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REPORT ON TRANSELL CREEK PROPERTY OF PRIVATEER GOLD MINES LIMITED

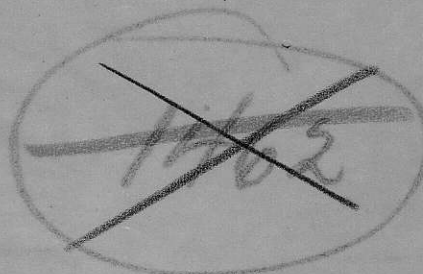
(TODINO GOLD MINING COMPANY LIMITED)

by

Garnet C. McCartney

and

Stuart S. Gilmore



October 16, 1947

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REPORT ON FRANKLIN CREEK PROPERTY OF PRIVATEER GOLD MINES LIMITED

(NOYER GOLD MINING COMPANY LIMITED)

By G. C. McFARLANE and S. S. GILBERT

SYNOPSIS:

The writers spent the period from September 29th to October 7th in examination of the underground workings present on the property. The examination consisted of a study of the structural features of the veins with especial regard for problems involved in mining. Also, a check of the grade of the material was made and to do this some 153 samples were taken.

Detailed maps showing all development work have been prepared by the Consulting Engineer, Mr. A. M. Richmond. Since these maps and accompanying reports are available, the writers do not here repeat the many pertinent features portrayed.

Mr. M. E. McConnell assisted the writers in their examination and his efforts in this regard were very much appreciated.

LOCATION

The property is located on the west coast of Vancouver Island, three miles from tidewater, at an elevation of 1,000 to 2,500 feet. The nearest settlement is the town of Tofino, which in turn is distant exactly fifty miles by air due west of Port Alberni, Vancouver Island. Tofino is a regular port of call for boats from Port Alberni, Victoria and Vancouver.

RECOMMENDED PROGRAMME AND ESTIMATED COSTS

There is little doubt from the rather abundant information now available that the development is an important one. There appears to be at least a small mine present and, from a rather cursory study of the main structural features associated with the orebodies, there is a chance that a mine of considerable size may be present. The writers believe that steps should be taken to develop the property in a more elaborate manner. In order to do this, it is recommended that the development take place in two stages, the scope of the second stage to depend largely upon the results obtained in the first.

The development plans for the first stage include driving the 1500 level a distance of 1,500 feet along the "break" in a south-westerly direction. Raises from this drift will provide a means of extracting ore already indicated to be present on the 1700, 1900 and 2100 foot levels and, also, this heading will provide an opportunity of taking additional samples, especially such samples, and thus serve as an excellent means of ascertaining the grade which can be expected in actual mining operations.

Recommended Programme and Estimated Costs (Continued)

Surface sampling within the "break" and described by Richmond as Block "A" indicates that ore may exist in this area also. The writers believe this section should be tested by driving an adit on the 1200 level a distance of at least 500 feet. If it can be shown that ore exists in the "break" in this area, it will very materially add to the overall ore picture and will greatly influence the scope of the development undertaken in the second stage.

Also, during Stage No. 1, the opportunity can be taken to sample more thoroughly the ore shoots already indicated on the other levels.

In order to carry out the first stage of the programme, it will be necessary to obtain diesel power, to construct a road and to construct an incline surface tram to provide adequate facilities for doing the work. The cost of this programme is in the order of \$100,000 and is summarized in accompanying SCHEDULE "A".

If, as anticipated, the results of the first stage of development are encouraging, then the second stage of development will take place. The second stage involves driving a haulage level a distance of 3,000 feet and the driving of a number of raises and ore passes. At this time, it will be necessary to construct more roads, build a dock, establish camp buildings, and install a hydro electric source of power. Also, during this stage of development a mill will be constructed. The accompanying SCHEDULE "B" gives an estimate of the cost of the second stage of development. The total expenditure indicated in SCHEDULE "B" is \$582,384 or, in round numbers, \$600,000. When carried to completion, SCHEDULE "A" plus SCHEDULE "B" will involve a total expenditure of \$700,000 and, by this time, the mine will be in a position to provide at least 150 tons of ore per day and possibly considerably more.

GENERAL GEOLOGICAL DESCRIPTION

The rocks present in the immediate vicinity of the mine represent a sequence of volcanic flows, tuffs and agglomerates. Some amygdaloidal lava was noted and the writers were particularly interested in observing the presence of dikes of intrusive volcanic material. One of these dike-like bodies is readily recognized by the presence of clusters of dark green chlorite in a matrix of lighter green chloritic material. This is particularly significant because, in large part, the veins tend to follow and to be present within this particular formation.

