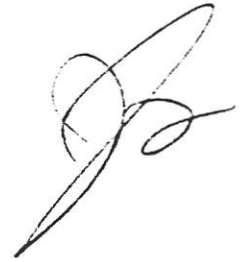


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Original Report



EXPLORATION POTENTIAL
COPPER BEACH ESTATES, LTD.,
BRITANNIA BEACH, B.C.

for

CONSOLIDATED PAYMASTER RESOURCES, LTD.



by

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July 1983

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Summary & Conclusions

1. Reports on exploration potential of mineral claims are evaluated and summarized.
2. Data on areas of potential interest are reviewed and summarized, conclusions are drawn.
3. Areas of immediate economic interest are limited. The only zones of any potential are in the Jane Basin area, where limited open-pit possibilities exist in the Jane and East Bluff-Fairview areas.
4. Underground deposits are of too low a grade or too isolated to be of economic interest at the present.
5. Surface showings away from the Jane Basin area, namely the Daisy & Old Ironsides do not have economic potential at present. The Daisy contains moderately large zones of Cu-enrichment, whereas the Old Ironsides is mainly a limonitic zone caused by weathering of mainly iron sulfides in argillite.
6. The leaching operation might be upgraded by inserting a dam at the 4100 level, thus being able to alternately flood and flush the workings up to the 2700 level. However, gains made in increased copper extraction might not offset overall costs of the program. Other possibilities exist to improve the leaching program, and these should be considered.

EXPLORATION POTENTIAL
COPPER BEACH ESTATES, LTD.,
BRITANNIA BEACH, B.C.

Introduction

At the request of Ken Cabianca, Vice-President of Consolidated Paymaster Resources, Ltd., on July 28 and 29, 1983, I made a preliminary evaluation of the exploration potential of the mineral claims owned by Copper Beach Estates, Ltd., at Britannia Beach, B.C. Part of the purpose of the study was to evaluate a recent study on the same topic by Wright Engineers Ltd. (Glanville, 1983). Comments also are included regarding the leaching potential on the property.

I was aided by the kind cooperation of Art Alexander and the staff of Copper Beach Estates, Ltd., at Britannia Beach, who provided access to pertinent data, including the files of previous operators of the property. Unfortunately, the last operator, the Anaconda Company of Canada, Ltd., removed many summary reports, leaving mainly raw data in the form of geology and assay plans and sections and rough copies of a few minor reports concerning ore reserves.

From 1967 to 1973, I worked for Anaconda, a large part of the time in the Britannia district. This report draws from that experience.

The report focuses primarily on the near-surface potential of the deposit, with special concentration on precious metals.

1. Evaluation of Report on Exploration Potential by Wright Engineers

Except for the geological report by Seraphim (1983) in Appendix III, the report contains no new data or conclusions of value. The method used to evaluate the property, probabilistic or statistical method, is a misuse of statistics. The purpose of statistical studies is to estimate parameters of a population, which then can be used to predict values of a large sample (at least 30 individuals) drawn from the population. Statistics, by their very definition, are completely useless to evaluate or estimate parameters of a single sample. Because of the complexities of mineral deposits, it is not only difficult to

define meaningful populations; such populations tend to have very large variances in parameters such as size, grade, and nature of mineralogy. For a statistical approach to have any value, a very large sample would be required. In conclusion, the statistical methods used are wrong, and the conclusions are based on manipulation of numbers without reference to the wealth of data available on the property.

The report by Seraphim (1983) is basically sound, and this report will include comments on some of his recommendations.

2. Areas of Interest (Underground)

Several areas of economic potential have been outlined in the past (see especially the summary report by Ramseier, 1974 [also in Appendix III of the Wright Engineers report]). Ramseier outlined the following defined and probable ore reserves in the area of the old mines (Table 1). See also Figure 1 for the locations of these blocks.

