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GEOLOGICAL REPORT ON THE BAYONNE MINE

SALMO-CRESTON AREA OF B.C.

NELSON MINING DIVISION

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Consulting Geologist
18 Dec 62

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INTRODUCTION

This report is written for the purpose of appraising and compiling the known information on this property and to propose an exploration program for its development.

it is based upon information and reports compiled from the following sources;

1. Annual Reports of the B.C. Minister of Mines from 1901 to 1946
2. Geological Survey of Canada Memoir 228, by H.M.A. Rice, 1941
3. Unpublished thesis by R. E. Renshaw, University of B.C.

" Gold-Silver Distribution With Depth in the Sheep Creek Mining Camp."

4. Mine Records and Maps by C. Rutherford and R.B King
5. Report by Geo. Mills, July, 1962.

LOCATION

The Bayonne Mine is located at an approximate elevation of 6000 feet on the western slopes of John Bull Mountain on Bayonne Creek. It is half way between Creston at the south end of Kootenay Lake and the mining town of Salmo. (i.e. 15 miles to either point.) The former gold camp of Sheep Creek lies 7 miles to the west. This camp had as gold-silver producers the following mines: Sheep Creek Gold Mines, Kootenay Belle, Reno, and Gold Belt.

It is thus located in a mining center which has produced many millions of dollars from gold-silver ores.

TOPOGRAPHY

The general elevation of the claims range from 5000 feet to 7400 feet. They are in the Selkirk Mountain system. The peaks are well rounded and are fairly heavily wooded up to the summits. Although the topography has been modified by glaciation the depth of ice covering this area could not have been too thick because it was unable to remove the preglacial weathering and the zone of oxidation extends to a depth of about 450 feet below the surface. This deep seated weathering is of importance to the distribution of the gold values and their recovery as will be discussed later.

CLAIMS

The Bayonne Mine consists of 17 claims which have been Crown Granted and 12 claims which are held by the right of location. The names of these claims are:

Kentucky	Lot 5966
Maryland	Lot 5085
Ohio	Lot 5962
Columbus	Lot 5961
Bayonne	Lot 5083
Oxford	Lot 5084
Virginia	Lot 6887
Skookum	Lot 9560
New Jersey	Lot 5967
Delaware	Lot 5960
Illinois	Lot 6888
Ontario	Lot 13016
Echo	Lot 13014
Echo Fr.	Lot 13015
St. Elmo Fr.	Lot 13018
Portland	Lot 13017
Idaho	Lot 13019

12 Bayonne claims named 1 to 12

The 12 Bayonne claims were staked and recorded at Nelson B.C. and are in good standing until 20 Jul 63.

The property contains approximately 1200 acres, more or less.

HISTORY

The property dates back to 1901 when the first claims were staked. Early development was limited by transportation problems and despite very encouraging showings little was done until 1936 when the property was taken over by Bayonne Consolidated Mines Ltd. This company erected a 60 ton cyanide mill and operated it until 1939 when operations were curtailed in favour of an extensive exploration and development program. This work was sufficient to keep the mill in continuous operation from April, 1940 to August, 1942 when the property was forced to suspend operations due to wartime shortages and regulations of labour and supplies. It remained dormant until the late summer of 1945. At this time it was reopened and renovated but once again labour and material shortages forced its closure in July, 1946.

Intermittant leasers operated the property until 1951 and it was inactive until the present Bayonne Mine Ltd. was formed in July, 1962.

Production

During the history of this property 85,000 tons of ore was milled or shipped and it recovered 40,000 ounces of gold and 95,000 ounces of silver. No attempt was made to recover any base metal content. One dividend of \$25,000.00 was paid during the war year of 1942.

FACILITIES

A. Transportation

There are two access routes to the Bayonne Mine. The first, which is the old route, started at Tye Siding on the west side of Kootenay Lake, on the Kettle Valley Line of the Canadian Pacific Railway is a modified wagon road now largely overgrown and in poor state of repair was 23 miles long

and used by trucks in the summer months and by tractors during the winter. The second route, which is part of the Salmo-Creston Southern Provincial Highway road link extends from Creston up Summit Creek, through a low pass and down Sheep Creek to Salmo.

