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NOTES ON THE CONSTRUCTION OF GEOLOGIC MODELS FOR FARO, GRUM AND VANGORDA DEPOSITS RELATING TO FEED GRADE ADJUSTMENT FACTORS

Feed grades from the computer models for the Faro, Grum and Vangorda deposits have been adjusted downward for use in the January 1980 feasibility study. These adjustments are justified by the model construction technique and by a limited amount of comparative data from the Faro deposit. The factors used are strictly empirical for the Vangorda and Grum deposits.

The computer models for the Faro and Vangorda deposits have been developed by Cyprus Anvil using similar construction techniques. The basic philosophy, without going into details, is to model the "ore" horizon for both tonnage and grade. This type of model includes internal dilution at assay ore/waste contacts and also internal dilution at geological contacts where the thickness of the waste is less than half the bench height, the contact is treated as an external one. The need for negative grade adjustment factors boils down to the fact that dilution external at geological ore/waste contacts is not included in the models.

At Faro there are generally two geological ore/waste contacts per bench. Comparative data over the past year has led to adjustment factors of -6% lead and -4% zinc. It should be noted, however, that this comparison was done over a restricted area and that the results may not be applicable to the entire deposit. It should also be remembered that the re-assay values used in the model are suspect due to high levels of oxidation in the old samples.

At Vangorda there is generally only one geological ore/waste contact per bench. One would therefore expect only one half the Faro dilution. A cursory look at the contacts to be mined throughout the mine life has led to the following grade dilution schedule:

Metal	Year 1	2	3	4
Pb	-5%	-3%	-2%	-2%
Ag	-5%	-3%	-2%	-2%
Zn	-3%	-3%	-2%	-2%

In the case of the Grum deposit, the situation is more complex with the geometry of the ore horizons resulting in multiple geologic ore/waste contacts per bench. Drill logs also show a frequent occurrence of relatively thin (compared with the bench height) bands of geological waste that were not assayed. These "not assayed" intervals were ignored when the composites were calculated. In other words, dilution at geological ore/waste contacts is not included in this model regardless of thickness. These facts suggest that the dilution factors for the Grum model should be greater than those used for the Faro or Vangorda models.

The magnitude of the correction was estimated from the following information:

1. A calculated inventory using "not assayed" intersections at zero grade had an average of 7.5% Pb + Zn.

2. The model inventory ignoring "not assayed" intersections had an average of 8.5% Pb + Zn.

3. The actual inventory should have a value somewhere between the above two extremes.

Using the above information, an adjustment factor of -6% for Pb, Zn and Ag was applied to the Grum feed grades. This resulted in an inventory with an average of 8.02% Pb + Zn. It is felt that with 6 meter bench heights (bench heights in the model are 9 meters) and improved methods of ore control, this dilution could be reduced.