

C. E. E. MITSON

673687

Wingdam

93H/4

APPENDIX - Section 1

May 15th, 1975.

Mr. George Loy, President,
Oriana Developments Ltd.,
417 - 402 W. Pender St.,
Vancouver, B.C.

Dear Sir:

We are pleased to submit herewith a report compiled by Mr. E.E. Mason, P.Eng., of Dolmage Mason & Stewart Ltd., Consulting Engineers of Vancouver, B.C., concerning the Wingdam, B.C., placer deposit.

We agree that the underground approach is feasible and that the open pit possibilities can be disregarded.

We concur with Mr. Mason's recommendation that the next step in the exploration and development of this property should be the completion of 30 drill holes, spread over two or three locations as mentioned in his report, such program to require direct costs of \$69,000.

It will be noted that the first five or six holes will be drilled so as to intersect the remaining part of the known channel containing high grade values in the area previously worked from the No. 1 Raise Downstream entry. This previous recovery of gold is detailed in the third paragraph on page 16 of Mr. Mason's report.

We confidently expect that these first five to six holes will return closer to the 3.0 ounces per yard in gold content as quoted to have been encountered by actual drifting along this section of the channel, in comparison to Mr. Richmond's prior estimates of 1.5 to 2.3 ounces per cu. yd. It is our impression, furthermore, that the gold values in this drifting were uniformly distributed and not in an erratic or "spotty" fashion.

These holes will be cased, and hence can be used later in the pattern required for the freezing process.

Between sections C and D, a distance of 1500 feet, is an unknown portion of the channel which, however, contains gravel, silt and slum compositions and underlying favourable rock formations similar to those in the rich section between No. 1 Raise Downstream and No. 1 Raise Upstream. Good values at either end,

0.82 ounces across 70 feet of width and 1.21 ounces across 45 feet per cubic yard (see Dwg. No. 3), suggest the presence of a second high-grade paystreak. Further fill-in drilling will establish widths and values in this section more firmly.

As noted by Mr. Mason, other target areas for drilling exist on the property and enhance the potential. Such are secondary to the above but should be undertaken as a third less important possibility.

In summation, at the conclusion of the recommended drilling program, a detailed feasibility study can be undertaken, with the object of determining the scope of production plans, and firming up the estimated costs.

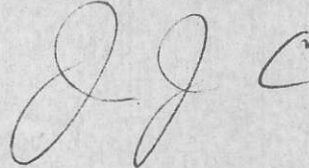
Should the values in the No. 1 Downstream Entry section as shown by the initial five to six drill holes be as anticipated, a total of 15,000 ounces of gold could be available for extraction from the quoted 5000 cubic yards, which at a price of gold of \$150 per ounce could return \$2,250,000 vs. quoted operating costs of \$1,210,000.

Further such substantial profits could be realized from the Downstream channel section; such section would appear to have a much larger potential volume and, hence, possibly a significantly larger total gold content, depending on values as determined by the drilling.

We recommend, therefore, that the sum of \$69,000 (direct costs) be supplied as soon as possible to carry out the work mentioned.

Respectfully submitted,

BACON & CROWHURST LTD.

A handwritten signature in dark ink, consisting of stylized initials 'JJC' followed by a small flourish.

J.J. Crowhurst, P.Eng.

JJC/lc

APPENDIX - Section 2

DOLMAGE, MASON AND STEWART LTD.

GEOLOGICAL AND MINING ENGINEERS

#314-355 BURRARD STREET

VANCOUVER, B.C.

CANADA V6C 2G8

VICTOR DOLMAGE

E. E. MASON

J. W. STEWART

April 29, 1975

Bacon & Crowhurst Ltd.
Consulting Engineers
#1720-1055 West Hastings Street
Vancouver, B. C.
V6E 2E9

Attention: Mr. J. Crowhurst, P. Eng.,

Dear Sir,

Pursuant to your instructions, we have prepared a report on the methods and economics of mining the gold bearing gravels in the placer leases Nos 6685 and 6707, located at Wingdam, B. C.

A preliminary estimate was made by Loram International Ltd. of the costs of open-pitting and back-filling the deposit. The cost would appear in excess of revenues.

An alternative of sinking and drift mining a rich section of the deep channel was investigated, solidifying by freezing the water bearing ground. A proposal and preliminary estimates were submitted by Weir-Jones Engineering Consultants.

The method has been used as normal practice in sinking in running sands or silts since the turn of the century, chiefly in Europe. Latterly, equipment has been simplified and unitized, and was employed as a necessity in sinking the several shafts through the Blairmore formation, for the potash mines in Saskatchewan.

It has been employed in Toronto and Montreal sub-surface excavations as routine in local sections of running ground, and has been viewed by the writer for a large, deep excavation for the Atomic Energy Commission by Mile High-Deilman of Denver, Colorado.

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Locally, Weir-Jones Engineering Consultants were responsible for about 180 feet of tunnel in running silt at Abbotsford for the Department of Highways. This tunnel had been lost in driving, and awaited two years before the freezing method was applied. The Director of Construction, Department of Highways is available for reference.

Cost of sinking and mining in pre-frozen ground is estimated at \$ 1,210,000, inclusive of preliminary testing. From 7500 - 10,000 ounces of gold is estimated as retrievable.

