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006998

To: John Carrington
From: Robin Tolbert
Date: Feb 9, 1983

Re: Effect of New Geologic Interpretation on Ore Reserves in the NA Phase

Introduction

As stated in my October 2, 1982 memo (p.3) the Geology Dept. is in the process of updating the geologic data base. To that end we have:-

1) Compiled all geologic mapping at Faro onto one base map of 1"=100' as an aid to sectional interpretation and ore control.

2) Relogged drill core to record ALL main structural features and to correct where necessary previously assigned lithologies.

3) Corrected and updated the drill hole survey data base.

4) We have with the aid of the Exploration Department completed an intermediate geologic interpretation of the NA phase as was requested. The final interpretation of sections should be complete by March 31, close to the date scheduled in October 1982.

The new geologic interpretation of the NA phase utilises
a) the newly completed structural relogging of the drill core
b) geologic information gained in pit mapping
c) newly commenced blasthole logging for ore lithologies.

The NA phase is covered by X-sections 130 - 134 inclusive. The interpretational compilation and drafting was completed in Vancouver.

The product of this exercise is:-
a) a geologic X-section
and b) an assay X-section — for each of the sections 130 to 134.

Results

Referring to Table I of my Oct 2, 1982 memo I estimate ; from initial calculations, a 10% reduction on the NA phase F3 tonnage as follows:-

F3 Reserve Estimate → 2.046 million s.dt. (4% cutoff)

P.G. reduction -16% (due to computer interpolation error)
New Geologic Interpretation -10%

Total -26% → -0.532 million s.dt.

New estimated reserve 1.514 million s.dt.

No grade forecast is available from the Geology Department except to state that the greatest part of this reduction is due to the reduction of the interpreted marginal 2A oretype tonnage.

This 2A reduction in addition to the P.G. model reduction amounts to a reduction of over 80% of the original 533,000 tons of 2A in the F3 model.

The reduction of 2A will clearly raise the grade.

This is confirmed by Glenn Simpson who has independantly completed a sectional reserve estimate of the NA phase as follows:-

NA phase reserve	cutoff	s.d.t.'s	Pb%	Zn%	Ag (gms/m.T.)
(based on sectional estimation method)	4%	1.49 million	3.2	5.2	47
	5%	1.24 million	3.3	5.4	49

Implications

The most obvious questions will be :-

1) How does this affect the remaining reserves ?
2) How does this affect the present mine plans ?

1) I am sure all sorts of 'ballpark' estimates can be conjured up but good 'calculated' figures cannot be deduced until the geologic interpretation of bench plans and sections has been completed.

... In terms of risk analysis we can expect

in the remaining phases a maximum of 10% reduction and a minimum of zero reduction in presently defined reserve tonnage due to a new geologic interpretation.

On the plus side minor additional extraneous reserves discovered during the new geologic interpretation can be added to the total reserves to offset in the longer term the above losses.

These 'additional' reserves come from marginal areas not drilled off and ∴ not included in the mine reserves eg.

200,000 – 300,000 tons ± 8% Pb+Zn between Zone II and Zone III

> 100,000 tons in the northeast wall of Zone III – grade unknown.

2) This question is best asked of the Engineering Dept. but clearly key variables affecting cost are:-

decrease in tonnage
increase in grade
decrease in 2A tonnage (reagent costs etc)
increase in shipping ratio
change in pit plan??

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DISTRICT GEOLOGIST

TABLE I
SUMMARY OF ZONE III NA PHASE TONNAGE AND GRADE COMPARISON
(BENCHES 3890-3670)

BLOCK MODEL METHOD (MINTEX MODEL F3)

ORE TYPE	CUT OFF	TONNAGE ('000 sdt)	Pb%	Zn%
2A (Unit 7)	+4%	533	2.4	3.9
2B to H (Units 8-11)	+4%	1,513	2.8	4.3
TOTAL	+4%	2,046	2.7	4.2

PLANIMETERED GEOLOGIC BENCH PLAN METHOD (P.G.)

ORE TYPE	CUT OFF	TONNAGE ('000 sdt)	Pb%	Zn%	(%Variance in tonnage $\frac{F3-PG \times 100}{F3}$)
2A (Unit 7)	+4%	256	2.0	4.0	-52
2B to H (Units 8-11)	+4 %	1,462	3.0	4.6	- 3
TOTAL	+4%	1,718	2.8	4.5	-16

BLOCK MODEL METHOD (MINTEC MODEL F3)

ORE TYPE	CUT OFF	TONNAGE ('000 sdt)	Pb%	Zn%
2A (Unit 7)	+3%	671	2.3	3.6
2B to H (Units 8-11)	+3%	1,627	2.7	4.2
TOTAL	+3%	2,298	2.6	4.0

PLANIMETERED GEOLOGIC BENCH PLAN METHOD (P.G.)

ORE TYPE	CUT OFF	TONNAGE ('000 sdt)	Pb%	Zn%	(% Variance in tonnage $\frac{F3-PG \times 100}{F3}$)
2A (Unit 7)	+3%	305	1.9	3.7	-54
2B to H (Units 8-11)	+3%	1,468	2.9	4.6	-10
TOTAL	+3%	1,773	2.8	4.4	-23

NOTE:
1. No dilution applied to above figures.
2. Mean facies S.G.'s for deposit used to calculate tonnage.