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(See map files)
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JEFFERSON GOLD & SILVER MINING COMPANY,

JEFFERSON CANYON, NYE COUNTY, NEVADA.

JEFFERSON GOLD & SILVER MINING COMPANY.

NYE COUNTY, NEVADA.

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GEOLOGY.

The property of the Jefferson Gold & Silver Mining Company lies on the western edge of the granitic intrusion which makes up the mass of Jefferson Mountain and Spanish Belt Peak, and extends south for about twenty miles to a point several miles beyond Manhattan. There are three veins on the property - the Bryan, Sierra Nevada and Jefferson Cross, each of which occurs under different geological conditions.

BRYAN VEIN:

On the footwall of the BRYAN VEIN is a belt of shale, often altered to mica schist, about 200 ft. wide. Where it crosses the Company's claims, this belt strikes N. 68 deg. W. The dip varies from 30 deg.N. at the surface to 49 deg. at Tunnel No. 4. On the hanging wall is a granite containing blocks of shale and schist of varying sizes and shapes. At times this granite is also found on the footwall of the vein, between the vein and the shale. The character of this rock varies, in places being a true granite, but often being more like quartz porlhyry, with prominent quartz phenocrysts and but little mica. Evidently the contact between the slate and the igneous rock formed a line of weakness, allowing faulting with consequent brecciation. The filling of the BRYAN VEIN

consists of the more or less completely silicified fragments in this zone of brecciation, cemented together with quartz. Then, after further movement, the silver sulphides were deposited in the cracks, sometimes with rhodochrosite, sometimes with quartz. Subsequently oxidation took place to a vertical depth of 300 feet, (100 feet above the level of Tunnel No. 4).

SIERRA NEVADA VEIN:

On the hanging-wall ( or north) side of the BRYAN, at a distance of 300 feet at the surface and 60 feet at Tunnel No. 4, lies the SIERRA NEVADA VEIN. This vein, where examined, consists of a wide crushed zone, in some places up to 25 feet wide. It is characterized by red iron oxides, but not over the entire width. In general, there are well defined gouge seams on footwall and hanging wall; but the rock for several feet beyond the walls is generally crushed and altered. As shown in the crosscuts on Tunnel No.4 level, the hanging wall rock is a granite. On Tunnel No. 2 level quartz phenocrysts are prominent, while in Tunnel No. 1 the granite is again found.

JEFFERSON CROSS VEIN:

The Jefferson Cross vein lies wholly in rock similar to that found on the hanging wall side of the SIERRA NEVADA in Tunnel No. 2. The vein strikes about N. 10 deg. E. and dips north at a flat angle. It is very irregular, varying from a one-inch stringer of manganese stained quartz to a stock work three or four feet wide.

## SAMPLING.

### SIERRA NEVADA VEIN:

The sampling of the SIERRA NEVADA VEIN, as indicated on the accompanying assay plan, showed no portion of the vein that was of a commercial grade.

### JEFFERSON CROSS VEIN:

The JEFFERSON CROSS VEIN was so small and irregular that but few samples were taken. A sample from the west cross-cut in the tunnel half way up the hill, taken across three feet of manganese stained quartz, assayed but 6.0 ounces silver and a trace of gold. A grab from the quartz on the dump at the lower tunnel gave 6.1 ounces silver and a trace of gold.

### BRYAN VEIN:

Most of the accessible workings and all of the stopes were found on the BRYAN VEIN. The sampling soon indicated the spotted nature of the deposit. In the oxidized zone the silver minerals could not be recognized, but in the sulphide zone the black silver sulphide could be clearly seen. The sulphide occurs in small stringers and bunches, very irregularly distributed.

