vancouver, B.C.  
June 30, 1964.