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REPORT OF PRELIMINARY EXAMINATION

of
BLUE JAY MINE

Pima County, Arizona

*copied &
checked*

LOCATION:

The Blue Jay Mine is situated about fourteen miles south of Vail Station (on the Southern Pacific R.R.) by fairly good wagon road, now somewhat washed out which can be put in good shape at a very reasonable expenditure. The workings are in the south part of the Sycamore Canyon, at an elevation of about 4,500 feet.

TOPOGRAPHY:

The mine is located in a hilly country of fairly gentle slopes.

HISTORY:

The mine was discovered in 1881 and worked continuously until 1902. Several carloads of ore were taken from the discovery cut, which averaged 800 ozs. silver per ton, and were shipped in the early days. In fact, it has always been noted for its high grade ore. (See report).

GEOLOGY:

The deposits occur in the dark limestones, but seem to be associated with porphyrite sills emanating in all probability from the magma as the intrusive monzonitic porphyry which makes a contact traceable for several thousand feet. The contact trends east, but the limestone dips steeply to the northwest, and is cut by dark, greenish greenstone porphyry dikes.

WORKINGS:

The mine is developed by several tunnels, shafts and drifts, part of which are shown on the accompanying maps making an aggregate of about 5,000 feet of workings. There are several stopes showing that quantities of ore have been extracted from the mine, and there is a large amount of low grade ore broken in the stopes that would pay to extract and mill.

The vein dips about 75 degrees northeast and varies from 5 to 15 feet in width, averaging on the whole about 8 feet. It consists of sulphide-bearing altered limestone and calcareous quartz. The ore minerals are principally argentine and gold but cerargyrite, or horn-silver, was an important ore mineral in the early days.

ORE RESERVES:

The dump was sampled fairly carefully and it is estimated that there are 5,000 tons of dump ore available that will average 15 ozs. silver and \$1.50 gold.

The broken ore in the mine is hard to sample accurately, but grab samples would indicate that the value would be at least 10 ozs. silver and \$1.00 gold after a little sorting. There are probably 1500 tons of ore available. Several samples were taken in the lower workings, but none in the upper tunnels, owing to limited time. Smelter returns from these workings and Schrader's report would indicate considerable ore of 25 to 30 ozs. silver and \$2.00 gold. This is further substantiated by recent shipments of screen dump from these workings, which averaged 30 ozs. silver and \$2.00 gold, while the ore occurrence is somewhat irregular, which is usual in all limestone formations, it would be fairly conservative to estimate the possibility of a considerable tonnage of ore in the present workings, which would average about the same as the dumps: 15 ozs. silver, \$1.50 gold. This amount, as nearly as can be estimated, is 10,000 tons.

As the winze shaft contains water, it was not possible to visit the lower workings, but a sample taken from a pile of sulphide ore on the dump which came from the bottom of the winze shaft, ran 80 ozs. silver and \$5.00 gold. This seems a very favorable indication for the bottom of the mine.

Class of Ore	Tonnage	Val. per T. ag. \$1.20	Handling Mining Cost Per T.	Milling Cost per Ton	New Pr'ft Per Ton	Total Profit
Dump	5,000	19.50	2.00	2.50	15.00	\$ 75,000.
Broken Stope Ore	1,500	13.00	2.50	2.50	8.00	12,000.
Possible Ore	10,000	19.50	4.50	2.50	12.50	<u>125,000.</u>
						\$ 212,000.

The mine makes a small quantity of water, but hardly enough in all probability for milling. However, running water is available the year around for milling and domestic purposes in the canyon, one-half mile from the mine.

The costs are estimated on a 50-ton per day basis, and the combined milling and mining costs, are taken as \$7.00; \$4.50 mining and \$2.00 milling. This figure is conservative and in all probability would be better in actual operation.

MINING AND MILLING:

The mine is in good condition and actual ore extraction can be started with very little expenditure, except a certain amount of cleaning up and re-arranging of shaft and hoist. In fact, very considerable backs of ore are now available above the tunnel level, which would permit extraction while the lower workings are being put in shape. Mining cost should not exceed \$4.50, this allowing \$1.00 for development.

A small cyanide mill can be easily erected at a cost not exceeding

\$25,000.00, and as the ore has a limestone base it should lend itself readily to cyanide treatment, with low cyanide cost and a high extraction factor.

DEVELOPMENT:

In the development work, special attention should be paid to the small porphyry sills which follow the bedding planes of the lime, and are associated with ore, and also the dark iron gray and blackish shoots in the vein which indicate the high values.

CONCLUSIONS:

The mine has available considerable amount of broken ore in the dumps and ore broken in the mine ready to be milled besides a certain amount of ore hard to define, but certainly available for immediate and future extraction, and splendid development possibilities. Figuring a 90% extraction, which should be obtained, you have available valued \$212,000.00 less 10% or \$190,800.00.

On a 50-ton per day basis, the mine should make a net profit of \$12.50 per ton, or about \$18,000.00 per month.

The mine presents very attractive possibilities with careful management and consistent work, of producing very attractive profits to the investor.

