GEOPEKO LIMITED.

THE ORE RESERVES OF IVANHOE MINE.

By

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INTRODUCTION

The exploration picture has not changed radically in the past six months, but certain aspects of interpretation of the information available have changed due to the provision of mine openings on the 930 level. The presence of a large fault near the eastern end of the body has proved to be a serious factor in our consideration of the ore reserves. The reserves have been calculated completely using Sichels statistical method of estimating the mean. The 95% confidence limits of this mean have also been estimated.

CONCLUSIONS & RECOMMENDATIONS.

(1) The unbroken ore reserves stand at 183,500 tons averaging 4.23% Cu and 1.3 dwt/ton Au as at 14/3/'67.

(2) The fault at the eastern end of the body and the narrow width at the western end of the body below the 800ft. horizon have combined to reduce the overall tonnage.

(3) Due to the large displacement on the fault any ore located to the east may have to be regarded as a separate body and be able to stand its own development cost.

(4) Drilling to increase the ore reserves and general knowledge of the orebody below the 1130 level should receive the highest priority possible.

(5) Exploration of the structure and all known mineral bodies should continue.

(6) The lead zinc potential of the mineralized zone should be further investigated.

GEOLOGY & GENERAL

The only really significant development at Ivanhoe since August 1966 has been the change in interpretation of the zone below the 930 level. This has become necessary due to the structure exposed on the 930 level itself. The mineable length of ore has been reduced by:-

(a) the narrow width to the west of the main crosscut.

(b) the fault at about 1275E.

The ore to the west of the main crosscut is very high grade of the order of 5.5% Cu - but its width varies from 2 ft. to 3 ft. and any mining operation to obtain this would appear to render these widths uneconomic.

The fault exposed to the eastern end of the body has quite a large displacement on the 930 level (some 50 ft.). This fault is present on the 730 level but its displacement is relatively small and it is also outside the orebody. Movement on the fault has been east block north and down. This movement has effectively reduced the strike length of the body below the 800 ft. level until only 150 ft. are present at the 930 level. A small amount of ore grade chalcopyrite - some 15 ft. in length is present on the eastern side of the fault. No ore is present above this level to the east of the fault.

D.D.H. 930/2 appears to have penetrated the fault zone at about the 1070 ft. horizon. D.D.H. 930/5 intersected the body to the east of 930/2 and revealted 8 ft. 6 ins. true width of ore. This appears to indicate that the ore persists across the fault at some location below the 930 level. However as the displacement of this ore is quite large - of the order of 50 ft. - then this may have to be regarded as a separate body, and in order to be mined it should have sufficient tonnage and grade to stand the necessary development.

Development on the 1130 level should help to clarify the position.

It is recommended that when the fault is located on the 1130 level, drilling be carried out to test the strike length and position of any ore to the east.of the fault. This will eliminate the use of expensive mine openings to test the economic potential of this area.

Singly the most pressing problem in the mine is the need to radically increase the ore reserves. Our knowlege of the orebody below the 1130 level is poor. It is proposed to remedy this situation as soon as it is physically possible to move a drill to a suitable site on the 1130 level. On present indications drilling should commence before the end of the financial year. Drilling from a north crosscut similar to that on the 730 level will enable us to test to the 1800 ft. horizon.

To date we have had no real encouragement from our lateral search programme. However this does not mean that a separate orebody will not be present in any of the mineralized zones. Consequently enough exploration should be carried out to enable us to obtain a full understanding of the structure and in this way be sure that we are not missing further orebodies within the immediate vicinity of the mine.

For some time we have known of the presence of a body of quartz feldspar porphyry to the south of the mine. This has now been penetrated and found to be relatively thin - some 145 ft. thick only. It is moderately well crystallised, and assuming it to be a source rock, than these two factors (narrow width and moderate crystallinity) would seem to be in agreement with the size of the known mineral bodies.

The quickstone body in which the ore is localised is expanding with depth and may eventually connect across.to the porphyroid.

It has been noted that the tremolite magnetite rock surrounding the copper orebody contains considerable amounts of galena and sphalerite. What overall tonnage and grade is actually present is unknown, but should the lead zinc body at Orlando prove to be economic, then it may well be worthy of consideration. It may be possible to mine this material after the extraction of the copper ore should the tonnage and grade warrant such a move.

UNBROKEN ORE RESERVES AT 14/3/'67

Positive Ore

Stope	Block	Tons.	% Cu			Dwt/ton Au		
			Mean	95% Con Limits		Mean	95% Con Limits	
560E	Above 390L.	1000.	4.20	3.07	5.98	14.1	9.5	22.4
	Central Rise block	750.	4.12	-	-	5.6	-	-
560W	390 - 429	5000.	4.85	4.06	5.76	7.4	4.8	12.3
	429 - 468	4000.	4.12	0.48	4.34	5.6	3.4	10.1
730	560L Pillar	5250.	4.64	4.02	5.32	4.7	3.7	6.0
930	730 - 750	5500.	2.86	2.48	3.33	1.9	1.5	2.5
	750 - 910	29000.	3.97	3.58	4.39	1.6	1.3	2.0

Indicated Ore

1130	930 - 1030	14000.	4.03	3.34	4.65	1.1	1.0	1.3
	1030 - 1130	77500.	3.74	1.43	4.54	0.7	0.4	1.1
Below 1130		41500.	6.33	-	-	012	-	-

Total 183,500tons at 4.43% and 1.3 dwt/ton Au.

K. WRIGHT.

APRIL, 1967.

ORE RESERVES

560 Stope Some ore is still remaining unbroken in this stope. Most of it appears to be recoverable in the future but dilution due to collapse of the stope walls will always be a problem. The grade of the ore remaining is such that this must be considered a valuable block.

730 Stope This stope has been mined to within an average of 18 ft. of the 560 level and this floor pillar is all that remains unbroken.

930 Stope Stoping operations have commenced here and some 5,000 tons have been broken.