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Report on the Ore Reserves at the Tranquil Creek
Option properties, Tranquil Creek, West Coast of
Vancouver Island, British Columbia, for Privateer
Mine Limited, N.P.L., as at June 10th, 1947.

by

A. M. Richmond, P.Eng.
Consulting Mining Engineer,
Vancouver, B. C.,
June 28th, 1947.

Vancouver, B. C.,
June 28th, 1947.

The President & Directors,
Privateer Mine Limited, N.P.L.
Vancouver, B.C.

Gentlemen:-

Re: Tranquil Creek Option, West Coast, V.Ial.

In accordance with your instructions I made a detailed examination of the properties embraced by the Tranquil Option, which properties are embraced in an agreement dated February, 1946, between your Company and one Elmore Meridith, between the 3rd and 10th of June 1947. This examination was for the purpose of determining your Company's position under the terms of the said option agreement, with more particular reference to sub-section (b) of Clause 4, page 6 of the agreement. This sub-section more specifically states as follows:-

"(b) if upon the recommendation of the engineer or engineers of Privateer, Privateer shall determine to do mining development work elsewhere on the said properties than drifting as described in sub-paragraph (a) above and if said mining development work is commenced on or before 1st April, 1946 and mining development work is carried on continuously anywhere on the said properties with a sufficient crew of men to a point where the engineer or engineers of Privateer shall certify that sufficient ore has been developed within the said properties to justify the erection of a mill of a minimum milling capacity of one hundred and twenty-five (125) tons per day (which said mining development work is hereinafter called the "said development work"). But in any event to any date not later than 1st July."

Your company elected to do mining development work on the Tranquil Creek properties under the terms of this sub-section of the Agreement, and as you are aware from the progress reports of your Managing-Director, H. E. McConnell, and my interim reports of February and April, 1947, mining work has been done continuously and at various parts of the property, both on the surface and in underground development work.

In order to determine what minimum requirements should be met to justify proceeding to the construction of a 125-ton per day milling plant, I suggested in my report of February, 1946, that 100,000 tons of ore averaging 0.30 ounces gold per ton should be the minimum requirement. This in effect requires a total of 30,000 ounces of gold as a minimum requirement.

I am pleased to certify to you that as of June 10th, 1947 there has been developed as proved and probable ore reserves at the Tranquil Creek properties a total of 76,060 tons of ore averaging 0.453 ounces of gold on uncut assay grade, or 76,060 tons of ore averaging 0.395 ounces of gold on a cut assay grade. This is equivalent to a total of 34,500 ounces of gold on the basis of uncut assay grades, or 30,100 ounces of gold on cut assay grades, or just over the minimum requirements I had suggested before your Company commenced mining development work at the property early in 1946.

While my estimates have had to conform strictly to good engineering practice, and in so doing it has not been possible to permit estimates to take in as proved ore, the vein which lies more than 50 feet away from the openings sampled, or as probable ore the vein which lies further away than 75 feet from the openings sampled, I am of the considered opinion that the material between the blocks (Map No.2), above and below the probable ore shown, will be found to contain a very substantial tonnage of ore equal in grade to that included in the official estimates. In support of this opinion I would point out that in the more than 1075 samples which have been included in the estimates, and which have been taken throughout the underground and surface workings, there have been no samples which showed valueless vein filling, and the assay average of the entire underground development work on the vein shear shows an average assay value of 0.328 ounces gold across a mining width of 5.05 feet in the 1895 feet of drifting on the vein in the 4 levels worked in. True, sections of the vein are too low in assay grade to be mined, but it is interesting to note the absence of entirely barren assay sections, and to further note that much of the drifting which has not been included in the estimates will assay between \$3 to \$5 per ton in gold values (gold @ \$35 per ounce). There is therefore in the present workings a considerable tonnage which although not defineable as either proved or probable ore reserve, can certainly be considered as much better than what might be ordinarily called possible ore.

The various blocks of proved and probable ore are shown in detail on Map No.2 with this letter report, the figures in red being the cut assay grades.