A logging company, The Wyndel Box Co. Ltd., who have a timber limit in the area are constructing a good road up Bayonne Creek from its junction with Summit Creek. There will remain $1\frac{1}{2}$ miles of road to be built to arrive at the mine on a good easy grade of less than 8%.

This new highway scheduled to be completed and paved in 1963 will place the mine only 55 miles by paved highway to the Consolidated Mining and Smelting Company's smelter at Trail.

B. Power

No power is available on the property. Diesel-electric power will be required at a later date.

C. Water

Ample water is available for all mine, mill, and domestic requirements.

D. Timber

Ample timber is available on the property for all mining purposes. Sawn lumber can be purchased at Salmo or Creston.

E. Housing

Two large bunkhouses with accommodation for forty men are in excellent condition with the exception that the plywood partitions, and plumbing facilities have been removed. These could be readily rehabilitated for use.

F. Labour

A ready pool of experienced miners and diamond drillers is available at the mining centers of Salmo or Ymir.

G. Climate

Climatic conditions at the property are not too severe nor extreme. Winter conditions will prevail from the end of November to early May.

Six to ten feet of snow will fall during this time. This amount will not interfere with underground operations and the 5 miles of road to connect with the paved highway can be kept snowploughed at no great effort.

From an observation of the buildings that were erected at the mine those that were built with their long axis parallel to the contour of the hill were largely the ones that collapsed under a snow load, while those that were at right angles to the contour have remained standing.

DEVELOPMENT

Two veins, the "A" and the "Main" vein have been developed by 8 adits all connected by raises. The vertical interval between the adits is approximately 100 feet and range from 6900 feet elevation at No. 1 to 6100 feet at No. 8. Mine Maps prepared by Messrs. Rutherford and King and Mine Staff show the operations at the 1946 closure. These are enclosed in the back of this report.

1. Mine Plan.
2. Longitudinal Section "A" Vein.
3. Longitudinal Section Main and South Veins.
4. Vertical Projections showing ore reserves on Main, South, and A veins.

The two other known veins on the property, the South Vein and the North Vein have little or no exploration work done on them.

The following present condition of the adits is taken from a report by Mr. Geo. Mills, P. Eng., dated 26 July 62: "On the Main Vein the conditions are as follows:

No. 8 Level - Accessible for an unknown distance but blocky, partially decomposed granite in the roof makes entry extremely hazardous.

No. 6 Level - Caving from the 6-1 stope has blocked access approximately 200 feet from portal.

No. 5 Level - Entry blocked off with overburden from west end of 5-1 stope.

No. 4 Level - Accessible to western limit of 4-1 stope.

No. 3 Level - Caved at breakthrough to surface 100 feet from portal.

No. 2 Level - Caved close to portal.

No. 1 Level - Caved close to portal."

EQUIPMENT

A. Mine

There is an adequate supply of mine cars, rail, etc., on the property to permit the start of an exploration and development program. Some of the underground air and water lines will have to be replaced.

B. Mill

All ore was delivered to the coarse ore bunker via No. 8 Level on the Main Vein or by truck from the upper levels. Beneficiation followed relatively standard cyanidation practice with the following equipment:

1. Traylor type "H" 12" x 16" jaw crusher with accessory conveyor system to the fine ore bin. This unit is in good condition but the conveyor system would have to be rebuilt and the belts replaced.

2. Hardinge 6' x 24" coned ball mill in closed circuit with a Dorr 12" duplex classifier. Both units completely serviceable after minor repairs. Some spare liners, scoop lips etc. are available.

3. The thickeners, agitators, solution tanks, clarifier, and precipitation units have been damaged to an appreciable extent by the collapse of the mill building. All units, however, can be repaired should exploration warrant adoption of the cyanide process for the beneficiation of the ore.

4. Several pumps, both centrifical and suction, are buried under the wreckage of the mill building. Most of these should be salvageable.

5. The refinery building is intact and the equipment is in good condition.

6. All electrical equipment has been removed, this includes motors, starting units, service boxes etc.

C. Shops

There is little of salvage value remaining in the shops. The steel shop is still standing and it remains equiped with furnace and sharpener for the old fashioned conventional steel used in the 1930's.

