

-REPORT ON-
THE "LITTLE CHIEF" PROPOSITION.

EAGLE COUNTY

For the Year 1908

MINE MANAGER'S REPORT

PAGE 251

STATE BUREAU OF MINES.

STATE OF COLORADO.

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THE "LITTLE CHIEF" PROPOSITION.

THE MINES.

This property consists of twelve claims, all of which are patented. The position of these claims is shown on the accompanying map (Exhibit A). The property lies on the main line of the Denver & Rio Grande Railroad, near Red Cliff, Eagle County, state of Colorado. The end lines of some of the claims are within three hundred yards of the said railroad. Leaving Denver in the evening these mines may be reached by nine o'clock the next morning, - less than twelve hours ride.

EXTENT & VALUE OF THE ORE BODIES.

The ore is found in what is known as the limestone contact, (Exhibit B.) The geological formation is identical with that of Leadville and Aspen. The out-cropping of this contact may be followed along the bluff overlooking the Eagle River for miles. It is opened up at many points, showing large bodies of ore. The "vein" extends into the mountain at a dip of about 13 degrees to unknown depths, - probably farther than our present mechanical appliances will permit of following it. On the "Little Chief" claim there are four contact "veins" (besides several smaller ones) known to exist in the limestone (Exhibit C). The lowest ore-body has been out for sixty feet, and shows a mass of ore twelve feet thick.

The thickness of the ore-bodies in this district is notable, reaching in some places 30 to 40 feet, and the contact bears evidence everywhere of being unusually strong. An examination of the different openings along the out-cropping of the contact will convince any expert mining men that there must be immense bodies of ore in Battle Mountain which are only awaiting the advent of energy and skill to yield enormous profits to those who possess the foresight to undertake their development.

The value of this ore is well established by numerous bills of sale on shipments made to the valley smelters, both from the Little Chief and adjoining properties (Exhibit D). The rich and extensive ore chutes on the "Mask" property are known to run into the Little Chief ground with depth. There is no room for any reasonable doubt concerning the large amount of ore, (nor of its economic value) which will be made available by the systematic development of these properties.

THE ORE.

The ore is of two kinds, oxidized and sulphureted. Above permanent water level it is mostly oxidized; below it is mostly sulphureted. It is in the sulphureted ores that the chief value of these properties lie. From the two upper sulphide contacts on the Little Chief several thousand tons of ore were shipped which went from \$15 to \$30 per ton (figuring silver at \$0.65 per oz. and gold at \$19.00.) The values in the chutes of sulphides in the neighboring "Mask" properties are given in Exhibit D. The lower chute will carry at least one per cent. copper, and assays as high as 15% (dry) have been obtained.

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MINING OPERATIONS.

This property is admirably situated for opening up by means of tunnels, which will permit its being operated to the best possible advantage. An adit tunnel run into the hill at, or near, the level of the railroad track would tap enormous bodies of ore, which could be mined and run out at a nominal cost, and would at the same time drain the mines for years to come at no expense at all. To operate these properties economically such a tunnel is a necessity. It would reach the vein with 2,000 feet of its mouth, and would probably cut it several hundred feet lower than any point at present reached in any of the mines of the district.

The facilities for mining could hardly be more favorable than they are. All the power necessary for driving the tunnel, and for other operations incidental to mining, could be obtained from the Eagle River, which has a heavy fall at this point.

The claims included in this group cover sufficient ground to provide for extensive mining operations for a number of years ahead, in fact, the property has been scarcely touched as yet.

Sufficient evidence is obtainable by a merely superficial examination of this field to conclusively demonstrate:

1. The great extent of the ore bodies.
2. The character of the ore, and its value.
3. The unsurpassed facilities for conducting a remunerative mining operation of the largest kind.

It remains, therefore, to investigate the means of disposing of the mined product.

II.

METHOD OF TREATING

THIS ORE.

The sulphureted ore of the Little Chief group is unusually well adapted to the new method of pyritic smelting (Exhibit F., pages 6 to 13 inclusive; and Exhibit C). This cheap system of smelting, which is in effect a fire concentration instead of a water concentration and must be so regarded rather than as a smelting operation in the usual acceptance of the term, is the key to the economic development of these mines.

By utilizing this inexpensive method of concentrating the values contained in these ores, and by taking advantage of the existing water power, these heavily sulphureted ores may be reduced to concentrated matte for a very low figure, which depends upon the amount treated. On a basis of a works of a capacity of 500 tons per day, the cost of the metallurgical treatment after the ore is mined, will not reach \$3. per ton of ore.

It is owing solely to the recent perfecting of this matting process that it is now possible to reopen these sulphide deposits and to profitably handle their ores.

By reducing these ores at the mines, instead of shipping them away, the saving on freight and treatment charges alone will be enormous, and the economy thus effected will in itself be a handsome return upon the money invested.

For results obtained in the pyritic smelting process see Exhibits H. I, J, K, and M.

III.

The PROPOSITION.

It is proposed to incorporate a company for the purpose of taking over the bond and option upon the Little Chief group of mines, and to reopen these mines, and to make whatever improvements are necessary on the property to insure rational and economic work of the same.

To accomplish this work will require an outlay of \$30,000 the expenditure of which sum will put the property in shape to deliver 200 tons of ore daily at a cost of \$1.50 per ton.

It is also proposed to organize another company for the purpose of building a 200 ton pyritic smelting plant at some convenient point to both the mines and the railroad. This plant will be so arranged as to permit expansion when the conditions so demand.

The proposed smelter will cost about \$50,000 when erected and ready to run.

In addition to the stated sums required for mining purposes and for building a smelter, a further sum should be provided as working capital. Probably \$20,000 will suffice for this purpose.

The total cash capital necessary for carrying out the proposed operations will be therefore \$100,000.

IV.

COMMERCIAL RESULTS.

With the proposed mining development, and with existing facilities for transporting the ore from the dump to the proposed smelter, the Little Chief group of Mines ought to yield about 200 tons of Sulphurets daily.

SUMMARY.

(Estimated on basis of handling 200 tons of ore per diem).

Cost of mining 200 tons of ore at \$1.50 per ton.....	\$300.00	
Cost of landing 200 tons of ore at the furnace, at 30¢.....	60.00	
Cost of matting 200 tons of ore at \$1.50 per ton, , , ,.....	300.00	
Freight on 10 tons of matte to Pueblo @ \$5.....	50.00	
Refining charges on said matte at Pueblo @ \$6.....	60.00	
Metallurgical losses, 10%.....	200.00	
Royalties, approximately 20¢ per ton.....	40.00	
Values contained in lowest grade of ore, \$10. per ton.....		\$2000.00
		<u>\$1010.00</u>
To balance profit per diem.....	990.00	
		<u>\$2000.00</u>