Yours truly,
DOLMAGE, MASON & STEWART LTD.


E. E. Mason, P. Eng.,

EEM:ss

SUMMARY AND CONCLUSIONS

The purpose of this report was to investigate the feasibility of mining the deep channel gravels for their gold content. The study was authorized by Bacon & Crowhurst Ltd., Consulting Engineers of #1720 - 1055 West Hastings Street, Vancouver, B.C.

Two methods have been investigated:

- 1) Open Pit
- 2) Drift Mining in Pre-frozen Ground

Loram International Ltd., of Calgary, Alberta, made a preliminary study of the first, of the quantities and costs involved, of excavating the valley and back-filling same. A general figure of six to seven million yards was stated, for a preliminary cost estimated at \$3.27/cu. yd. for a production of 46,120 ozs. gold.

Weir-Jones Engineering Consultants Ltd., of Vancouver, B.C., have supplied preliminary costs of drift mining 600 feet length of reasonably tested ground. 5000 cubic yards are estimated with a gross value of 7500 - 10,000 ozs. gold. Preliminary costs are estimated at \$ 1,210,000 complete. At current gold prices, return of capital would be indicated in eleven to twelve months.

The question of profit or loss lies with the actual costs incurred against the ounces of gold produced, and the price obtained.

The preliminary cost estimates are stated to be conservative. The range of gold values estimated are believed to be conservative also, based on incomplete development of this particular section. The gold

SUMMARY AND CONCLUSIONS con't.

being concentrated largely on bedrock, production will remain substantially the same regardless of height of working.

Preliminary drilling required to locate the 12 ft. x 30 ft. shaft at mid-channel, could be used to provide a check on the gold values used above. It has been proposed to use Down-the-Hole drilling at 10 ft. spacing for the freezing process, to be stopped within 15 feet if sampling is required, and to sample with the Triple Tube diamond drilling to provide an undisturbed sample for 15 feet. Cost of drilling each such hole, roughly 175 feet length is estimated at \$ 1500, completed in 1½ to 2 days drilling time. These holes cased would remain available to the proposed freezing operation.

Downstream from Section A, through Sections I and CC, the gravels have been reworked and the gold largely redistributed. Values reported are too low to support a freezing operation. Upstream from Section F the valley has widened, much of it occupied by the Sanderson bench deposit. There remains a possibility of deep channel gold concentration against the steep, west wall of the valley. Widening of the valley increases the effectiveness of glacial scour, and in Upper Lightning Creek ended its profitability.

Sections C and D, at the downstream end of the property, however, correlate in the pattern of soil deposition at lower elevations with that of Section A. The values reported are 0.82 and 1.21 ozs/cu. yd. respectively for indurated widths of 45 feet.


SUMMARY AND CONCLUSIONS con't.

These Sections are 1500 feet apart. The intervening area is eminently worthy of investigation, as is the ground downstream from Section D. It is recommended that three intervening sections be drilled between Sections C and D, each of three or four holes per section, to locate and sample the deep channel; similarly, downstream from Section D. The drill holes will be of roughly similar length to those in Section A.

The following is an estimate of completing such a drilling program, totalling 30 drill holes; an average depth of 175 feet at \$ 1500 per drill hole.

Direct Drilling Costs	\$ 45,000.00
Mobilization and Demobilization	\$ 2,000.00
Access Roads etc.	\$ 5,000.00
Clear Dump, Shaft site	\$ 1,000.00
Engineering	\$ 10,000.00
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	\$ 63,000.00
Plus 10% Contingencies	\$ 6,000.00
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	\$ 69,000.00
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Respectively submitted,
DOLMAGE, MASON & STEWART LTD.


E. E. Mason, P. Eng.,

Nixon's Report of 1941 offers the following criteria; quoting Campbell MacKenzie, he reports the first pan washed February 8, 1937 in the No. 1 Raise Upstream entry contained 0.15 ozs. gold, the second 1.47 ozs. gold. On February 17th, a pan of soft bedrock recovered 2.77 ozs. gold. From February 16 to 28th, 26 cu. yds. (place measurement) returned 24.54 ozs. gold.

The writer's experience in the No. 1 Raise Downstream entry differed. It was driven with little difficulty, once through the slum drawn down at the break-in, through to the west rimrock. Gold concentration was constant across the channel, until the rimrock rose in the face, where the crosscut was stopped. Drifting was commenced roughly central to the channel. Two crosscuts were started to find the rim on each side, and not completed. Drifting upstream in the channel amounted to 120 feet. The total working was completed in about five to six weeks.

Richmond's 1938, 1st Quarterly report stated gold values indicated by this work as from 1.0 to 2.3 ozs/cu. yd. His subsequent estimate of reserves, after the flooding of the workings, for the 530 feet length between Nos. 1 Raises Downstream and Upstream "when mining a height of $7\frac{1}{2}$ feet, we can safely expect to obtain gravels which will average 1.5 to 2.0 ozs. gold/cu. yd." The writer recollects a test section of the main drift here, drifted roughly central in the deep channel, returning an average of 3.0 ozs / cu. yd.

Keystone Hole 5, Section A, reported 184.3 troy grains gold on bedrock, which converts to 4.8269 ozs / cu. yd. for a thickness of 7 feet. The 26 inch Jenssen hole, drilled for dewatering