The sampling failed to locate an ore body of any great size. Continuous commercial values were found above Int-D213 over a length of 80 feet. A large part of the available ore has already been stoped, while a continuation of R 213 indicates a decrease in value at about 60 ft. above the drift. A small body averaging 26 ounces over 4.4 ft. is indicated in Tunnel No. 2 at the winze.

but the winze samples show this to be very irregular. In an east drift seventy-eight feet below the collar, the sampling indicated nothing of value. In R-406 the upper 70 feet averaged 16.5 ounces over 5.5 feet. This was the greatest length of continuous commercial values found. However, owing to the spotted nature of the deposit, these values can be assumed to continue for but a short distance beyond the face sampled. The BRYAN INCLINE, about 500 feet west of the west face of Tunnel No. 2, contains ore, but over a narrow width. The sampling of a 175 ft. east drift, 30 feet from the collar, indicated the lack of persistance of the ore.

CONCLUSIONS:

The sampling indicates the occurrence of ore of commercial grade in but a few bunches, none of large size. The total tonnage in sight in the main workings is not over 2500 tons. It is very doubtful if these bunches are frequent enough and of such grade and size as to pay for development and extraction.

J. E. Black

# JEFFERSON GOLD & SILVER MINING COMPANY.

## NYE COUNTY, NEVADA.

## Examination, August, 1919.

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**LOCATION:**

This property is located in Jefferson Canyon, 48 miles north of Tonopah, and 4-1/2 miles east of Round Mountain. The freight haul from Tonopah to the property is through Manhattan over a road 65 miles long. The drainage from Jefferson Canyon is into Big Smoky Valley. The old road between Austin, Spanish Belt and Belmont is through the canyon.

**HISTORY:**

Charles Kanrchat worked for the Prussian, Prussian South and Jefferson Companies prior to 1873. After that date he began making the locations that are now a part of the Jefferson Gold & Silver Mining Company's holdings. He has lived in the district and on the property continuously up to the present time. During that time the property has several times been sold, but for one cause or another it has reverted to the original owner, each time with an added equipment, until there is quite a complete plant in existence.

**EQUIPMENT:**

A ~~6600~~ 12000-volt power line has been built in from Round Mountain where power is supplied by the Nevada-California

Power Company. No lightning arresters protect the plant, consequently severe accidents to transformers have been experienced.

The mine and mill equipment is electrically driven. The mill is essentially a flotation plant, consisting of a gyratory crusher, rolls, tube mill and flotation cells, and has a capacity of about 60 tons per day. Extraction during Mr. Brady's operations is said to have been not over 60%.

The mine equipment consists of a 600 ft. Ingersoll-Rand two stage compressor and all air lines necessary to reach tunnels Nos. 2 and 4. There is also a very complete outfit of drifting and stoping drills. Blacksmith shops, assay office, etc. are in operating condition.

TERMS:

This property has been called to our attention several times. When the property reverted to the Jefferson Gold & Silver Mining Company after the Brady-Stoneham operation, it was equipped in a modern way for immediate work, so that six months development could have been obtained before any great outlay of cash was necessary. With this in mind a thorough sampling was determined on under the following terms:

Price, $350,000.00. $5,000.00 to be paid on signature of papers; $45,000.00 six months after signature. At the end of 12 months another $50,000.00; 15 months, $100,000.00; 18 months, $100,000.00; two years $50,000.00. If milling undertaken, royalty to apply to purchase price.

The present company is capitalized for 2,000,000 shares, par value $1.00. Nevada incorporation.

Kanrohat has in his possession 1,187,092 shares, and is reasonably sure of proxies on 2700 shares. 124,105 shares remain in the Treasury. Board of Directors controlled by Kanrohat. 60% of the outstanding stock can legally sell the assets of a Nevada corporation.

WATER RIGHTS AND OTHER RESOURCES:

Jefferson Canyon at low water would supply water for a large mill but not sufficient for any extensive power installation. At present there is a suit pending between the Company and the Round Mountain Company over the Jefferson Canyon water; also tailings from the Jefferson Mill will have to be diverted to some other canyon on account of the Round Mountain intake. This intake is 1.7 miles below the Kefferson Mill, with another intake under construction 2.5 miles below. The Jefferson Company undoubtedly has a right to some of the water, though its use is not entirely continuous.