The writers quote from Dr. Gunning when he says, "The closest major body of granitic rock is about three-quarters of one mile south of the mine." Also, he reports that, "Granite is present about one mile north of the mine. East and west from the mine, along the strike of the ore zone, the nearest major intrusive is about two miles distant."

STRUCTURAL GEOLOGY

A remarkable feature of the "break" in which the ore is present is its continuity. It is readily recognized by the presence of a most persistent mud seam, which may consist of one seam only, 1 inch to 5 inches wide, but very often consists of two parallel mud seams, approximately 3 feet apart. The "break" can be traced from the scene of the mine workings along strike a distance of one-half mile. It strikes north-eastward and dips north-westward. The angle of dip varies from 65 to 70 degrees. Usually, adjacent to the mud seam, the wall rocks are sheared.

QUARTZ VEIN OCCURRENCES

Within the mud seams there have been developed gold-bearing quartz veins. For the most part, the quartz varies in width from 3 inches up to 1 foot. A considerably greater width of quartz is present near the portal section of the 1900 level but in the other workings seldom does any one quartz vein exceed 1 foot in width. Fortunately, however, there are nearly always two quartz veins present and the intervening distance between the two veins rarely exceeds 3 feet. Therefore, it is feasible to mine the two veins in one stoping operation. The veins are remarkably uniform in their development but they do, at times, pinch out and are again developed within the mud seam farther along strike. Occasional branch vein structures are present as noted near the inside end of the 2100 level adit.

There has been rather extensive oxidation of the quartz veins with the result that the quartz is a rusty-brown colour. There are a few places however, in which the vein quartz is relatively fresh in appearance, milky-white in colour, and contains clusters of galena and sphalerite. These minerals are arranged in parallel rows, apparently following a banded structure within the quartz. Associated with the galena there is fine, visible gold. For the most part, this type of mineralisation is not recognisable because oxidation has destroyed the sulphide minerals. Although gold is not readily recognized within the oxidized quartz, there are sufficiently numerous high assays obtained to indicate that free gold is present in many places.

Development to date shows that oxidation of the quartz vein material extends at least to a depth of 400 feet below the surface. One of the important points which it is necessary to observe in continued development of the veins is the possible chance that the grade of the veins will change below the zone of oxidation. With the possible exception of the fresh, milky-white quartz vein, described in paragraph above, all vein material exposed by the development is in oxidized material. Since the gold noted in relatively fresh vein material is closely associated with unoxidized galena, the writers are inclined to the view that values will continue into unoxidized vein material. One of the interesting points which will possibly be determined in the driving of the 1500 level adit (recommended in this report) will be a determination of the amount of gold present in the vein structure at this horizon, since it may be sufficiently far below surface to expose unoxidized vein material.

MINING CONDITIONS

The quartz veins and the adjacent wall rocks are intimately fractured. Oxidation is prevalent in the quartz veins especially and this feature, along with the attendant mud seams, gives rise to relatively soft rock within the vein and very often adjacent to it. This characteristic of the vein and adjacent rocks is illustrated by the fact that all adits developed to date have been excavated by hand steel methods and it is reported that, in at least one instance, one case of powder was sufficient to remove the rock from 35 feet of drift. There is a shear structure and sometimes a platey fracture pattern developed within the rocks adjacent to the veins and, because of this condition, there is a tendency for the rocks to slough when unsupported. The rocks, near the portals of the adits; i.e., the area within 250 feet of the surface, are more broken and require more support than the areas within the mountain. It is apparent that support will have to be given the walls of the stopes and that, especially in the areas near the surface, cut and fill stoping methods will probably have to be employed. Within the mountain, shrinkage stopes are feasible. There will be dilution of the vein material by the wall rocks during mining operations and, unless very careful mining is done, this will be a serious factor. The dilution factor may be as much as 20 percent but it is thought that most of the waste rock can be removed during stoping operations and from a picking belt.

SAMPLING METHODS

Until the time of the writers' sampling, the method employed by previous engineers consisted of taking channels across quartz vein material only. Since the quartz veins are narrow, it was necessary to compute the grade over a mining width. The assay results of a number of wall rock samples, taken by Richmond, indicated to him that an assay figure of 0.05 oss. could be accepted for the wall rock material. In an attempt to support this method of sampling, and also as a means of checking the grade which might be expected in mining, the writers took some 153 samples and, except in certain special cases, took them in such manner as to obtain an actual assay of the veins and the adjacent wall rocks which would necessarily have to be mined along with the vein. Samples were taken across a width never less than 3.5 feet, this width being regarded as a minimum mining width. Unfortunately, because of the presence of lagging, very little sampling could be done in the portal areas. However, it is thought that sufficient sampling has been done to give a check on all previous sampling and also to give a picture of the results which can be expected in actual mining.

