

002855

To

J. F. Olk

Date

June 6, 1975

From

J. C. Devitt

Subject Pb/Zn Predictions

Enclosed please find memoranda regarding the subject topic, as requested. They are:

- 1) Reliability of Tonnage and Grade Predictions Sept. 13, 1972
- 2) The Occurrence of Massive Pyrite Within Zones 1 & 3 Sept. 26, 1972
- 3) Pb and Zn Zonation in Faro 1 and 3 May 8, 1973
- 4) Adjustments To Projected Ore Grades June 29, 1973
- 5) Adjustments To Projected Ore Grades Aug. 8, 1973
Part 2: 1972 Ore
- 6) Predicted vs. Mined Ore - Jan.-Dec. 1973 Feb. 5, 1974
- 7) Results of Core Re-Assay Program Nov. 6, 1974
- 8) Predicted vs. Mined Ore - Jan.-Dec. 1974 Feb. 18, 1975

The following items are relevant to our prediction methods for Pb/Zn grades:

Zinc:

- 1) Zinc is homogenously distributed throughout the orebody.
- 2) Re-assays of selected pre-1972 drill core indicates that assays for this core were significantly high.
- 3) Zinc assays of +7.5% are not significant enough in occurrence to warrant application to tonnage blocks.
- 4) Zinc projections are altered by reducing all +7.5% tonnage blocks to 7.5% Zn.
- 5) Back analysis indicates that the above reduction results in a lowering of total Zn grade over a projection period approximately equal to the mean difference of the original and re-assay Zn core samples.

Lead:

- 1) Pb is zonally distributed in the orebody.
- 2) Re-assays of selected pre-1972 drill core indicates extremely poor correlation between re-assays and original assays. No consistent trend was found, however, to indicate the direction of error in the original samples. The magnitude of error is great in some instances, both above and below the new assays, by as much as several hundred percent. Required Ba separation was known to have not been performed in some of the original assays, but it is not known what assays this applies to. This would give erroneous Pb values.
- 3) Pb assays greater than 6.8% are not significant enough in occurrence to warrant application to tonnage blocks.
- 4) Pb projections are altered by reducing all +6.8% Pb blocks to 6.8% Pb. This involves only a few blocks in the model.
- 5) Pb projections are also modified, after Zn adjustments, to increase Pb values in sub-zone C (Phase III ore) for pre-1972 blocks to an extent which will result in an increase of the Pb/Zn ratio to 0.5.
- 6) The same blocks within sub-zone A (Phase I and II) are adjusted in Pb grade to increase the Pb/Zn ratio to 0.75 to 1.00.
- 7) Back analysis indicates that these adjustments, when applied to mining areas of 1973-74, result in Pb grade projections very close to that actually mined.

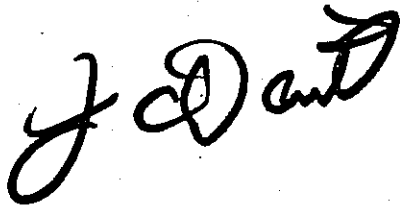
Present Status:

Indications are that the method of adjustment presently used, while being a significant improvement over unadjusted values, is still not allowing projections to the degree of accuracy deemed necessary, and is not suitable for long range projections at all.

Since inaccuracies of pre-1972 drill core assays are still causing projection problems, and the exact nature of the inaccuracies could not be determined by the prior re-assay program, a program is now underway to re-assay portions of the pre-1972 holes which were mined out in 1973 and 1974. These re-assays will be used to calculate a grade for mined out material in those years using known accurate assays, which will then be compared to actual mill feed and stockpile material mined during those years. This exercise should give a good picture of the effect of the old drill core

assays. If they are shown to be the prime cause of our projection problem, it might be in order to recommend re-assay of all pre-1972 pulps or rejects, and the subsequent re-calculation of our grade model.

Another factor contributing to inaccuracies in both our tonnage and grade projections is the inaccurate tonnage factor which has been used in the past. An analysis of this factor has recently been done, and final results correlating Pb/Zn assays and the tonnage factor will be forthcoming next week.



J. C. Devitt
Chief Engineer

JCD/mm

cc. R. H. Marshall (w/o attach.)
D. J. Hanson "