

May 26, 1950

Union Assay Office
P. O. Box 1528
Salt Lake City, Utah

Gentlemen:

In checking back on shipments of concentrates that contain bismuth and where the silver assay is quite high we have found that apparently the umpire assayers have not been taking the bismuth into consideration. In the future you will no doubt note that on samples sent to you for umpire purposes that we have made a notation that the lot contains bismuth. We have done this to call this fact to your attention.

We are receiving shipments of high-grade silver concentrates from the Silver Summit Mining Company which contain an excess of one-half percent bismuth. There has been considerable spread between our results and the umpire results and we feel that a large part of this is due to improper elimination of the bismuth.

Our laboratory has done considerable research work on methods for eliminating the bismuth and we find the sweating method is much simpler and gives more accurate results than the combination assay method.

I thought you would be interested in knowing our method, which is as follows. We first obtain silver beads in the usual manner using an excess of litharge charge in the fusion. This is followed by normal cupellation and weighing the resultant beads. We then weigh proof silver blanks of approximately the same weight as the beads. The beads and the blanks are placed in fresh cupels in a hot furnace, bringing them to surfusion which protects the loss of silver due to the hot cupellation. The beads are cooled and weighed. We then adjust the bead weights by the loss of proof silver, thus obtaining a calculated silver assay. This method eliminates the bismuth and we have found it gives very good results.

Yours very truly,

GES:EG

GLENN E. SIGLER

cc Silver Summit Mining Co.