There were no muck samples taken during the excavation of the adits. This is unfortunate since a complete sequence of muck sample assays would serve to give an excellent overall grade figure. The lack of muck sample records is one of the points which motivates the writers when they recommend that additional adit driving be done on the veins before a major mining programme is undertaken.

ESTIMATED GRADE OF ORE FROM ASSAY RESULTS OBTAINED AND COMPARISON WITH RICHMOND'S RESULTS

In the following table there is summarized the results obtained in the sampling done by the writers.

<u>Level</u>	<u>Block (Richmond)</u>	<u>Length Ft.</u>	<u>Width Ft.</u>	<u>Grade (Uncut)</u>	<u>Grade (Cut to 1 Oz.)</u>	<u>Grade (Cut to Ave.)</u>	<u>Composite Assays</u>
2100	1/2 L. to face	80	4.0	0.58	0.51	0.42	0.56
2100	1/2 L.	140	3.5	0.34	0.15	0.18	1.20 *
1900	1/2 J. to face	115	3.6	0.59	0.36	0.31	0.66
1900	G. (main part)	1135	5.7	0.68	0.51	0.42	0.70
1700	C. to 1/4 D.	150	4.6	0.73	0.51	0.42	0.56
1700	1/4 E. to face	100	4.0	0.31	0.31	0.20	0.28
1500	B.	<u>65</u>	<u>3.5</u>	<u>0.26</u>	<u>0.26</u>	<u>0.25</u>	<u>-----</u>
		785					
	<u>AVERAGE</u>		<u>4.2</u>	<u>0.55</u>	<u>0.40</u>	<u>0.33</u>	

The computations are made in such manner as to show the grade for each section; first, uncut; second, with all assays which exceed 1 oz. cut to 1 oz.; and, third, with all assays higher than the average grade of the section cut to the average grade. It is noted the average width of all sections assayed is 4.2 ft., the grade uncut is 0.55 oss., when cut to 1 oz. is 0.40 oss., and when cut to the average is 0.33 oss.

The average overall grade of ore, as determined by Richmond, is 0.395 oss. and to obtain this figure he cut all assays above 1 oz. to 1 oz. As shown in table, the writers obtained exactly the same grade when they cut all 'high' assays to 1 oz. This is a remarkable check and indicates there must be a considerable consistency of gold values when the entire picture is considered.

Since some 14 percent of all samples taken by the writers yielded assays higher than one ounce, there is considerable justification for assuming that it is sufficiently conservative to cut 'high' to 1 oz. Also, as a means of checking methods of cutting 'high' assays, a number of composite samples were assayed. These results consistently checked either the uncut grade or a point part way between the uncut grade and the grade when 'high' are cut to 1 oz. This suggests that cutting to 1 oz. is more nearly correct than cutting to the average.

Insofar as possible, the writers attempted to sample not only the sections shown by Richmond to be of ore grade but, also, to sample the intervening areas which he found to be below ore grade. In an attempt to compare the results obtained by the writers with those of Mr. Richmond, the following table is given:

* Note In this particular section, because of the presence of lagging, only the vein itself was sampled. The uncut grade for the vein only is 1.20 oss. and thus the composite sample assay result checks the uncut assay grade for the section exactly.

Estimated Grade of Ore From Assay Results Obtained and Comparison with Richmond's Results (Continued)

Level	Richmond Block	Richmond Grade - Width	G.C. McC. - S.S.G. Grade - Width	G.C. McC. - S.S.G. Block
2100	L.	0.39 4.2'	0.42 4.0'	(S.W. half of L.)
2100	L.		0.15 3.5'	(N.E. half of L. & part of area between L. & K.)
1900	J.	0.66 3.9'	0.36 3.6'	(S.W. half of J.)
1900	G.	0.36 6.1'	0.51 5.7'	(G.)
1700	C.	0.91 5.0'	0.51 4.6'	(C. plus one-quarter D.)
1700	E.	0.27 4.6'	0.31 4.0'	(One-quarter E. to face)
1500	B.	0.26 4.5'	0.26 3.5'	(B.)
Surface	A.	0.30 3.8'	0.36 3.7'	(Only 4 trenches sampled)

It is observed that, with the exception of Block "B", no precise correlation is possible between the assay results obtained by Richmond and those obtained by the writers. This is due mainly to the fact that only in one instance was it possible to sample exactly the same section as that sampled by Richmond. In this instance, namely, Block "B", the writers obtained the same grade over a width of 3.5 feet as that obtained by Richmond over 4.5 feet.

