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INTERNATIONAL SMELTING CO.,  
GEOLOGICAL DEPARTMENT

*Ataconda Copper Mining Company*

GEOLOGICAL DEPARTMENT

WALKER MINE

SITUATION AND RECOMMENDATIONS

FOR DEVELOPMENT WORK

March 5, 1924.

By

Paul Billingsley.

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INTRODUCTION:

The general situation at the Walker Mine is more encouraging than at any previous time. Costs on the present orebody have been brought to below \$3.00 per ton for mining and milling, and development work is proceeding at a rate that promises to disclose new orebodies before the present one is exhausted.

However, it must be borne in mind that the present low costs represent only the final stages in the extraction of the ore. If the entire process be regarded as divided into development, preparation for stoping, breaking, producing ore, tramming to mill, and milling, it can be seen that the present costs represent in general only the "breaking", and subsequent operations.

If the mine operation is to be well balanced, the proper amount of development and preparation on new ore should be carried on simultaneously with the stoping of the present orebody. This is made additionally advisable by the fact that the present orebody will have none too long a life. Finlay estimates that about one year more will complete the stoping below the 300 level on the present orebody, and that from present indications about three months more will exhaust the ore above the 300. I fully concur

in these estimates. It is accordingly very important to find, develop, and prepare new orebodies for stoping at the earliest possible moment. And since all the evidence to date indicates that such new orebodies will be low grade, it is particularly advisable to get them into production while there still remains some of the high grade ore in the north end of the main orebody which can be used to raise the average mill feed to the most efficient figure - about 3.3%.

RESULTS OF RECENT DEVELOPMENT:

Development work during the past few months has been restricted to three places - the north end of the 600 level, the sub-level just north of the main shaft, and the south end of the 700 level.

In the 600 north drift the vein has been followed for about 700 feet from the point where it was first struck. The face is now almost exactly as far north as the 300 north drift. The vein has remained strong and wide, but the grade has been almost entirely below 2%. One high grade bunch was encountered in No. 2 crosscut (613), but sideswiping has proved this to be only about 25 feet long by 20 feet wide. In the vicinity of crosscuts No. 4 (618) and No. 5 (620) the grade has averaged a little over 2%. This area is almost directly below (on the dip of the vein) the best portion of the vein on the 300 level, and a raise should ultimately be driven up in this region. For nearly 300 feet beyond 620 crosscut the grade remained below 2%. Beyond this

point however an improvement can be noted. A rather strong north-south slip angles across the vein, and has permitted the descent of oxidation and some enrichment. In the 50 ft. length of vein developed beyond this slip to date, considerable sooty chalcocite can be seen, and the grade is somewhat better. It is to be feared, however, that the improvement will be only local, in the vicinity of the oxidized slip.

The sub-level work was planned to develop a block of ground lying immediately north of the main Shaft Fault. There is a geometrical possibility that a wedge of the main orebody will be found on the lower levels in this block. The crosscut on the sub-level penetrated the fault, and disclosed from two to three feet of good ore lying on the hanging wall, in just the position proper for the tip of the anticipated wedge of vein. Unfortunately, a short distance farther on the crosscut encountered a series of cross faults, which may cut off the wedge of vein and drop it below the level. A very little additional work will prove this one way or the other.

In the 700 south drift the vein was successfully followed through an area of faulted ground, and has now been followed beyond in an unbroken segment for 60 feet. The face of the drift is now slightly south of the drill hole. The appearance of the vein is good, the width about 18 feet, and the mineralization of promising character. While the muck pile assays have averaged less than 2% the vein proper will probably run 3%. The drift has been driven partly in the footwall and the muck piles have includ-

ed much waste. I believe that this southern vein will carry commercial ore a very short distance above the 700 level, and it is quite likely that the level itself will improve in grade as it extends southward.

RECOMMENDATIONS:

It seems desirable to increase somewhat the per month footage of development. The present program requires about 350 feet. This can be raised to 500 ft. or more without raising the current costs above the desired figure of \$3.00 per ton. The additional work can be done in part in places which will advance the date when new stopes will be available, and in part in places which will yield milling ore at once, and hence raise the daily tonnage available for the mill. These are all ends the attainment of which is advantageous. Accordingly the following recommendations are made:

(All others are hereby annulled)

1. 400 Level. Extend Hanging Wall drift (401) south on vein as long as vein remains definite and contains pay ore. Notify geological department if conditions change. Rock broken goes into stopes.
2. 500 Level. South end of 504 drift. Open up vein by side-swiping east side of drift, then drift southerly on vein to and beyond large granite dike. Further directions will be given if necessary for the recovery of the vein beyond the dike. Rock broken goes into stopes.