The power and compressor plant comprised the following units.

A Holman 2-stage compressor, symbol CB, serial #3484, size 12 x 7.5 x 8, belt driven by a Petters Diesel engine, 112 B.H.P., serial # 220596, 410 RPM. This compressor and its power unit appear in good condition and could be rendered servicable if parts are still available.

A Canadian Ingersoll Rand Compressor -ER 2, serial # 8443, size 14 x9x12, 250 RPM driven by a Petters Diesel engine on which no data is available. This Rand Compressor is an old model but operatable though it is doubtful if its power unit could be returned to service.

A generator of unknown manufacture, driven by a Fairbanks-Morse Diesel engine, model 32-E-14, 225 HP, 300RPM. This unit is direct connected. All copper has been stripped from this unit and it would have to be sent to Vancouver for rewinding. Reconditioning of this unit does not appear to be warranted.

GEOLOGY

1. Regional

The Bayonne Mine is located in a small granitic stock of Cretaceous age. It consists of a fine to medium -grained, light grey rock fairly uniform in texture and composition. It is non-porphyrific, contains few inclusions and xenoliths and has an average composition of a calcic granodiorite. Amphibole and biotite appear in about equal amounts. Epidote alteration is a common feature. This stock has been named the Mine Stock.

Adjacent to the Mine Stock and lying to the northeast is a much larger granitic intrusive which has been designated as the Bayonne batholith. It differs from the Mine Stock in that it contains almost no amphibole and the plagioclase is more basic and that there is a great variation in grain size and colour even within the same outcrop. Also pegmatitic dykes occur much more frequently.

While no cross-cutting features have been found there is reason to believe that the Main Stock is the older intrusive and that with the emplacement of the Bayonne batholith stresses and shears were set in the Main Stock and that the mineralizing solutions from the Bayonne batholith formed the gold-quartz fissure replacement veins of the Bayonne Mine.

If this premise is true then almost any portion of the drift covered areas of the Main Stock offers potential prospecting ground.

2. Local

The veins occur in a light-coloured, fine-grained, biotite-hornblende granodiorite. The fissures vary in strike from N 70 to 80 E for the Main Vein to N 10 to 35 E for the A, North, and South Veins and have an almost vertical dip. Wall rock alteration consists of talc-carbonate for a distance of 2 or 3 feet on either side of the fissure.

The fissures split, widen and narrow, and send horse tails into either wall, but on the whole is fairly regular and consistent. In most places it is occupied by a quartz vein from a few inches to 10 feet wide. The wide part of the zone is not, however, solid quartz, but rather composed of two or more quartz veins separated by horses of altered granodiorite.

Gold and silver which occur intimately associated with pyrite, galena, sphalerite, and chalcopyrite were the important mineral produced by the former operators. While the former company's assay plan of the workings is fairly adequate in reporting the width and grade of the gold content of the veins, there is no record of the silver, lead, zinc, or copper. As in most fissure veins the values are not uniformly distributed but occur in well-defined ore shoots.

In a discussion on the occurrence of values in the vein Rice in Memoir 228 states, "the bulk of the ore was mined from the oxidized zone, which extends down the vein to a maximum depth of 450 feet. In this zone the sulphides have largely disappeared, their places being taken by limonite and minor amounts of secondary lead and zinc minerals. The bottom of this zone is characterized by a rather abrupt transition from highly oxidized and leached material to primary sulphides with little or no trace of oxidation or leaching.

The oxidized ore consists of an unattractive looking mass of limonite and rusty, honeycombed quartz. Yet this ore 150 feet from the surface averaged 1 to 2 ounces per ton in gold, and assays as high as 12 ounces a ton have been obtained. Below the oxidized ore shoots there is a zone, apparently in primary ore, which assays from 0.5 to 1 ounce of gold a ton. This extends to a depth of 50 feet below the limit of oxidized ore. Below this zone again there is little or no change in the appearance of the ore, but the values drop to about 0.40 ounce gold a ton. The most plausible explanation of this rich zone is that some of the gold has come from the zone above and has been deposited in some form not yet recognized. The sulphite content of each ore-shoot, however, appears to be ^{de}creasing at depth.----- The change in gold content may, therefore, be due due to zoning in the primary ore rather than enrichment of the sulphides. "

The above observations made by Dr. Rice was based on field examinations made in 1936 and 1937 when exploration and mining was being confined to the Main and South Veins.