It is worthy of observation that in some 25 samples of wall rock taken by the writers, seven samples showed only a trace of gold and the arithmetic average in the 25 samples shows the wall rock to carry 0.04 oss. in gold. This checks, fairly well, Richmond's conception that the wall rock to carry 0.04 oss. in gold. This checks, fairly well, Richmond's conception that the wall rock contains 0.05 oss. in gold.

HYDRO-ELECTRIC POWER DEVELOPMENT

An important water power development is feasible in a stream about one mile distant from the proposed mill site. A head of 900 feet is available and apparently it is possible to place a small dam near the headwaters to give a relatively steady flow of water throughout the year.

ESTIMATED MINING COSTS AND POSSIBLE OPERATING PRICES

Mining -	Stopping,.....	\$4.00 per ton		
	Tramming & Hoisting,...	.60 " "		
	General U. G.,.....	.80 " "		
	Supervision,.....	.35 " "		
	Exploration & Deval.,..	.60 " "	\$6.35 per ton	
Milling -			\$2.00	
Overhead-	Cookhouse,.....	\$0.25 per ton		
	Office Management.....	0.45 " "	\$0.70 " "	\$9.05 per ton
	Contingencies, such as increased wages, (5%)			.45 " "
				\$9.50 per ton

Estimated Mining Costs and Possible Operating Profit (Continued)

Preliminary tests indicate that a high recovery of gold can be obtained from the ore. A recovery of 96 percent is assumed.

The following correlations show the possible operating profit, supposing, (1) the overall grade is 0.33 oss., and supposing, (2) it is 0.40 oss.

Recovery Grade, 96%, (0.33 oss.)	\$11.55	\$11.10	(0.40 oss.)	\$14.00	\$13.44
Cost, Mining & Milling.....		<u>9.50</u>			<u>9.50</u>
Operating Profit per ton mined		<u>\$ 1.60</u>			<u>\$ 3.94</u>

On a basis of a 150-ton per day unit, the operating profit in the first instance is close to \$100,000 per year, and in the second is a little greater than \$200,000 per year. From the evidence at hand, it would appear that an operating profit in the order of at least \$150,000 per year can be expected.

.....
 Garnet C. McCartney

.....
 Stuart S. Gilmour

COST OF PROGRAMME

SCHEDULE "A"

EXPLORATION DEVELOPMENT

Drive, 1500 Level,	1,000 ft. @ \$15.00	\$15,000.00	
Drive, 1200 Level,	500 ft. @ \$15.00	7,500.00	
Raise, 1500 - 1700 Levels	200 ft. @ \$20.00	4,000.00	\$ 26,500.00

CONSTRUCTION

Road, 1 mile		\$16,000.00	
Trail, Incline to Craig Tunnel,			
	1,500 ft. @ \$ 0.25	500.00	
Camp Buildings:-		2,000.00	
Incline Surface Tram	(2,500' @ \$4. for labour	10,000.00	
	(3,000' cable @ 10 Cents	500.00	
	(Bull Wheels & Blocks	500.00	
	(Rail, 2,500' @		
	17 tons @ \$100.00	1,700.00	
	(Hoist & Engine	2,000.00	
	(Gage	500.00	\$ 33,700.00

EQUIPMENT

Tractor and Bulldozer, D-6		\$12,000.00	
Truck		3,000.00	
Portable Diesel & Compressor (210 cu.ft.)		7,000.00	
Pipe, 1" - 2,000 ft. @ 30 Cents		600.00	
Pipe, 2" - 3,500 ft. @ 30 Cents		1,050.00	
Rail, 16# - 4,000 ft. @ \$100.00		1,100.00	
Cars, 3 @ \$300.00		900.00	
Fan Pipe, 2,000 ft. @ \$1.00		2,000.00	
Rock Drills & Equipment, 2 @ \$700.00		1,400.00	
1 Stoper and 1 Plugger		800.00	
Detachable Bits and Steel		400.00	
1 Tagger		200.00	
3 Columns		300.00	
Carbide Lamps		100.00	
Camp Lighting and Radio Phones		2,000.00	
Boat		500.00	\$ 33,350.00

			\$ 99,550.00
Contingencies, 10%			9,350.00
			<u>\$102,900.00</u>

COST OF PROGRAM

SCHEDULE OF

MINE DEVELOPMENT

Drive, Haulage Level	3,000 ft. @ \$15.00	\$45,000.00	
Raises	2,500 ft. @ \$20.00	50,000.00	
Stope Preparation		<u>2,000.00</u>	\$ 97,000.00

