REPORT

ON

COPPER MINE

OF THE

WALKER MINING COMPANY

Plumas County

California

9/3/15

G. T. Hanson

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REPORT

THE WALKER COPPER MINE.

LOCATION.

The copper mine of the Walker Mining Company is located about 24 miles by wagon road, or 20 miles by air-line, northwest of Portola in Plumas County, California. Portola is a town of about 500 inhabitants, on the Western Pacific, the Sierra Valley and the Loca and Loyalton Railroads. In general, Portola is about 60 miles northwest of Reno, Nevada.

HOLDINGS:

The property consists of 10 claims patented and 24 claims held by location, 34 claims in all. All of the claims which are located on the principal mineral belt, including the outcropping of the main vein, have been patented, and form the center or core of the property. The claims held by location surround this center and, outside of their mineral prospects, are valuable in their protection of the principal ore body against any possibilities of litigation. The holdings also include a millsite, held by location.

CHARACTER OF COUNTRY

The country surrounding this mine is mountainous and is cut through with numerous valleys, well adapted for road building. The head of one of these valleys extends to the Company's millsite, and through this is a road of favorable grade over which I had no difficulty in travelling by automobile. The country is heavily overgrown with virgin pine and fir timber; some of the finest trees I have ever seen. The timber on the

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property will supply all of its needs.

FORMATION

The formation is diorite, which, where the veins occur, has but a scanty overburden. The fissuring in this diorite has evidently been caused by an upheaval to the east.

The veins which have been discovered are true fissure veins . The principal vein (on which is nearly all the development) occurs on the Bullion Claim. The outcropping of this vein can be traced for about 4000'. Its strike is north 25° West, its dip 65° to the East.

The ore is quartz and decomposed diorite carrying chalcopyrite and some bornite with gold and silver values.

The mineralization is regular and continuous. The vein is strong as to width, walls and mineralization and has evidences of continuity both in depth and length.

DEVELOPMENT

Development has been confined principally to the main vein on the Bullion Claim. It consists of a 250' tunnel, a 300' tunnel and a vertical shaft 125' deep. The two tunnels were early undertakings, the former having been driven near the surface in the foot-wall parallel to the vein. It shows decomposed diorite with garnet and some copper, gold and silver values. Its principal value lies in its indication of the large mineralized area and the possibility that this mineral belt outside of the vein may become commercial when the sulphide zone is reached at greater depth. The latter tunnel

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was started as a crosscut from a point which would give about 200' vertical depth on the vein, was driven 300' and abandoned in favor of the shaft, which for several reasons, seems the preferable method of development. The shaft is sunk on the vein. At the 65' level, a crosscut reaches the hanging wall of the vein, 20' from the shaft. A drift in the vein follows this hanging wall for a distance of 75'. At a point in this drift, 40' from the shaft, a crosscut extends 51' to the footwall. Both walls are diorite and extremely well defined, the vein showing strong for a width of 51'. This vein is mineralized throughout, the high grade body following the hanging wall. A width of 9' from an average of three channels across at a point between the shaft and the face of the drift, showed 6½% copper and $2.50 in gold and silver. There are some zones of enrichment showing higher values, for instance, an average across 9' in the face of the drift gave 10.8% copper and $2.40 in gold and silver. The remaining 42' of this vein averages 1½% copper and $1.25 gold and silver.

From the bottom of the shaft a crosscut extends 35' to the hanging wall. The high grade ore body on the hanging wall at this level has widened to 15' and gave an average of 5½% copper and $2.50 in gold and silver. The crosscut has not been extended to the footwall but is in ore at the present time showing an average of 2½% copper and $2.00 gold and silver. This is also the average for the 20' on the crosscut between the high grade and the shaft. The bottom of the shaft is in ore of about the same grade.

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ORE BLOCKED OUT

Included within the boundaries of the development workings is a block of ore 110' deep, 75' long and 12' thick. I estimate the ore in place at 11 cubic feet per ton. It will probably be nearer 10 cubic feet per ton. In this block then are 99,000 cubic feet or 9,000 tons of ore averaging 5½% copper and $2.50 gold and silver. There is on the dump at the mine 1200 tons of the same grade of ore, making a total of 10,200 tons within this block.

