

REPORT
BY
E. J. DITTUS, M.E.
ON THE
SHEEP MOUNTAIN PROPERTY
MADE IN 1916

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GOLDEN, COLORADO

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REPORT

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On

THE SHEEP Mtn. PROPERTY.

Made in 1916.

LOCATION.

The property is located at the base of Sheep Mountain, six miles from the town of Marble, Gunnison County, Colorado, in Rock Creek Mining District.

RAILROADS & RATES.

The mine is six miles northeast of Marble which is the terminus of the Crystal River & San Juan Railroad. The wagon road connecting these two points is a typical mountain thoroughfare. There are grades as great as 25% for short distances, but the bed is good and it is amenable to teaming for all but two months of the year. During this time several snowslides run across the road and extreme care is necessary in traveling. The Crystal River & San Juan Railroad is broad gage and connects at Carbondale, Colorado, a distance of 29 miles, with the Aspen branch of the Denver & Rio Grande Railroad; the latter connects at Glenwood Springs, 12 miles distant, with the main line of the Denver & Rio Grande Railroad.

AREA & TITLES.

The property consists of 14 mining claims and two millsites, all on and at the base of Sheep Mountain. The claims are held under United States Patent.

DEVELOPMENT.

The Sheep Mountain tunnel consists of a cross-cut 450 feet in length connecting the portal with the "Black Queen" vein, thence 1900 feet driven on the vein; a cross-cut 150 feet in length to the "Lucky Boy" drift and 250 feet on the drift. The tunnel is 6 X 8 feet in the clear, which is ample for a double track system. Laterals have been cut into the foot-wall, at 30 foot intervals, for a distance of 12 to 15 feet, chutes have been installed, and stoping begun. Four raises have been driven on the vein, the first a distance of 110 feet and the remainder an average distance of 45 feet. There is approximately 2000 feet of back stoping ground at the breast of the tunnel running to zero as the portal is approached. The vein dips at an average angle of 32 degrees and strikes N. 65 41' W. The hanging wall is composed of tough blue limestone, requiring no timbering in the tunnel, except for a short distance of 200 feet, and at a point where a porphyry dike crosses the vein. The foot-wall is of white limestone.

ORE.

The ore is composed of galena (lead sulphide); sphalerite (zinc sulphide), pyrite (iron sulphide) with small amounts of chalcopyrite (iron - copper sulphide) and argentite (silver sulphide). The gangue material is mainly quartz, with small amounts of gypsum, rhodonite and calcite. The average analysis of the ore is as follows:

Lead	10%
Zinc	12%

Iron 12%
Silver 2 ounces per ton

The Silver in the ore runs much higher nearer the surface. Thirty cars of ore, comprising 360 tons, taken from the "Black Queen" mine, averaged \$101.50 per ton in silver. This mine comprises a 500 foot shaft on the same vein and approximately 3500 feet from the breast of the Sheep Mt. tunnel. Silver ore, of good grade, is prevalent in all of the prospects in the district.

ORE BLOCKED OUT.

There is now blocked out in the mine 10,000 tons of ore. About 500 tons is broken ready to be trammed to the mill, and the mill bins contain about 100 tons more.

WATER.

The two forks of Crystal river, known as North and South Rock creek, join at a point near the portal of the tunnel. The mean flow from these streams at this point for a period of three years (1911, '12 and '13) as calculated from the "Water Supply Paper" of the U.S. Geological Survey was 111.2 second feet. The minimum during this period was 15 second feet. This gives ample water for milling and power purposes. The company possesses a water right from which a fall of 253.8 feet in a distance of 2823 feet. This will develop 250 horse-power which, in addition to that already installed, is ample for all requirements.

EQUIPMENT.

The property is provided with a fully equipped blacksmith shop. The compressor house contains a duplex 10" X 10" Rand compressor capable of supplying 6 air drills; two compressed air receiver tanks, one in the power house and the other in the drift from the tunnel guarantee a supply of air under constant pressure. Power is supplied by a Leffel turbine operated under a 28.3 foot head. Water is obtained through a flume 700 feet long.

CONCENTRATOR.

The concentrating mill is equipped as shown in the following flow sheet;

From
Mine
to
1 ton cars
to
Crusher bin 50 tons capacity
to
8" X 16" Blake crusher
to
8" Belt bucket conveying elevator 25' centers
to
100 ton crushed ore bin
to
12" X 24" Mc Farlane rolls
to
8" Belt bucket elevator, 50' centers
to
Colorado Iron Works Impact screen 3' X 3', 30 mesh
to
10 ton fine ore bin
to
Hydraulic classifiers, 5 spigots.
to
5 Wilfley tables
to

Lead concentrates	Zinc-iron middlings	Tailings
to	to	to
Shipped to smelter	Storage dump for future	Dump
	Separation	

The mill is operated by means of a 4 foot Pelton wheel under a head of 33 feet 3 inches. Water is supplied through a 700 foot flume line connecting the wheel with North Rock Creek. The tables are actuated by a second Pelton wheel so as to give uniform speed.

ESTIMATED COST OF PRODUCTION.