The writer's studies of the grade distribution with an increase in depth is shown by graphs A, B, and C.

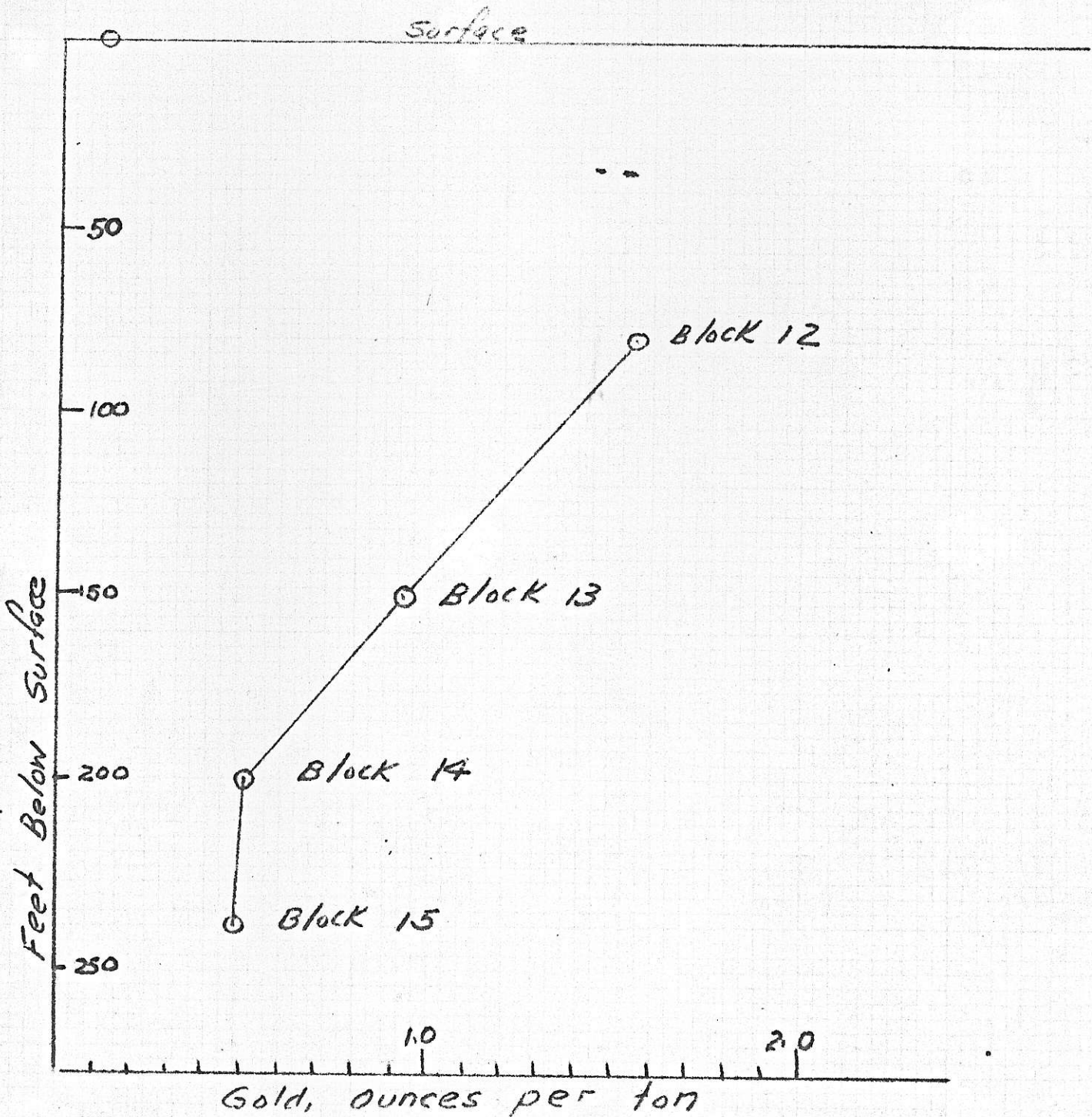
Graph A illustrates Dr. Rices point very clearly of the depth changes of the South Vein. Graphs B and C of the Main and A Veins show erratic values, particularly A Vein .