Where development work in a continuous fissure vein shows ore on every side, as this does, the ore is calculated by allowing 50' beyond each exposure. I am adding an additional factor of safety by allowing 50' in depth only and in cutting this to 25' beyond each exposure in length. This gives us a block of ore 135' long, 160' deep and 12' thick, equalling 340,000 cubic feet, or 21,200 tons which with the 1,200 tons on the dump, makes a total of 23,000 tons. This is commercial ore, based on present haulage, power and small production conditions.

In the block within the development workings, there is a very large tonnage of 1½% to 2% ore which is not being listed as an asset at the present time.

SURFACE EQUIPMENT.

The shaft is equipped with a new head-frame, new ore-bins and terminal for aerial tram, boilers, steam hoist, steam air-compressor, steam pump and new shaft-house and blacksmith-shop. The accommodations consist of a boarding-house and several cottages. All lumber for these

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improvements was sawed on the ground by the Company's mill at a nominal cost. A surplus of lumber for general improvements has been sawed and stacked at the shaft. The saw-mill has moved to the millsite where it is now sawing lumber for mill construction.

TREATMENT

This character of ore is well suited for concentration by flotation. This is a fortunate feature for the simplicity of the flotation process makes the cost of treatment and the first cost of a mill very low.

A test was made by the Minerals Separation Company of San Francisco on an average 100# sample of the ore. This test showed an extraction 93% of all values and a production of concentrates showing from 22% to 24% copper. A more recent test by the General Engineering Company was more thorough. The results from this test show it to be more profitable commercially to increase the extraction with a slight decrease in grade of concentrates. This test demonstrated conclusively that an extraction of 97% of all values may be obtained with concentrates grading 20% copper and $8.00 gold and silver. The record of flotation is that a properly conducted test checks with the mill operation. The ratio of concentration will be 3½ tons ore into 1 ton concentrates. Milling and trumming costs will be within $1.00 per ton on the basis of 100 tons per day.

HAULAGE:

As a matter of advantage for water power and haulage the

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millsite is located about 4200' from the shaft. An aerial tram has been purchased and will span this distance, transporting the ore by gravity.

A railroad spur extends from Portola toward the mine for a distance of 4 miles, making the net wagon haul for concentrates, 20 miles. The road has easy grades, is of good material for the greater part of the way, and with the expenditure of about $5,000.00 in immediate repairing, and with reasonable attention, the wagon haulage will present no unusual problem. Wagon haulage will cost about $5.00 per ton of concentrates, or at the rate of about $1.50 per ton crude ore before treatment. Freight per ton of concentrates to Salt Lake Smelters, will be $5.00 per ton of concentrates, or at the rate of $1.50 per ton of crude ore.

POWER.

Power has been estimated on the basis of use of Diesel Oil Engines. Negotiations are now pending for the extension of a power line into the property, in which case, with a favorable contract, the power cost could be somewhat cheapened.

WATER

At the present time, there is very little water in the mine. Three hours pumping per day through a 2½" line, keeps the mine clear.

At the millsite, a stream, fed by springs, flows about 2 second feet for the whole year. It will be flumed to the head of the mill and is ample for milling purposes, for four or five times the mill capacity contemplated at present. Being spring water, it never freezes.

PROFITS

I estimate the overall cost of handling ore from mine to

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settlement, at $8.00 per ton of crude ore. The profit of a ton of ore at 17% copper would therefore be about $11.00 per ton, or the total net value of ore would be $253,000.00. At a 15% copper market, there would be a net value of $184,000.00.

PRODUCTION:

I estimate the time necessary to put a mill into commercial operation on this property, with the progress already made, at 7 months from date. I estimate the total cost of bringing this mine from its present condition to a state ofproduction, at $100,000.00, allowing funds for mine development during mill construction. This is on the basis of a 100 ton per 24 hours mill.

PROSPECTS

The vein outcrops on the surface for about 4000'. It is mineralized for its full width of 50' from the surface to the bottom of the shaft. It does not show any narrowing with depth. The values of the entire vein are increasing steadily with depth. The high grade body on the hanging wall is 9' wide on the 65' level and 15' wide on the 120' level. All development workings in the shaft have been and are now in ore. The walls are clear and the vein is strong. I see no reason why the high grade should not continue to widen with depth until it covers the entire width of 50'. The indications are that the ore will continue along the fissure and go to depth, thus producing an exceptionally large tonnage of high grade ore.