Respectfully submitted:

Made by Edward Thornton.

Mining Engineer.

Tucson, Arizona
November 1, 1919.

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Tucson, Arizona
November 1, 1919.

Respectfully submitted,
Made by Edward Thornton., M. E.

REPORT ON
BLUE JAY MINES GROUP

This property is located on the western slope of the Santa Rita Mountains, 35 miles southeast of Tucson, and is 15 miles east of Sahuarita on the Tucson-Nogales branch of the Southern Pacific Railroad, and about 15 miles westerly from Vail on the main line of the Southern Pacific Railroad.

The roads to both Railroad Stations are across country where roads are easily maintained and without difficult grades. The road to Vail at the present time is in need of some repair, the road to Sahuarita is in fairly good condition; the road to Tucson is in excellent condition.

The property consists of 14 claims (20 acres each).

Along the claims from the S. E. to the N. W. is a belt of carboniferous limestone about 200 feet wide, that dips 70 degrees to the N. E. and can be traced for about 3000 feet.

In this limestone and with the same direction are a series of dykes of andesite and porphyry (4 of them opened) and they form the backbone of this Mine, so far as development has demonstrated; showing the ore bodies or enrichments between the dykes and limestones. The development consists of four tunnels and one shaft about 200 feet deep, the cellar is 60 feet lower than the lowest tunnel.

The lowest tunnel is a cross cut from N. E. to S. W.; and at 150 feet it cuts the mineralized channel and runs across it for about 180 feet ending in the contact of the limestone and granite.

Twenty five feet before reaching the contact is the S. W. dyke and in this place is one ore body 110 feet long and about 10 feet wide; a winze was sunk on this (now filled with water) another winze was sunk about 100 feet to the N. E. on the cross cut; this is about the center of the lime body and follows another andesite dyke; and air-shaft reaches from this tunnel to the surface, a distance of about 200 feet.

What is know as the "Ficket" tunnel is in about the same level as the "Cross Cut" tunnel, and follows one ore body for 150

feet. In this place considerable stoping has been done, but there is still a big tonnage of high grade ore in sight; this ore body shows up again in the air shaft on the main "cross cut" exposing a block of ore 70 feet long and 40 feet deep, that averages \$35 per ton. The "crokked" tunnel 10 feet higher than the "Southwest" tunnel and about 50 feet to the Northeast shows considerable stoping like the "Southwest" tunnel it still has lots of high grade ore.

On the dumps of the tunnels, there are about 4000 tons of ore which average \$15 per ton, that can be handled and milled for \$3.50 per ton, leaving a profit of \$11.50 per ton.

On the dumps known as #3, #4, #5 and #6 are several piles of high grade ore, which will amount to about 200 tons, which will easily net \$30. per ton; and in the old workings, the accumulation of broken ore, conservatively estimated at 1000 tons. The ore in sight in the old workings can safely be estimated at 6000 tons of \$25. average per ton.

On account of water and lack of ladders the main winze in the "cross cut" was not examined; judging, however, from the sulphide ores on the dump at this tunnel and interviewing men who worked there at the time, this winze passes through the oxidized zone and got into the primary enrichment, uncovering ores that run \$85 per ton, which on account of lack of machinery could not be followed. This fact by itself increases many times the merit and value of this property. The following table will give a resume of the great possibilities of this property:

Four Thousand (4000) tons on the dumps, Averaging \$15 per ton	\$ 60,000.00	
Handling & Milling \$3.50 per ton	14,000.00	
Dump Net		\$46,000.00
Two hundred tons High Grade on the Dumps Averaging \$30 per ton	6,000.00	
Handling & Milling \$3.50 per ton	700.00	
Dump (high grade) Net		5,300.00

One thousand (1000) tons broken ore in the mine Averaging \$15 per ton	15,000.00	
Handling & Milling \$4.50 per ton	4,500.00	
Broken Ore Net		10,500.00
Six thousand (6000) tons "in sight" in the mine Averaging \$25 per ton	150,000.00	
Mining & Handling and Milling \$7.50 per ton	45,000.00	105,000.00
Total "in sight" (without further development) Net		166,800.00
Less 10% shrinkage in "gross" value		<u>23,100.00</u>
NET VALUE "IN SIGHT"		\$143,700.00

The possibilities of the mine from the 200 foot tunnel level down are not estimated nor taken into consideration in this estimate. Considering surface indications and the exposed surfaces in the development which can all readily be examined, I am of the opinion that below the water level there will open up several bodies of sulphide ores, that will very likely exceed in value the ores of the oxide zone.

To take care of the ore of the dumps and of the mine, under present conditions, I recommend the installation of a 40 or 50 ton mill, arranged so that new units can be added to accommodate the increase as the mine is developed. From my conclusion, it can be seen that this property can be made a dividend payer in a very short time and that, with a relatively small amount of outlay.

I recommend it as an investment where the risk is insignificant compared with the probability of the profit.

Respectfully submitted,

R. JAYME

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NET VALUE "IN SIGHT"	\$ 143,700.00

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