ORE RESERVES

A. Proven

Ore reserves, as calculated by Mssrs Rutherford and King are shown on the accompanying map and are also listed below.

10 A



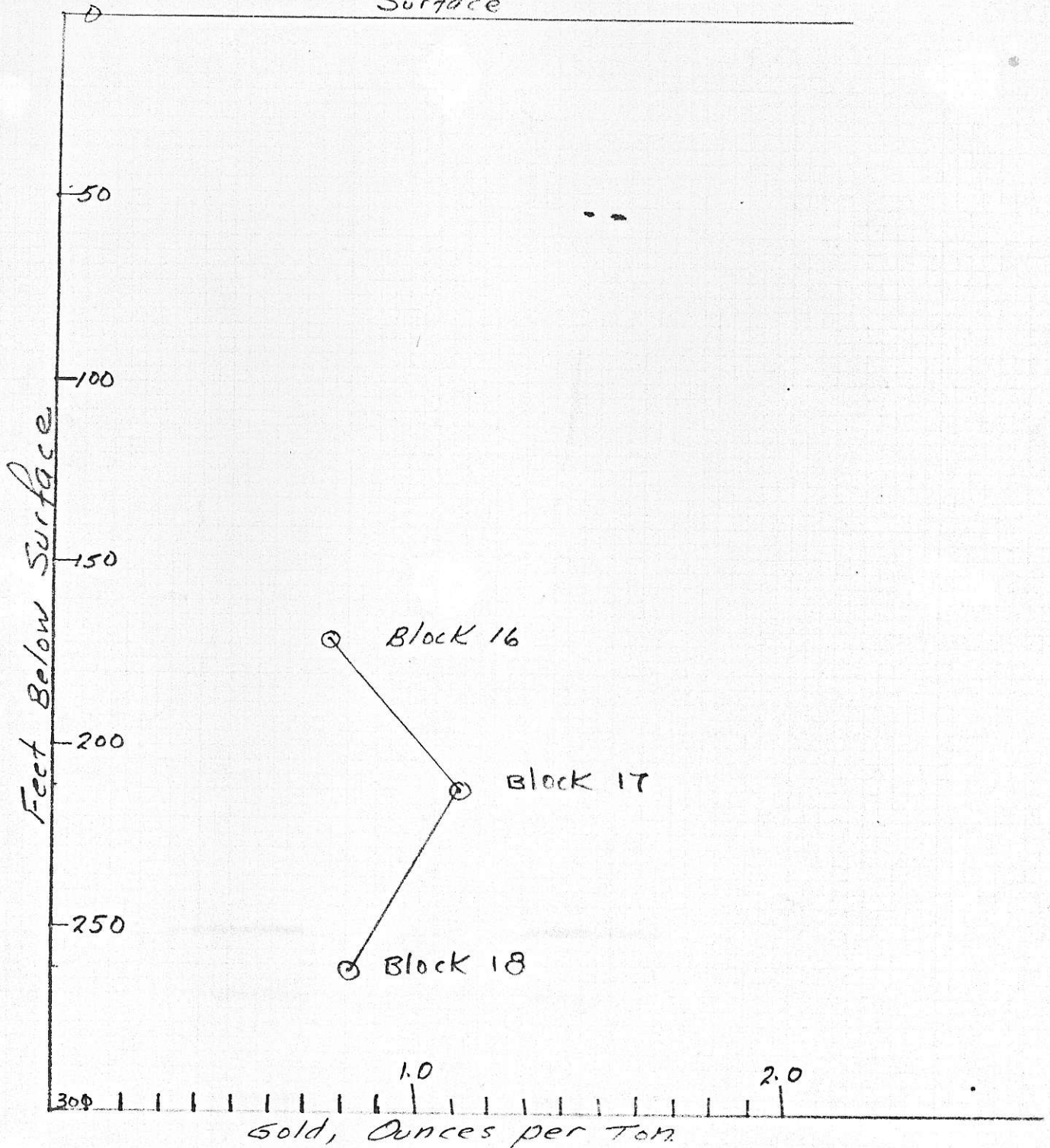
Graph showing change in Grade of Gold
With Increase in Depth