CONCLUSION:

My conclusion is, since all workings are in ore, the mining of ore for milling purposes will develop more ore at low cost and the "mining probability" predicts a long life.

Respectfully submitted,

C. N. Hansen

9-3-35
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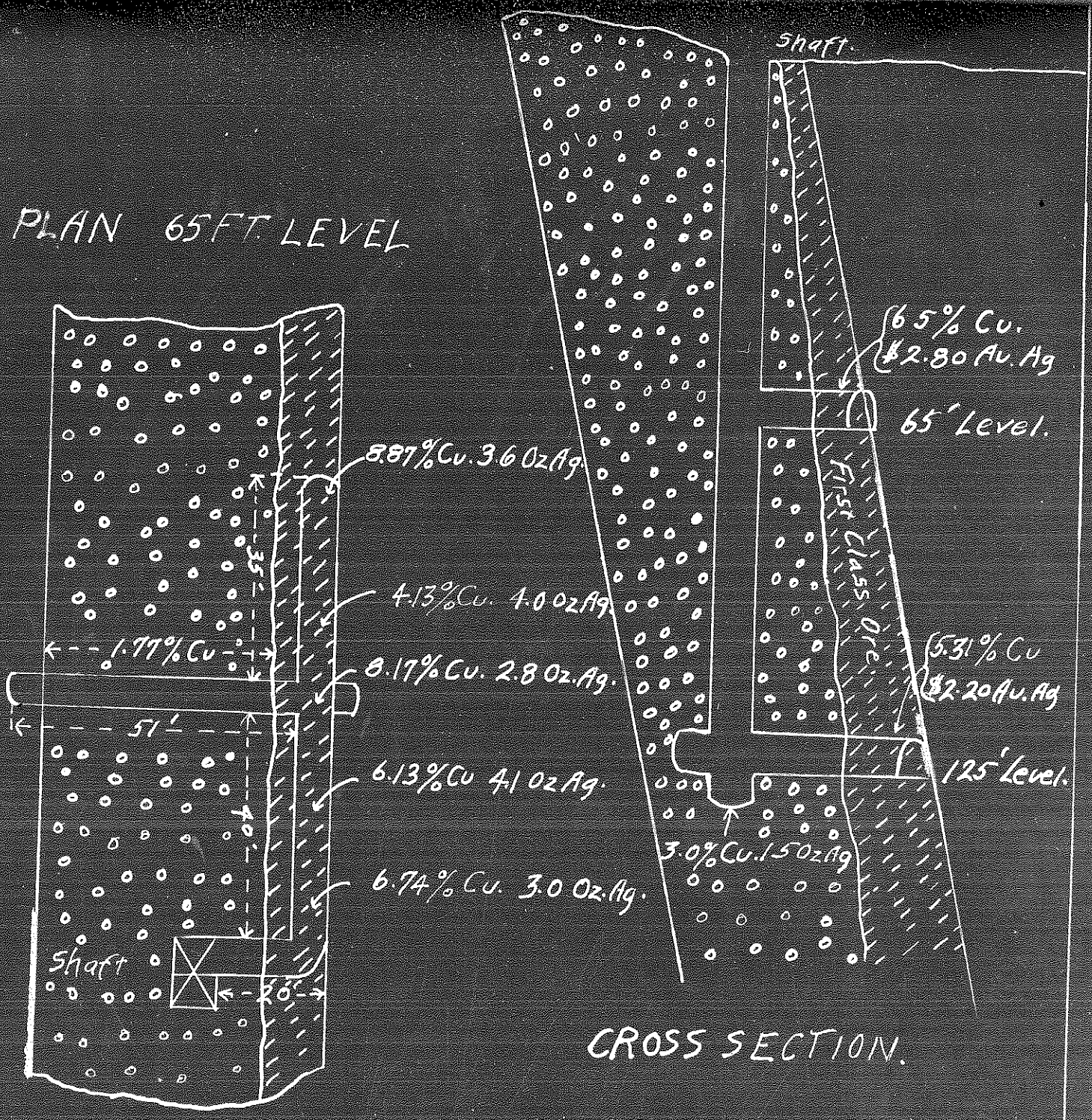

WALKER MINE

Vein 50' Thick. 12' Averagee 6% Cu, 2.5 Au. + Ag. Bottom of Shaft in 3% Ore at present.

Aug. 30, 1915.

Scale 1 inch = 25 ft.