ORES:

No reserve of ore can be said to exist. It is true, however, that some ore of commercial grade exists, but it is very irregular. The Bryan vein is very flat, which is against cheap and clean mining, the hanging wall being soft and having a tendency to fall with the ore. The Sierra Vein where encountered is of a very low grade.

Surface workings, except the Bryan incline, indicate a low grade on both Bryan and Sierra veins. The Jefferson Cross vein is also irregular and low grade.

Also the vein material in the lowest tunnel, No. 4 has not the strength that is shown above Tunnel No. 2.

Nearly 400 samples were taken and their value and position are shown on attached maps. A sketch map of property holdings and a plan showing workings and elevations are also attached.

The ore treatment by cyanide seems feasible, as is shown by tests by Mr. Johnson. Mr. Black has also discussed the geology and sampling in an attached letter.

Kanrohat milled and shipped a small tonnage of high grade ore from the Bryan incline.

CONCLUSIONS:

A considerable amount of development work has already been done and it is difficult to plan any further work that would put ore enough in sight to meet the payments. The property is therefore not recommended as worth considering under the terms offered.

General Superintendent.

Tonopah, Nevada,
September 8th.1919.

J. H. WHITEMAN, PRESIDENT
[redacted]
C. R. MILLER, VICE-PRESIDENT
[redacted]
W. H. BLACKBURN, SUPERINTENDENT
C. A. HIGBEE, SECRETARY & TREASURER

# THE TONOPAH MINING COMPANY OF NEVADA

EASTERN OFFICE
572 BULLITT BUILDING, PHILADELPHIA, PA.

PLEASE ADDRESS ALL COMMUNICATIONS
TO THE COMPANY, TONOPAH, NEVADA

TONOPAH, NEVADA. Sember
September 14, 1919.

Mr.W. H. Blackburn, General Sup't.,
The Tonopah Mining Company of Nevada,
T O N O P A H,, N E V A D A .

Dear Sir:

Attached find results of tests run Samples #1 and # 2 from Jefferson Mining Company.

The values yield readily to cyanidation although the cyanide consumption is high on both samples.

Concentration followed by cyanidation removes some of the cyanicides and the cyanide consumption was reduced 2.9# per ton ore on sample # 1 and 3.4# on sample # 2. The ratio of concentration on sample #1 was 1 ton concentrates to 42 tons of ore and on sample #2 was 1 ton concentrates to 39.4 tons of ore. The extraction on this method of treatment over straight cyanidation was improved 0.8% on sample #1 and 1.2% on sample #2.

Based on 100 tons per day the comparison between the two methods on Sample #1 is shown as follows:

**CYANIDATION.**

| | |
|---|---|
| 100 tons @ $21.25 | $2125.00 |
| 96.0% Extraction | 2040.00 |
| Cost of cyanidem770# @ 25¢ | 192.50 |
| Balance | $1847.50 |

**CONCENTRATION and CYANIDATION.**

| | |
|---|---|
| 100 tons @ $ 21.25 | $2125.00 |
| 96.8% Extraction | 2057.00 |
| Cost of cyanide 480# @ 25¢ | 120.00 |
| Concentration at 25¢ per ton | 25.00 |
| Frt.Jefferson Canyon to Tonopah,2.4 tons @ $12. | 28.80 |
| Frt. Tonopah to Selby Cal. 2.4 tons @ $8 | 19.20 |
| Treatment 2.4 tons @ $6 | 14.40 |
| Smelter deductions 5% Silver contents | 13.81 |
| Balance | $ 1835.79 |

On sample #2 the comparison between the two methods is as follows, based on 100 tons as in sample #1.