CONSTRUCTION

Road, 1 1/2 miles @ \$3.00/ft.		\$25,000.00	
Dock,		10,000.00	
Camp Buildings,		25,000.00	
Houses,		25,000.00	
Incline Tram - portal area:			
1200 ft. @ \$4.00		4,800.00	
2400 ft. cable @ 10 Cents		240.00	
Roll Wheel & Blocks		500.00	
Rail, 1200 ft. @ \$3.00/ton		900.00	
Hoist & Engine		2,000.00	
Cage,		<u>300.00</u>	\$ 93,940.00

MILL

\$200,000.00

HYDRO ELECTRIC INSTALLATION

Generator			
Pelton Wheel			
Penstock, 2,000 ft.			
Flume, 1,000 ft.			
Trans. Line			
Other Equipment			
Buildings			\$100,000.00

EQUIPMENT

Truck	\$ 3,000.00	
Light Truck	<u>1,500.00</u>	\$ 4,500.00
Diesel Standby, 100 H.P., & Generator		\$ 3,000.00
Sawmill		\$ 2,000.00
Mine Equip., (Cars, Mucking Machine, Drills, Pipe, Track, Etc.)		\$ 15,000.00
Locomotive		\$ 5,000.00
Assay Office		<u>\$ 3,000.00</u>
		\$529,440.00
Contingencies, 10%		<u>52,944.00</u>
		<u>\$582,384.00</u>

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PRIVATEER MINE LIMITED

602 - 475 Howe Street,
Vancouver, B. C.

July 17th, 1947.

G. C. McCartney, Esq.,
c/o Transcontinental Resources,
3100 Bank of Commerce Bldg.,
Toronto, Ontario.

Dear Sir:

By request of Mr. W. B. Milner, we are sending you, under separate cover, copy of a report by Mr. A. M. Richmond on property on Tranquil Creek Tofino Inlet on the West Coast of Vancouver Island for your perusal and consideration.

We will be obliged if you will kindly return the report to us as soon as you are finished with it.

Yours truly,

PRIVATEER MINE LIMITED

per "D.S.Tait"

D. S. TAIT
President

DST:CTW

Report enclosed herewith.

MEMORANDUM

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To: Mr. W.B. Milner,
President,
Transcontinental Resources Limited,
301 Royal Bank Building,
Vancouver, B.C.

August 12th, 1947.

From: C.H.E. Stewart.

Subject: TOFINO GOLD MINES LIMITED
(Tranquil Creek Option)
(Privateer Mines Ltd.)

A study of the data on the above property as contained in the report of A.M. Richmond, indicates that this property has an excellent chance of becoming a profitable operation. Richmond estimates 76,060 tons grading 0.453 ozs. per ton (uncut), or 0.395 ozs. per ton (cut). This indicates a total gold content of 30,100 ozs.

A feature of the property is the fact that all the work has been done by hand steel. There is no mining plant installed. The vein occurs in a shear zone and consists of two quartz veins, with a central core of sheared dyke material. A remarkable feature of the deposit is the fact that values are continuous throughout the entire length of the vein exposures in the various tunnels. In places the average grade as exposed in the tunnels is below payable value. The average gold content over the entire length of the vein, as exposed in the various tunnels, averages payable grade, however. All the tunnel faces also show values. It is my opinion that the whole vein length might be minable. There are also excellent chances to extend the vein further into the hill in all tunnels and to open up more ore by driving tunnels at deeper horizons and possibly eventually by sinking a shaft when it is no longer feasible to obtain further tunnel sites at lower elevations.

In other words there is a definite chance to ultimately develop two to four times the presently indicated tonnage.

Richmond estimates an operating cost of \$7.00 per ton and assumes a recovery of 99%. Tests on the ore actually gave this recovery, but in my opinion a recovery of 96% would be a safer figure. I also think that a mine cost of possibly \$8.00 to \$8.25 per ton would be safer. It is a fact, however, that the ore drills very easily and that powder consumption in breaking the vein is remarkably low.

It will require \$500,000 to \$600,000 to further explore, equip, and prepare the property for production. This would involve building of camps, installing mining plant, mill tramline to tunnels, and a hydro-electric power plant. The power plant would be of the high-head Pelton type and it is stated there is a good site on the property. It is my considered opinion that we should make every effort to complete a satisfactory deal on the property. It is further recommended that further negotiations be continued with Mr. D.S. Tait in this respect.

(initialled) "C.H.E."

C. H. Stewart.

ches/mp.