Table 1. Underground Ore Reserves (modified and simplified from Ramseier, 1974)

Mine	Tonnage	Grades		
		Cu (%)	Zn (%)	Au (oz/T)
#10	1,034,800	1.95	*	*
<i>Flooded</i> Lower Bluff-#8	294,700	1.54	*	*
West Victoria	73,000	2.00	*	*
41-75	43,200	1.33	*	*
Beta	425,600	0.35	2.44	0.03
Jane #	(492,600)	0.08	4.06	0.015

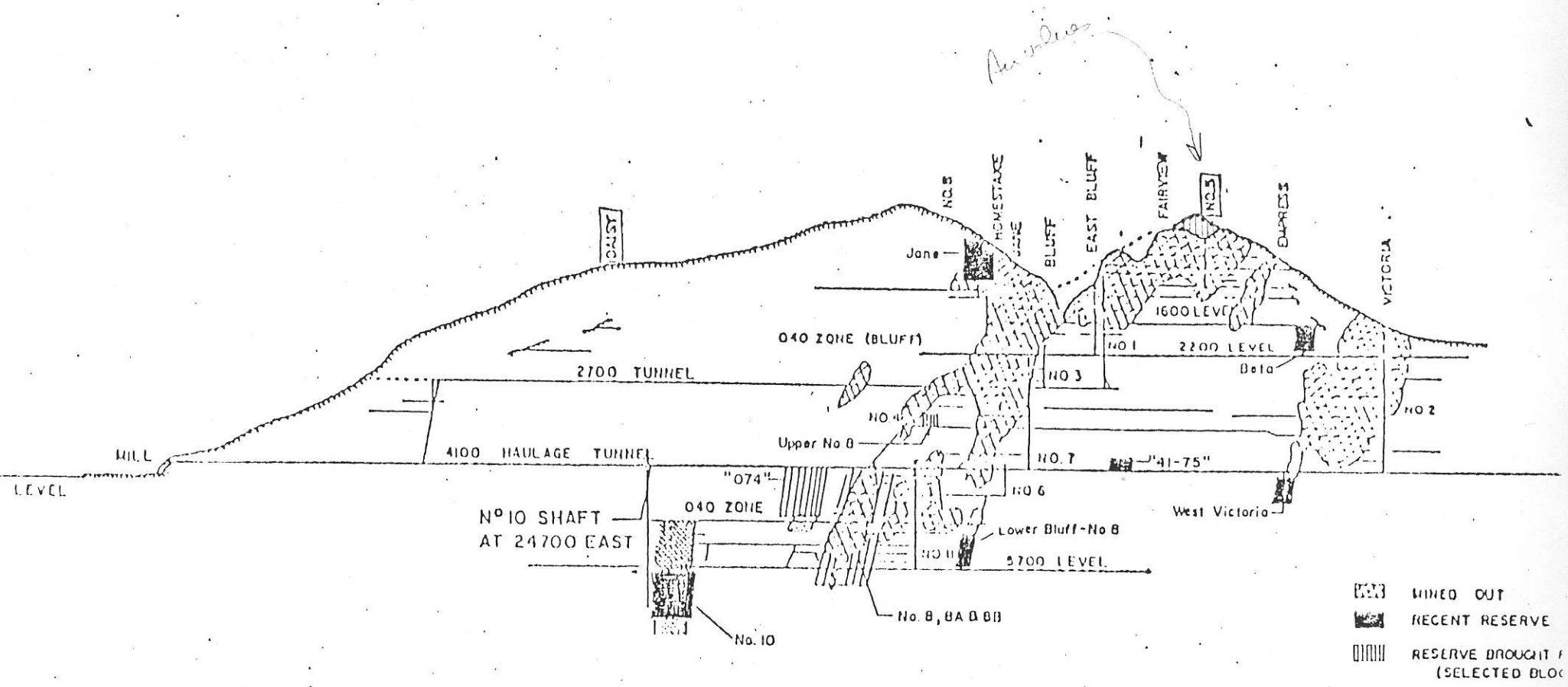
* no data available, but values less than 0.3% Zn and 0.03 oz T Au

see comments taken from Ramseier in following notes.