3. 600 Level. Continue 616 drift north on present course, with crosscuts to foot and hanging wall every 100 ft. Rock broken goes to mill.
4. Sub-Level. Continue north crosscut N  $55^{\circ}$  W to point 60 ft. from Sta. 89. Then crosscut S  $35^{\circ}$  W until through Shaft Fault. Waste.
5. 700 Level - North End. Extend 712 drift north with a course N  $30^{\circ}$  W for 470 ft. Waste.
6. 700 Level - South End. Continue 703 drift south on the vein. Crosscut to foot and hanging wall every 100 ft. Later on, recommendations for a raise or raises in this area will be made.

Respectfully submitted,

*Paul Billingsley*

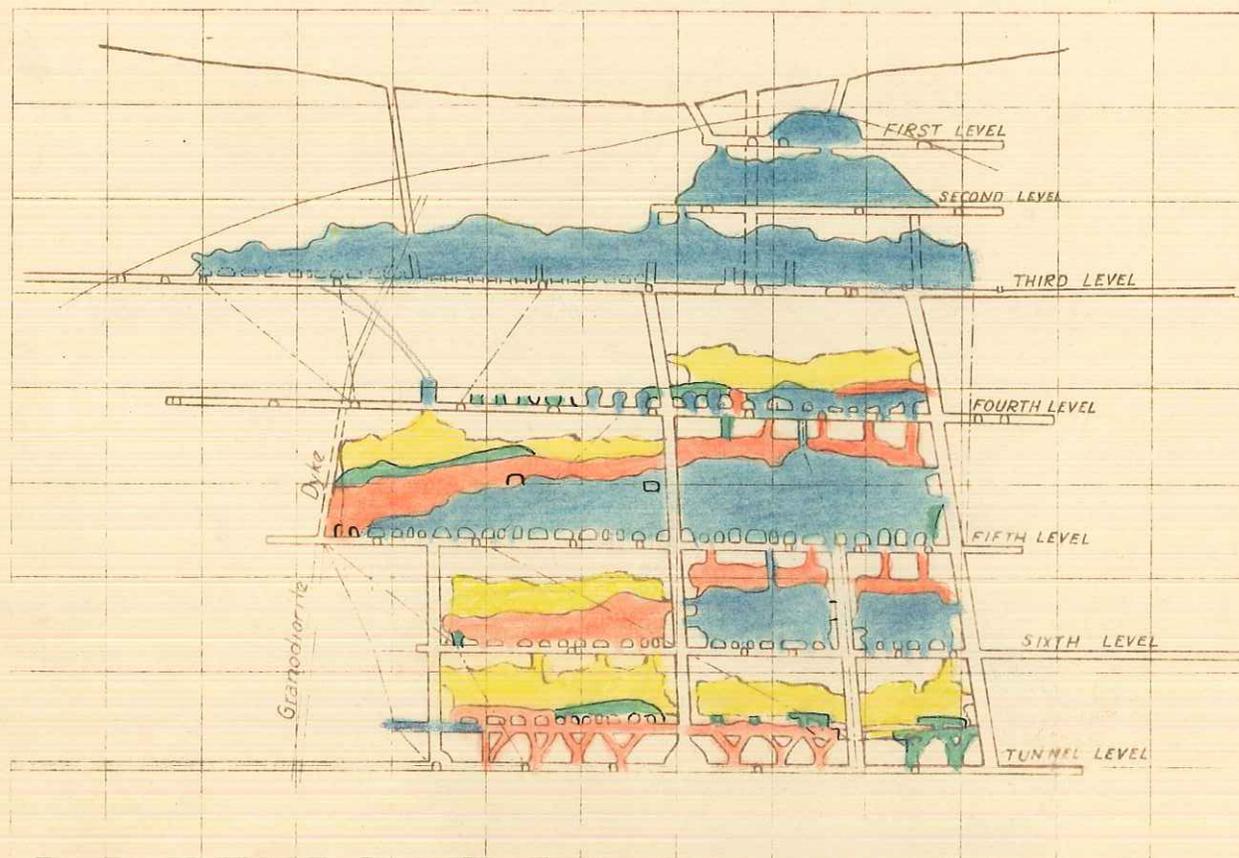
Salt Lake City.

March 7, 1924.

# WALKER MINE

## LONGITUDINAL PROJECTION OF OREBODY IN PLANE OF VEIN

SCALE: 1 INCH = 200 FEET



### LEGEND

- Stopped prior to April 15, 1923.
- Stopped April 15, 1923 to October 8, 1923.
- Stopped October 8, 1923 to Nov. 1, 1923.
- Stopped Nov. 1, 1923 to March 1, 1924.