South Vein

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18 Dec 62

10 B.

Surface

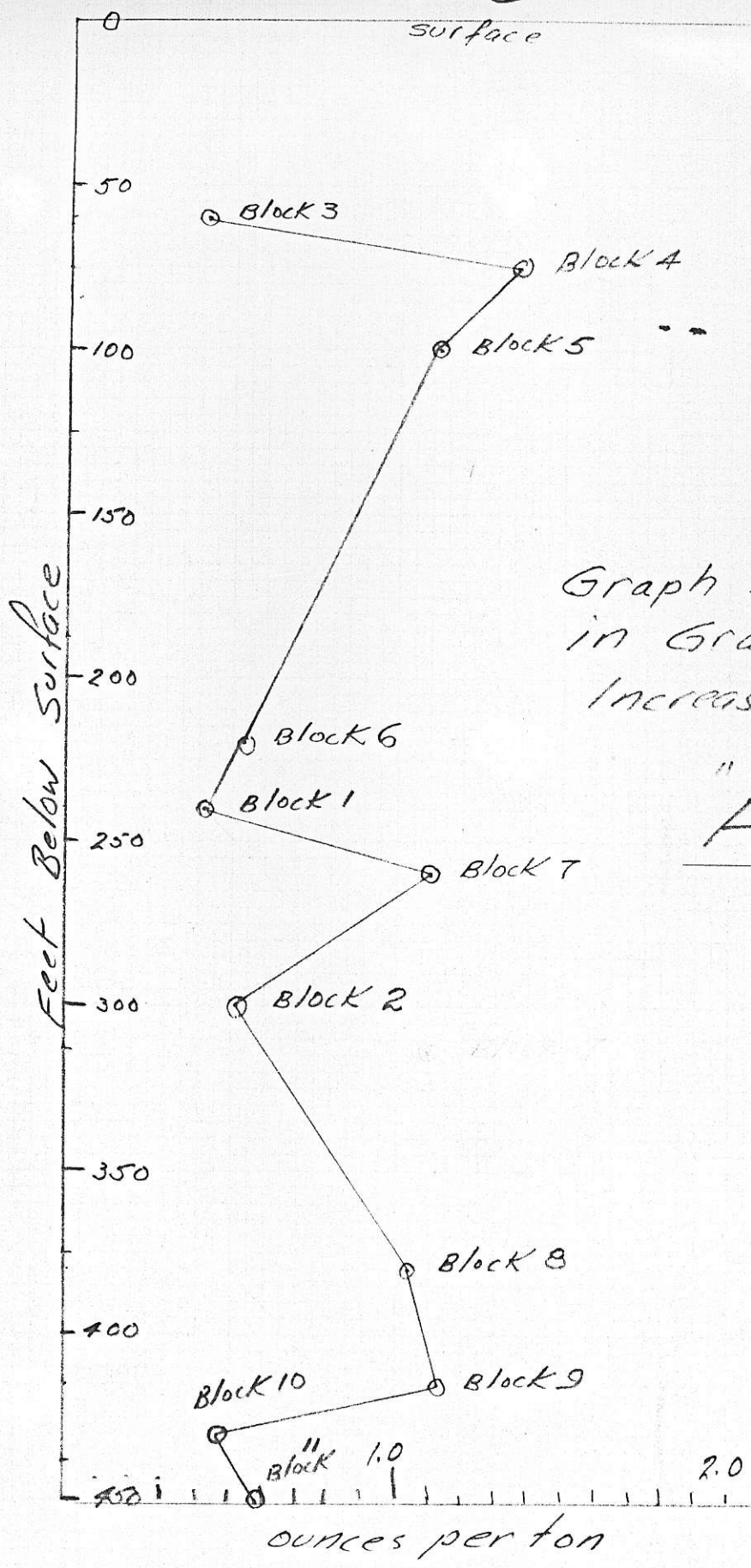


Graph showing change in Grade of Gold
with Increase in Depth

MAIN VEIN

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10 C



Graph showing change
in Grade With
Increase in Depth

" "
A VEIN

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18 Dec 62

A. Vein

<u>Block</u>	<u>Tons</u>	<u>Width</u>	<u>Grade</u>
1	600	28"	.42
2	700	21"	.52
3	600	12"	.75
4	100	10"	1.35
5	300	9"	1.13
6	1000	22"	.54
7	400	38"	1.10
8	300	12"	1.04
9	900	24"	1.13
10	900	21"	.47
11	500	18"	.59