**CYANIDATION.**

| | |
|---|---|
| 100 tons @37.04 | $3704.00 |
| 96.9% Extraction | 3589.18 |
| Cost of Cyanide 980#@25¢ | 245.00 |
| Balance | $3344.18 |

**CONCENTRATION and CYANIDATION.**

| | |
|---|---|
| 100 tons @ $37.04 | $3704.00 |
| 98.6% Extraction | 3652.14 |
| Cost of cyanide 640# @ 25¢ | 160.00 |
| Concentration @ 25¢per ton | 25.00 |
| Frt Jefferson Canyon to Tonopah 2.5tons @$12 | 30.00 |
| Frt Tonopah to Selby,Calif. 2.5 tons @$8 | 20.00 |
| Treatment 2.5 tons @ $6 | 15.00 |
| Smelter deductions 5% Silver Contents | 26.60 |
| Balance | $3375.48 |

By these comparisons it is seen that with Sample #1 the added cost of concentration and marketing the concentrates more than offsets the increased extraction and lower consumption of cyanide,while with Sample #2,which is higher grade, the comparison is in favor of combined concentration and cyanidation. In either case the difference in saving is small.

With the exception of the high cyanide consumption,there should not be any unusual difficulties with this ore.

Yours very truly,

N. A. Johnson

Mill Superintendent.

## MILL TESTS ON JEFFERSON CANYON MINING CO. ORE.

### SAMPLE No. 1.

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### TEST # 1.

1# of ore was ground to pass 200 mesh and agitated with 2# KCN solution containing 5.35# KCN per ton solution. 10 grams of lime added. Lead acetate equivalent to 1# per ton ore was added.

| Sample | lbs KCN /ton Sol | lbs CaO /tonSol | Au ozs perton | Ag ozs perton | Value perton | Au Ext % | Ag Ext % | Value Ext % | KCN Cons per ton |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 5.35 | Sat. | .05 | 18.41 | 21.25 | - | - | - | - |
| 24hrs Agit | 1.8 | 2.0 | Tr | 1.72 | 1.89 | 100 | 90.6 | 91.1 | 7.1 |
| 120 " " | 1.5 | 2.0 | Tr | .92 | 1.01 | 100 | 95.0 | 95.2 | 7.7 |
| 144 " " | 1.5 | 1.9 | Tr | .76 | .84 | 100 | 95.9 | 96.0 | 7.7 |

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### TEST #2.

1# of ore ground to pass 40 mesh and hand concentrated on vanning plaque. Concentrate tailings reground to pass 200 mesh and agitated with 2# KCN solution containing 5.35# KCN per ton solution.10 grams lime added. Lead acetate equivalent to 1# per ton ore added. Ratio ore to solution 1: 2.05

### Concentration Test.

| Sample | Wt. Grams | Au ozs per ton | Ag ozs per ton | Value perton | Au mgs | Ag mgs | Au Ext % | Ag Ext % | Value Ext % |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 453.6 | .05 | 18.41 | $21.25 | 0.775 | 285.35 | - | - | - |
| Concentrates | 10.7 | .20 | 91.50 | 104.65 | 0.073 | 33.56 | - | - | - |
| Tails | 442.9 | .04 | 16.56 | 19.02 | 0.702 | 251.79 | 9.4 | 11.8 | 11.7 |

Ratio of Concentration One ton Concentrates to 42 tons Ore.

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Au @ $20.00 per ounce.
Ag @ $1.10 per ounce.

## CYANIDATION TEST ON CONCENTRATION TAILINGS.

| Sample | LbsKCN tonSol | LbsCaO tonSol | Au Ozs per ton | Ag Ozs per ton | Value perton | Au: Ext% | Ag Ext% | Value: Ext% | KCN cons. perTonOre. |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 5.35 | Sat. | .04 | 16.56 | 19.02 | - | - | - | - |
| 24hrsAgt | 3.4 | 2.0 | Tr | .92 | 1.01 | 100 | 94.4 | 94.7 | 4.0 |
| 120" " | 3.1 | 2.0 | Tr | .72 | .79 | 100 | 95.7 | 95.8 | 4.6 |
| 144" " | 3.0 | 1.9 | Tr | .64 | .70 | 100 | 96.1 | 96.3 | 4.8 |

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| | |
|---|---|
| Au Extraction by concentration | 9.4% |
| Ag " " " | 11.8% |
| Value " " " | 11.7% |
| Au " " cyanidation | 90.6% |
| Ag " " " | 84.6% |
| Value " " " | 85.1% |

| | |
|---|---|
| Au combined extraction by concentration and cyanidation | 100.0% |
| Ag combined extraction by concentration and cyanidation | 96.6% |
| Value combined extraction by concentration and cyanidation | 96.8% |

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## MILL TESTS ON JEFFERSON CANYON MINING CO. ORE.