Capacity of mill 70 tons per 24 hours.
 Cost mining ore \$2.00 per ton.
 Saving 80%

Milling cost

Labor	\$28.50	
Oil, repairs etc.	2.00	
Overhead etc	<u>13.00</u>	
Total cost per day		\$43.50

Ore, 10% lead, 12% zinc, 2ozs silver per ton

70 X 0.10 X 0.80 equals 5.6 tons lead conc. per day
 70 X 0.12 X 0.80 equals 6.5 tons zinc conc. per day
 2 X 6.5 equals 13 tons middlings per day

Freight

Lead concentrates		
Crystal to Marble via team		\$3.00 per ton
Marble to Carbondale via C.R. & S.J.Ry.		.50 per ton
Carbondale to Leadville via D. & R.G.Ry.		<u>3.00 per ton</u>
Total cost		\$6.50 per ton
Zinc-Iron Middlings		
Crystal to Marble via team		\$3.00 per ton
Marble to Carbondale		.50 per ton
Carbondale to Denver		2.70 per ton
Treatment charges		<u>5.00 per ton</u>
Total cost		\$11.20 per ton

Total cost production

Mining 70 X \$2.00	\$140.00
Milling, labor, superintendence etc.	43.50
Freight lead conc. 5.6 tons at \$6.50	36.40
Freight zinc conc. 13 tons at \$11.20	<u>145.60</u>
Total cost	\$365.50

Receipts

5.6 tons lead Conc. at \$55	\$308.00
6.5 tons zinc conc. at \$40	<u>260.00</u>
Total receipts	\$568.00

Net daily profit

\$203.50

Shipping only lead concentrates,

Piling zinc concentrates for future treatment.

Total cost production

Mining, 70 X \$2.00	\$140.00
Milling, labor superintendence etc	43.50
Freight on 5.6 tons lead conc. at	<u>\$6.50 36.40</u>
Total cost	\$219.90

Receipts,

5.6 tons lead conc at \$55	\$308.00
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Net daily profit shipping only lead \$88.10

Thus the most conservative estimate shows a total possible profit of \$203.50 per day, or, considering the revenue derived from the lead only, a daily profit of \$88.10

S U M M A R Y.

The property presents exceptional opportunities for the following reasons;

- (1) It is a property well out of the prospect stage with a large amount of stoping ground available.
- (2) It is amenable to cheap mining methods.
- (3) It practically controls the output of the properties located on Sheep Mountain because it is the only available haulage way.
- (4) It controls water rights developed and undeveloped more than sufficient for its own needs - thus the cheapest power available.
- (5) It controls 15,000,000 feet of the best timber obtainable for mine timbers.

The above report was made by E. J. Dittus, then professor at the Colorado School of Mines. The original manuscript, as well as estimates on other daily productions can be seen.

SHEEP MOUNTAIN TUNNEL

No. 787

TABLE TEST (WILFLEY)

CRYSTAL RIVER MINING & MILLING CO.,

566 Gas & Electric Bldg.,

Denver, Colo., March 20, 1915

Original	Weight.	% Weight.	Oz. Silver.	% Copper.	% Lead.	% Zinc	% Iron.	% In- soluble
Original	6070	100.00	0.90	0.80	11.60	16.80	13.10	17.90
Wilfley Conc. Saving	960	15.81	2.22 38.99	0.30 5.93	42.20 66.13	6.30 5.93	19.40 23.41	1.34 1.10
Static Zinc Saving	1470	24.22	0.48 12.92	0.30 9.03	3.80 7.93	46.70 67.33	5.10 9.43	5.04 6.82
Static Iron Saving	1830	30.15	1.06 25.51	1.80 67.85	6.90 18.80	11.40 20.45	26.80 61.68	7.47 12.60
Wilfley Tails Loss	1570	25.86	0.28 8.05	0.40 15.54	2.90 6.48	5.50 8.46	2.70 5.33	46.60 72.91
Wilfley Slimes	240	3.96	1.36 5.98	1.20 5.94	11.20 3.83	12.80 3.01	8.10 2.44	31.60 6.97

Ore crushed to 20 mesh. Sized in three sizes, 20-40, 40 - 80 and - 80 mesh.

The original % lime was 5.60; and Static Zinc 3.60%.

Made by American Zinc Ore Separating Co.

H. H. Low.

No 788

JIG TEST

CRYSTAL RIVER MINING & MILLING CO.,

565 Gas & Electric Bldg.

Denver, Colo., March 20, 1915

Orig Description.	Weight.	% Weight.	Oz. Silver.	% Copper	% Lead	% Zinc	% IRON	% Insoluble
Original	6230	100.00	0.90	0.80	11.60	16.80	13.10	17.90
Jig Conc. Saving	1260	20.22	1.90 42.66	0.30 7.58	41.80 72.87	5.40 6.50	20.30 31.33	1.42 1.60
Static Zinc Saving	1250	20.07	0.48 10.70	0.30 7.54	2.70 4.67	50.40 60.21	4.90 7.50	4.20 4.71
Static Iron Saving	1470	23.59	1.14 29.89	2.30 67.82	6.30 12.81	11.60 16.29	28.70 51.67	5.42 7.15
Jig Tails Loss	1980	31.78	0.28 9.77	0.30 11.91	2.30 6.30	6.60 12.48	2.80 6.79	44.64 79.25
Wilfley Slimes	270	4.34	0.98 4.74	1.20 6.51	10.60 2.97	13.40 3.46	7.90 2.62	30.80 7.47

Ore crushed to 20 mesh. Sized 20 - 4-, 40 - 80, - 80. Sizes 20 - 40, 40 - 80 Joggled. - 80 separated on Wilfley Table and products added to jig.

The original % Lime was 5.60; and Static Zinc 2.50%.

Made by American Zinc Ore Separating Co.

H. H. Low.