Of these the #10, Lower Bluff-#8, and West Victoria are below the 4100 level, and flooded. The 41-75 block is small and low grade, and by itself would not be economic. Untested potential exists below the #10 mine, and deeper and to the west, where the trace of the favorable stratigraphic horizon projects. However, exploration in these areas would be expensive, and beyond the scope of the present

BRITANNIA MINE 1971

SCALE — 1" = 1/2 MILE



VERTICAL WEST - EAST SECTION

Figure 1.

exploration interests of Consolidated Paymaster Resources and Copper Beach Estates. At present all the deposits below the 4100 level are uneconomic. Because this part of the mine has been abandoned and flooded, a very significant increase in the price of copper would be required to justify consideration of extraction of these blocks.

The Beta zone, although near surface, is also an underground target, and at present uneconomic. Because of its accessibility, it has a greater possibility of becoming an economic zone than the deeper deposits. The values of gold in the Beta deposit have been estimated from reports dated 1956, 1957 which list the following reserves in the zone:

	tons	Au oz/T	Cu(%)	Zn(%)
report A	12,700	0.023	1.17	2.50
<u>report B block 1</u>	<u>100,000</u>	<u>0.038</u>	0.51	2.18
report B block 2	207,000	0.029	0.57	1.94

Although the details of the locations of the blocks is not clear, the uniform values of Au-content indicate that 0.03 is a good estimate of the Au-content of the zone. ?

The Jane zone is very near surface, and parts of it might be mined by open pit methods. However, much of the zone is near the base of a steep, unstable cliff, and open-pit methods would be impossible. Ramseier cautions concerning the tonnage figure, indicating that an unknown but significant portion of the reserves may have been removed by mining. As well, the region is notorious for bad ground conditions and flooding. Some ore might be mined from the Jane zone, but the amount would probably be much less than the reserve listed by Ramseier. The Jane mine also contains a Cu-rich zone, with significantly more Au than in the Zn-rich zone. One report in the files lists the following reserves for the Jane mine:

	tons	Au (oz/T)	Cu(%)	Zn(%)
→ Cu-zone	<u>77,000</u>	<u>0.069</u>	1.41	0.55
Zn-zone	82,000	0.015*	0.26	5.5

* (estimated by unknown author of report in files)

A study of drill core in the Jane mine was done by Stone (1974). He took representative 1" samples from every 10-12" section of core from intersections of the Zn-rich ore zone. Not all the drill core had been preserved, so it is difficult to determine how representative the study was. A composite assay of the core samples yielded

the following:

Au	0.03 oz/T	Cu	0.40%	Pb	0.60%	barite	17%
Ag	0.2 oz/T	Zn	6.1%	Cd	0.03%		

The records of the Jane Mine are among the oldest in the area, and are very incomplete. It would be worthwhile obtaining the summary report by B.G. Stone on the ore reserve calculations, to determine if any of the ore is sufficiently near the surface for cheap extraction. On the basis of this, further evaluation of this zone might be warranted.

Ramseier also lists as "Reserves Brought Forward" another 1,166,000 tons grading 1.79% Cu, in part with significant Zn values.

"None of the blocks was of interest at the time the mine was closed. Generally they are widely separated, and are located in areas inaccessible due to poor ventilation, caved openings, or flooding."

Ramseier, 1974

* The No. 5 mine had some of the highest Au values in the Britannia district. Because of this, the data for this near-surface deposit were reviewed in some detail, to determine if any Au-ore was still present in the ground. The nature of this deposit, a silicified breccia zone in dacitic tuff, might be favorable to containing a broad zone of lower grade Au, which was considered uneconomic by early miners. Also, it was near enough to the surface that an open pit might be possible.