The assay sheets, Maps No.3, 4, 5, 6, and 7, are made up from computed averages of several samples and expanded over the measured mining width at the assay points shown. The dyke filling between the mining walls was sampled at 29 places, and values averaged 0.09 ounces gold per ton (eliminating one assay of 0.60 ounces gold across a dyke width of 4.0 feet). I have used a value of 0.05 ounces gold per ton for the dyke value in my estimates. It was found that where the vein values are best the dyke seems to average somewhat better than where the vein values are low. The values in the dyke would appear to occur along knife-blade fracture planes and are believed to originate from the vein mineralizing solutions. Narrow veinlets of oxidized quartz are often noticed in the dykes between the hanging-wall and footwall quartz veins.

The widths used, and to which the assay values have been expanded, are not in all cases the distances between the hangingwall of the hangingwall vein and the footwall of the footwall vein, but are measured distances between the walls to which it is apparent underground that the dyke will break when mining

operations are undertaken. Frequently this distance is greater than the wall to wall distance between the quartz veins, but I believe it is prudent to consider mining dilution in this way.

On the basis of mining 200 tons per day, sorting approximately 40% by trommel washing and picking, and milling 120 to 125 tons daily in a cyanide plant, from which better than 99% recoveries of the gold will be made according to preliminary mill tests which have been run, I believe that with careful and economical management, costs of approximately \$7.00 per ton can be obtained under present supply conditions and with somewhat better labour conditions than now exist. The profits should be as follows:

Revenue: recover 99% of 0.395 oz. gold at \$35.00 per ounce	\$13.68
Costs: Mining, development, timbering, etc.....	\$2.50
Tramming, sorting, etc.....	.60
Milling, power, etc.....	2.20
Overhead, taxes, miscellaneous	1.70
	7.00
Profit per ton of ore mined	\$6.68
Profit on 76,060 tons @ \$6.68 per ton	\$500,000 plus

From this would have to be deducted the cost of the work to date, the cost of plant and equipment, and camp equipment and transportation, etc. It is estimated the property could be prepared for production for somewhat less than \$400,000.

The present and readily available proved and probable reserves are sufficient in my opinion to justify proceeding with mill installation.

I believe that when the property is fully developed you will find a very much larger tonnage of ore than is presently in reserve, and I should not be surprised if the property ultimately produces upwards of 300,000 to 400,000 tons of ore grading better than 0.30 ounces gold per ton. The vein shear is remarkably strong. It has been opened along a length of 3100 feet and through a vertical range of more than 1000 feet. The 1900 feet of underground drifting on the vein shear has shown 1157 feet of the drifting to be in ore, better than 60% and each foot of underground drifting on the shear has placed in proved and probable ore reserve more than 37 tons of ore. Both ends and at depth on the shear are still open for further ore discoveries, and prior to actual completion of mill construction and equipment of mine plant, etc., the work of preparing the property for production will have added many thousand tons of ore to the reserves.

I have therefore no hesitation in certifying that sufficient ore has been placed in proved and probable reserve as of June 10th, 1947, to justify the erection of a mill of a minimum milling capacity of one hundred and twenty-five (125) tons per day, and I would further recommend to you that this work be proceeded with as soon as possible

All of which is respectfully submitted,

Yours faithfully

"A. M. Richmond"

A. M. Richmond. P.Eng..

Ore Reserves Summary

Block	Proved			Probable		
	Tons	Grade	Cut	Tons	Grade	Cut
A -	0	0		4400	0.302	- 0.30
B -	2260	0.257	- 0.26	1130	0.257	- 0.26
C -	1595	1.248	- 0.91	470	1.248	- 0.91
D -	7920	0.306	- 0.31	3960	0.306	- 0.31
E -	2440	0.273	- 0.27	1220	0.273	- 0.27
F -	6600	0.382	- 0.36	3000	0.382	- 0.36
G -	6785	0.368	- 0.36	3395	0.368	- 0.36
H -	2310	0.280	- 0.28	1155	0.280	- 0.28
J -	5815	0.886	- 0.66	4105	0.886	- 0.66
K -	3315	0.366	- 0.36	1155	0.366	- 0.36
L -	7830	0.481	- 0.39	5200	0.481	- 0.39
TOTALS	46,870	0.458		29,190	0.445	

Proved 46,870 tons @ 0.458 oz. Au. per ton - 0.399
Probable 29,190 tons @ 0.445 oz. Au. per ton - 0.390

Total 76,060 tons @ 0.453 oz. Au. per ton - 0.395

TOFINO GOLD MINING COMPANY LIMITED

1500 Ft. Level

Composite Sample

Composite Assay

BLOCK "B", plus distance to face.

