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## STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

1069 STATE OFFICE BUILDING  
PORTLAND 1, OREGON

August 1, 1963

Mr. Darrell Brown  
Canyonville  
Oregon

Dear Mr. Brown:

After examining your Warner mill the other day I would like to offer the following suggestions which I hope will be helpful to you.

Since the Warner is a high-grade mine which produces most of its values in narrow and irregular veinlets and crushed zones which are quite well defined, it follows that the tonnage of ore will be small but high grade. By carefully cleaning out the pay streaks for several feet in advance of driving the workings to full access width, the grade can be kept at a maximum. Dilution due to an admixture of ore with wall rock not only lowers the grade but increases the tonnage to be milled and tends to lower the overall recovery. By careful mining of the pay zones and hand sorting, it should be possible to produce shipping ore without further treatment.

Due to the fact that both free gold and base ore in the form of arsenopyrite are present, it might be advantageous to run the feed through a set of rolls before shipment. This will permit easier handling of the ore and make sampling more accurate. Values in ore of this type are bound to be

spotty, and crushing would tend to average this out by mixing it more thoroughly. Smelter returns also could conceivably be higher due to better sampling.

If the decision is made to continue milling, several things might be done to improve present practice. As it was operated during my visit, the Marcy rod mill was underfed and was overgrinding the ore. Good mill practice calls for a much higher circulating load. Excessive rod and liner wear occurs in mills having too little burden. A larger mill feed pipe might also help.

Since you already have a 12 x 12 duplex Denver jig, it might be profitable to install it between the rod mill and the table, with a scalping screen if necessary, ahead of the jig. If a high-grade product could be obtained from the jig, several savings would ensue. First, the circulating load would be decreased; second, losses from sliming and other sources in the circuit would be eliminated. The feed from the lip of the jig to the table would have better classification. Tables work best with a fairly close size range of the feed. A two-deck screen, which need not be very large, would give a three-way split which could be diverted to either two or three tables. In addition to the sizing done by the screens, another benefit in the form of a clarified feed free of muddy water would help in adjusting the tables since it would then be possible to see just what was going on.

As presently operated, the table is not pulsing smoothly. Perhaps some longitudinal stiffeners attached to the underside of the deck might help. Variation in the number of pulses per minute might also be tried.

If after trying the procedures above, it is still impossible to achieve good milling practice, it might be advisable to do some testing with a

flotation system. Samples of your ore should be pre-tested by some of the companies making either flotation reagents or manufacturing flotation equipment. The Denver Equipment Company, 1400 Seventeenth Street, Denver, Colorado; The Dow Chemical Company, Midland, Michigan; and the American Cyanamid Company, 30 Rockefeller Plaza, New York City, are the principal companies that come to mind.

Amalgamation of the free gold should not be overlooked. Many times when operators report that their gold will not amalgamate, the trouble can be traced to either excessive oil or grease in the mill circuit or improperly prepared and dressed plates. Amalgamation should provide a relatively inexpensive method for removing the free gold from the circuit.

One further suggestion might be in order. The services of a registered mining engineer to assist in setting the mill in order would probably be profitable. We will be happy to recommend a qualified person to you if you wish. It is impossible in the scope of a letter to cover all of the various possibilities that might be tried in your mill, and only the most obvious courses of action have been touched upon. I hope, however, that the foregoing observations will prove useful to you.

Sincerely yours,



Ralph S. Mason  
Mining Engineer

RSM:lk  
cc Len Ramp

AMERICAN SMELTING AND REFINING COMPANY

SELBY SMELTING WORKS  
405 MONTGOMERY STREET  
SAN FRANCISCO 4, CALIF.

S. REID  
MANAGER

September 12, 1957

Mr. Frank E. Gelhaus  
Route 1, Box 414  
Gold Hill, Oregon

Dear Sir:

The sample of ore sent with your letter of August 25, 1957 has been assayed in our laboratory and the following results determined.

Gold (Ozs./Ton)      Silver (Ozs./Ton)

157.05 <sup>5102.50</sup>      37.1 <sup>33,500</sup> = 5437.50 <sup>PT</sup>

The above certainly represents a high grade ore and if the 10 tons delivered by you on September 7, 1957 are of this grade it will certainly be a nice shipment.

I understand from Mr. Gough that you agreed that this shipment would be sampled as one lot instead of divided into smaller lots as mentioned in your letter of August 25th. We assure you that we shall be very careful in the sampling and will hold the entire lot on hand until final settlement is made, should there be any question regarding our results.

Yours very truly,

*George H. Playter*  
GEORGE H. PLAYTER  
Asst. Manager

GHP:mb

Rec'd  
Per [Signature]  
see #7