

002545

To J. Carrington Date November 19, 1979

From J. Purkis

Subject FEED GRADE ESTIMATES FOR FOURTH QUARTER REVIEW

A comparison of computer model, blasthole, met balance and calculated balance tonnages and grades was undertaken by R. Lopaschuk and P. Clarke on November 15 and 16.

The period examined was from January 1, 1979 to October 31, 1979. This involves Phase V benches 3690 to 3650. The following are the results of the comparison:

	Tons (000's)	% Pb	% Zn	% Comb.
Computer Model Prediction	2,502.9	3.4	5.4	8.8
Blasthole Prediction	2,314.4	3.3	5.3	8.6
Metallurgical Balance*	2,305.4	3.2	5.2	8.4
Calculated Balance*	2,305.4	3.3	5.3	8.6

* Milled

The computer mine model predicts an undiluted mine reserve. This is evident in the variance of the computer feed grade prediction with the metallurgical balance.

The large difference in tonnage between the computer model and the actual numbers of 9% is mainly due to geologic interpretation (i.e. the computer model cannot take into account internal waste, etc., due to the wide spacing of holes). For scheduling purposes, a 5% tonnage reduction will be used.

In the future, published mine feed grades estimates will correspond to the metallurgical balance feed grade. This is the best estimate of actual feed grade and, therefore, accurately reflects differences in estimated feed grades from the mine model with the actual feed grade as measured by the daily metallurgical balance.

Therefore, for future scheduling and feed grade forecasts:

Tonnage (Computer Model versus Mill Feed) = 5% less
Lead Feed Grade (Computer Model versus Mill Feed Grade) = 6% less
Zinc Feed Grade (Computer Model versus Mill Feed Grade) = 4% less

The feed grade variance is primarily due to dilution and, to a lesser degree, interpolation method. In the future, this variance will be called a dilution factor.

For the 1979 Fourth Quarter Review, the following basis was used:

Zone 1 - Phase V - 3630/3610 Ore Benches - old mine model feed grades
5% tonnage reduction
Pb grade - 4% reduced
Zn grade - 7% reduced

Zone 1 - Phase 6-13 - Tonnage - 5% reduction on computer prediction
Zone 2 Pb Grade - 6% reduction on computer prediction
Zn Grade - 4% reduction on computer prediction

Adjustment of Zone 2 computer predictions is assumed similar to Zone 1. As of November 15 we have not mined sufficient ore in Zone 2 to make a proper comparison, therefore, Zone 1 numbers have been used. This will be reviewed in March or April of 1980.

The dilution factor of 5% (combined Pb and Zn) is low, but assumes 0 grade dilution.

All feed grade reductions can be assumed accurate to $\pm 2\%$.

Tonnage reductions can be assumed accurate to $\pm 5\%$.

The amount of comparison data used is small. A quantity of 2.5 million tons over an incomplete Phase V is being used to estimate 30 million tons over 8 phases in different mining zones. Zone 2 will be monitored closely so as to develop a better computer model versus actual comparison.


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