Results of the investigation were discouraging. The original ore zone extended from the 500 level down to about the 900 level, and contained a core of higher grade gold values, reaching a maximum on the 700-foot level, where a 100-foot section across strike averaged about 0.5 oz/T Au. Maximum values on other levels are as follows:

500-level:	scattered values over 0.2 oz/T Au, a few sections in drifts averaging 0.15 oz/T Au over 25-30 feet.
600-level:	several zones averaging over 0.3 oz/T Au over 25'.
850-level:	90-foot zone along strike averages over 0.3 oz/T Au.
900-level:	65-foot zone along strike averages 0.3 oz/T Au.

* Most of the high-grade core of the zone was stoped. A halo of lower grade (0.05-0.1 oz/T) exists outside the main stoped zone, but it probably is too small to warrant further consideration at this time. The zone is too far from the surface to be mined by an open pit.

3. Areas of Interest (Surface)

In the early 1970's, Anaconda operated a small open pit in the Jane Basin area, mining the upper part of the Bluff ore body. The operation was in siliceously altered and veined dacite tuff, stratigraphically below the massive sulfide deposits, and in the core of the Britannia shear zone and anticline (see Payne, et al., 1980). Grades to the mill were between 0.7 and 1.0% Cu, with minor Zn and precious metals (values not known, but less than 0.5% Zn and 0.03 oz/T Au). Some ore-grade material remains near the surface in this region and to the east in the East Bluff and Fairview Vein zones. However, zones of ore-grade material generally are scattered and separated by blocks of low-grade material and barren dikes. The East Bluff mine contains moderately higher Au-values, with the core of the deposit (now mined) averaging 0.05 oz/T Au. Near the footwall (northeast) of the zone, some blocks of high-grade (1.5% Cu, 4.5% Zn, 0.1-0.3 oz/T Au) massive sulfide ore were left along margins of old stopes.

Insufficient data is available to evaluate the open-pit potential of these zones. Old assay sheets list Cu-values over higher grade "vein" zones, but commonly omit values in lower grade intervening rock. Anaconda must have evaluated these zones during their preliminary open-pit studies; it would be worthwhile to request their data on this area. Failing that, a study such as outlined by Seraphim (1983) could be undertaken, bearing in mind that Anaconda did not plan to develop this area as an open pit. Possibly targets could be developed with sufficient values in Au to make a pit profitable in a region which was considered by Anaconda to be uneconomic in the early 1970's.

To the west, open pit possibilities are very limited because of the abrupt cliffs and very unstable ground at the west end of Jane Basin. As discussed above, limited tonnage might be developed in the Jane mine, particularly in the Cu-rich zone to the south.

4. Other Areas on Surface

(1) Daisy

The Daisy showing occurs near surface well to the west and stratigraphically well above the main ore bodies. It was explored on two main levels, and appears to have bottomed out above the 2700 level. Two zones containing chalcopyrite have been outlined with dimensions 200' long by up to 20' wide by at least 180 feet in height. Previous studies indicate 64,100 tons grading 1.1% Cu with no data on precious metals. One study estimates optimistically a potential to the 4100 level of 309,000 tons averaging 1.5% Cu.

I have not mapped the Daisy showing, but have examined the rocks nearby including those of the 2700 level tunnel and drill holes. My conclusion is that the Daisy showing is interesting but too small to be economic. The 20-foot width quoted in old reports probably represents a maximum, of which a realistic average would be closer to 10 feet. Without the presence of precious metal values, the zone is too low grade to be economic.

(2) Old Ironsides

These claims, on the summit and steep flanks of Sky Pilot Mountain, occur in a sequence of interbedded andesites and argillites. I examined this sequence on Goat Ridge and briefly on Sky Pilot Mountain in 1967. Commonly the argillite contains disseminated pyrite and pyrrhotite with very minor chalcopyrite. Weathering of these sulfides has created abundant limonitic patches on surface. A helicopter flight around Sky Pilot Mountain in 1967 did not show anything other than andesites and argillites, and nothing of economic interest.