### SAMPLE No. 2.

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### TEST # 1.

1# of ore was ground to pass 200 mesh and agitated with 2# KCN solution containing 5.3# KCN per ton solution. 10 grams lime added. Lead acetate equivalent to 1# per ton ore added.

| Sample | Lbs KCN /ton Sol | Lbs Cac /ton Sol | Au ozs per ton | Ag ozs per ton | Value per ton | Au Ext % | Ag Ext % | Value Ext % | KCN Cons per ton |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 5.3 | Sat. | .11 | 31.67 | 37.04 | - | - | - | - |
| 24Hrs Agit. | 0.5 | 2.0 | Tr | 1.84 | 2.02 | 100 | 94.2 | 94.6 | 9.6 |
| | 7.4 | ----6.9# KCN added per ton solution. | | | | | | | |
| 120" " | 7.3 | 1.9 | Tr | 1.60 | 1.76 | 100 | 94.9 | 95.3 | 9.8 |
| 144" " | 7.3 | 1.9 | Tr | 1.04 | 1.14 | 100 | 96.7 | 96.9 | 9.8 |

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### TEST # 2.

1# of ore ground to 40 mesh and hand concentrated on vanning plaque. Concentrate tailings reground to pass 200 mesh and agitated with 2# KCN solution containing 5.3# KCN per ton solution. 10 grams lime added. Lead acetate equivalent to 1# per ton ore added.
Ratio ore to solution 1 : 2.05

### CONCENTRATION TEST.

| Sample | Wt. Grams | Au ozs per ton | Ag ozs per ton | Value per ton | Au mgs | Ag mgs | Au Ext % | Ag Ext % | Value % |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 453.6 | .11 | 31.67 | 37.04 | 1.705 | 490.89 | - | - | - |
| Concentrates | 11.5 | .42 | 193.58 | 221.34 | 0.166 | 87.28 | - | - | - |
| Tails | 442.1 | .10 | 26.62 | 31.28 | 1.539 | 403.61 | 9.7 | 17.8 | 15.2 |

Ratio of Concentration One ton Concentrates to 39.4 tons Ore.

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Au @ $20.00 per ounce.
Ag @ $ 1.10 " "

## CYANIDATION TEST ON CONCENTRATION TAILINGS.

| Sample | LbsKCN tonSol | LbsCaO tonSol | Au Ozs per ton | Ag Ozs per ton | Value perton | Au Ext% | Ag Ext% | Value Ext% | KCN Cons. perTonOre. |
|---|---|---|---|---|---|---|---|---|---|
| Heads | 5.3 | Sat. | .10 | 26.62 | 31.28 | - | - | - | - |
| 24HrsAgit | 2.2 | 2.0 | Tr | 1.16 | 1.28 | 100 | 95.7 | 95.9 | 6.2 |
| 120" " | 2.1 | 1.9 | Tr | 0.56 | 0.62 | 100 | 97.9 | 98.0 | 6.4 |
| 144" " | 2.1 | 1.9 | Tr | 0.52 | 0.57 | 100 | 98.0 | 98.1 | 6.4 |

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| | |
|---|---|
| Au Extraction by Concentration | 9.7% |
| Ag " " " | 17.8% |
| Value " " " | 15.2% |
| Au " " Cyanidation | 90.3% |
| Ag " " " | 80.6% |
| Value " " " | 83.4% |
| Combined Au Extraction by Concentration and Cyanidation | 100.0% |
| Combined Ag Extraction by Concentration and Cyanidation | 98.4% |
| Combined Value Extraction by Concentration and Cyanidation | 98.6% |

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