Length,	-	160 ft.
Width,	-	4.0 ft.
Uncut Grade	-	0.19 oz.
Cut to 1 Oz.	-	0.19 oz.
Cut to Average,	-	0.15 oz.

0.18

①

Samples Numbered 630-8, 716-22.

16 Samples

0.18

Oct. 14th/47.

TOPIC GOLD MINING COMPANY LIMITED

1700 Ft. Level

Composite Sample

Composite Sample

BLOCK "C" to and including 1/4 "D"

Length,	-	150 ft.
Width,	-	4.6 ft.
Uncut Grade,	-	0.73
Out to 1 Oz.,	-	0.51
Out to Average,	-	0.42

①	<u>Samples numbered 580-90 and 603-5.</u>	14 Samples	.56
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BLOCK 1/4 "E" to face

Length,	-	100 ft.
Width,	-	4 ft.
Uncut Grade,	-	0.31
Out to 1 Oz.	-	0.31
Out to Average,	-	0.20

②	<u>Samples numbered 591 - 602 (599 missing).</u>	<u>11 Samples</u>	
		<u>25 Samples.</u>	.28

Oct. 14th/47.

TOFINO GOLD MINING COMPANY LIMITED1900 Ft. LevelComposite SampleBLOCK 1/2 "J" to Face

Length,	- 115 ft.
Width,	- 3.6 ft.
Uncut Grade,	- 0.59
Cut to 1 Oz.,	- 0.36
Cut to Average,	- 0.31

*Composite*④ Samples numbered 606-19.

24 Samples .66

BLOCK "G" (Main Part).

Length,	- 135 ft.
Width,	- 5.9 ft.
Uncut Grade,	- 0.68
Cut to 1 oz.	- 0.51
Cut to average,	- 0.42

⑤ Samples numbered 620-29.

10 Samples .70

34 Samples

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TOPINO GOLD MINING COMPANY LIMITED

2100 Ft. Level

Composite Sample

BLOCK 1/2 "L" to Face

Composite

Length,	- 80 ft.
Width,	- 4.0 ft.
Uncut Grade,	- 0.58
Cut to 1 Oz.,	- 0.51
Cut to average,	- 0.42

④ Samples numbered 651-9. 9 Samples .56

BLOCK 1/2 "L" (Portal Side)

Length,	- 140 ft.
Width,	- 3.5 ft.
Uncut Grade,	0.34
Cut to 1 Oz.	0.15
Cut to Average,	0.18

⑦ Samples numbered 692, 694-8, 700, 702-7, 71. 13 Samples 1.20

22 Samples.

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Composite - Surface Pits

TOFINO GOLD MINES LIMITED

92F

<u>Sample No.</u>		<u>Place</u>	<u>Width</u>	<u>By</u>	<u>Au.</u>
723	Cut	250 E. H.W.	3.3'	S.G.	0.02
724		250 E. F.W.	4.8'	G.M.	0.18
725		640 E.	4.1'	G.M.	0.06
726		690 E.	4.3'	S.G.	0.24
727		735 E.	3.3'	G.M.	0.84
728		820 E.	4.0'	G.M.	0.30
729		940 E.	3.2'	S.G.	0.22
730		1070 E.	5.3'	S.G.	0.02
731		1300 E.	3.5'	G.M.	0.32
732		1440 E. Vein only	1.2'	G.M.	0.10
733		1520 E.	5.3'	G.M.	<u>0.12</u>
					<u>2.42</u>
					11
					<u>0.22</u>

Length = 243'
 Width = 3.7'
 Grade = .38%
 28

.48

Copied: Oct. 13th/47.