To the northwest, the volcanic and sedimentary sequence is intruded and contact metamorphosed by diorite and quartz diorite plutons. Some of these contain 1-2% disseminated sulfides, mainly pyrrhotite and pyrite, and a few contain chalcopyrite. As well chalcopyrite veins up to several inches thick and tens of feet long occur in hornfelsed argillite and/or dacite near the contact. Some of these occur on the Jim-Kim claim of Stackpool Resources Ltd. (Timmins, 1982).

5. Leaching Potential

The major work on leaching at Britannia is by Kim (1968). Natural leaching is cyclical, with two wet, high-flow periods per year, during the spring-summer runoff and during the late-fall rainy season. These alternate with drier, lower-runoff periods during the late summer-early fall "dry" season and the winter season of snow accumulation. Copper is leached mainly during contact with what Kim described as "slow-water", and is flushed out of the system by "fast-water". By controlling the movements of both types of water, it may be possible to enhance the leaching rate. As well, Kim recommends separation where possible of waste water, which is water which enters the leaching system without passing through an ore zone, and which contains very little copper. Its effect is to dilute the system, causing greatly increased costs to separate the copper in solution.

Wright Engineers suggest a dam on the 4100 level, which would allow flooding of the old workings up to the 2700 level. This would greatly increase the amount of slow-water leach in the region between these levels, mainly in the Bluff and Victoria mines. Alternate flushing and flooding of the system would produce a higher overall rate of leaching, and would increase the circulation of oxygen into the system (another factor which according to Kim enhances the rate of leaching).

Kim noted an overall decrease in amount of copper recovered by leaching after 1958. This was attributed mainly to the decrease in amount of copper available on broken surfaces for leaching. He also noted that the years of highest Cu-recovery by leaching were 1932-34, which years followed heavy stoping and breaking of rock in the upper part of the mine.

The proposal by Wright Engineers has merit. The main consideration would be: Is the cost of the program justified by the projected increase in Cu-production? Unfortunately the flooding program would not affect the rate of leaching in the upper workings of the mine (above 2700-level), except, as mentioned by Kim, that it would increase oxygen circulation.

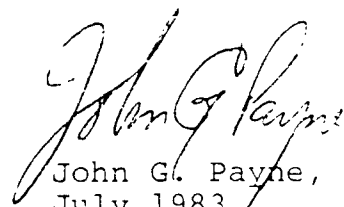
The Wright Engineers report uses a value of 0.2 g/l Cu for the input to the leaching plant. Kim shows a variation of input grade from 0.6 to 1.7 g/l up until 1956. The grade probably is lower than

this by now, but I doubt that it is as low as 0.2 g/l. (I don't know where Wright Engineers got that number.)

The flooding program would make more difficult the elimination of waste water from the system.

Data on the average reduction in Cu content of water reaching the leaching plant would be important in predicting future changes in supply. Presumably the program to dam the 4100 level would increase the amount of Cu being leached. However, without breaking more ground to expose fresh chalcopyrite to leaching agents, the amount of leachable copper will continue to decrease.

I have no specific conclusions to make regarding leaching, because it is not my specialty. I hope that my comments have some value in assessing the overall possibilities.


John G. Payne, PhD.
July 1983

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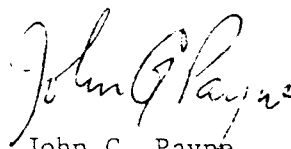
John G. Payne Consultants, Ltd.,
877 Lillooet Road,
North Vancouver, B.C., V7J 2H6

Bill to: Consolidated Paymaster Resources, Ltd.,
780 - 789 West Pender,
Vancouver B.C., V6C 1H2

Re: Review of Economic Potential of Britannia Beach mining claims of
Copper Beach Estates Ltd.

Professional Services: 1.5 days @ \$350/day \$525

TOTAL \$ 525



John G. Payne,
August 1, 1983