TOTAL: 6,300 tons x 21" x 0.72

South Vein

12	500	14"	1.96
13	1300	22"	.93
14	900	18"	.52
15	600	16"	.48

TOTAL: 3,300 tons x 19" x 0.81

Main Vein

16	700	18"	.75
17	400	18"	1.11
18	300	14"	.80

TOTAL: 1,400 tons x 17" x 0.87

The total for all three veins

11,000 tons x 20" x 0.76

In calculating the above ore reserves all high erratic assays were cut, no allowance was made for dilution, tons, widths, and assays were weighted.

B. Probable Ore

The operators made no estimate of probable or geologically inferred ore.

OUTCOME

Using the above tonnage and grade figures and assuming 80% recovery of the blocks, 85% mill recovery and 10% dilution there is a gross outcome of approximately \$180,000.00

EXPLORATION POSSIBILITIES

Exploration possibilities for increasing the ore reserves are considered good. Considerable underground work is warranted to explore the lateral and vertical extensions of the known ore shoots, which in my opinion, are definitely not bottomed. The possible occurrence of parallel veins and structures should be investigated either by diamond drilling, cross-cutting or surface stripping.

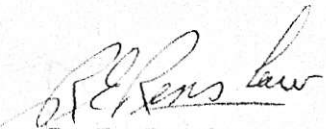
RECOMMENDATIONS

The following program is recommended as a start of a larger more comprehensive ^{one} should the results warrant it.

1. Build the short road to the property suitable for jeep or truck passage.
2. Establish a tent camp or rehabilitate one of the bunkhouses for a crew of about 10 men.
3. Strip with a bulldozer along the known extensions of the veins and also cross cut the structures to prospect for new veins.
4. Purchase small compressor and mucking machine and gain entry to as many of the workings as feasible.
5. Make a transit survey of workings.
6. Map geology, resample drifts and stopes where accessible.

The results of this work will enable a decision to be made as to the extent further underground work is warranted.

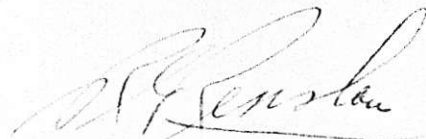
An approximate table of estimated costs is outlined in Appendix A of this report.


 R. E. Renshaw
 Consulting Geologist
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Appendix A- Table of Estimated Costs Preliminary Exploration at Bayonne Mine

1. Road Building	-----	\$5,000.00
2. Camp		3,000.00
3. Bulldozer stripping		3,000.00
4. Compressor and mucking machine		6,000.00
5. Truck or Jeep		3,000.00
6. Survey, sampling, and assays		2,000.00
7. Rehabilitation of workings		10,000.00
8. Supplies		6,000.00
9. Reserve		12,000.00

Total \$50,000.00



R. E. Renshaw


Consulting Geologist

18 Dec 62

Appendix B

I, Rodney E. Renshaw, hereby Certify

1. That I reside at 706 Southborough Drive, West Vancouver, B.C. and maintain an office at 312 Birks Building, Vancouver, B.C.
2. That I am a graduate of the University of British Columbia with a degree of Bachelor of Applied Science in Geological Engineering and have also taken two years specialized post graduate studies in geology, mining, and geophysics.
3. That I have been practising my profession as a consulting geologist during the past 16 years.
4. That I have no interest either direct nor indirect in the property or securities of Bayonne Mine Ltd., nor do I expect to receive any.
5. That this report is based on my personal knowledge of the area, discussions with engineers familiar with the property, and on data compiled from existing records and reports as outlined in the Introduction to this report.


Rodney E. Renshaw
Consulting Geologist
18 Dec 62