J. R. WILLIAMS & SON

PROVINCIAL ASSAYERS

BASEMENT, ARTS & CRAFTS BLDG.
576 SEYMOUR STREET

VANCOUVER, B.C. Oct. 11th. 194 7.

RESULTS of Assays made on samples of ore submitted by **Messrs. Management & Services Ltd.**

MARK	Gold Ozs.p/t	MARK	Gold Ozs.p/t	MARK	Gold Ozs.p/t	MARK	Ozs.p/t.
No. 580. 5.5	0.10	No. 623. 5.5	0.60	No. 677.	0.20	No. 719. 4.8	0.10
581. 5.0	0.12	624. 5.3	1.84	678.	0.02	720. 3.5	0.08
582. 4.7	0.18	625. 5.9	0.38	679.	0.02	721. 4.6	0.06
583. 4.0	0.54	626. 5.3	0.20	680.	0.10	722. 3.5	0.02
584. 4.2	1.08	627. 5.8	1.24	681.	1.24	723.	0.02
585. 4.6 (2)	1.20	628. 5.6	1.68	682.	0.24	724.	0.18
586. 5.0	0.88	629. 5.2	0.60	683.	2.08	725.	0.06
587. 5.2	0.20	630.	0.24 (3.5)	684.	0.04	726. 4.3	0.24
588. 4.9	0.88	631.	0.20	685.	trace	727. 3.3 (2)	0.84
589. 4.8	0.26	632.	0.30	686.	2.62	728. 4.0	0.30
590. 6.0	0.16	633.	0.32 (1)	687.	0.05	729. 3.2	0.22
591. 4.6	0.06	634.	0.36	688.	4.40	730.	0.02
592. 4.5	0.30	635.	0.24 (5.5)	689.	0.08	731.	0.32
593. 4.3	0.38	636.	0.30 (1.5)	690.	1.88	732.	0.10
594. 3.6	0.48	637.	0.18 (5.5)	691.	trace	733.	0.12
595. 4.1	0.36	638.	0.12 (5.5)	692. 1.0 (1)	0.34		
596. 3.7 (3)	0.58	639. 4.3	0.60	693.	trace		
597. 4.0	0.86	640. 4.4	0.60	694. 1.5	1.92		
598. 3.5	0.03	641. 4.3	0.12	695. 1.3	0.72		
600. 3.8	0.16	642. 3.5	1.00	696. 1.4 (1)	0.80		
601. 3.5	0.12	643. 3.9	0.16	697. 1.5	0.36		
602. 4.1	0.10	644. 3.7 (1)	0.24	698. 1.2	0.20		
603. 3.5	0.28	645. 3.9	0.60	699.	0.04		
604. 3.5 (2)	1.80	646. 3.7	1.68	700. 0.7 (1)	0.16		
605. 3.5	3.80	647. 3.6	0.06	701.	0.04		
606. 3.5	0.12	648.	0.03	702. 0.9	0.48		
607.	0.24	649.	0.28	703. 0.9	8.92		
608.	1.60	650.	0.02	704. 0.8 (1)	0.30		
609.	0.24	651.	0.01	705. 0.9	0.20		
610.	0.32	652.	1.26	706. 0.8	0.34		
611.	0.40	653.	0.02	707. 0.3	0.36		
612.	0.28	654.	0.18	708. 2.3	0.04		
613. (4)	0.28	655.	2.60	709.	0.02		
614.	0.16	656.	0.02	710.	0.12		
615.	0.36	657.	0.10	711.	0.20		
616.	0.34	658.	0.14	712.	0.03		
617. 4.0	1.60	659.	0.02	713.	trace		
618. 3.5	2.60	660.	0.03	714.	0.24		
619. 4.2	0.12	661.	0.005	715.	trace		
620. 4.4	0.24	662.	0.12	716. 5.8	0.22		
621. 5.4	0.16	663.	trace	717. 4.8	0.24		
622. 6.2	0.06	664.	0.20	718. 5.2	0.20		

(5)

(1)
Assays made by