

THIS PROSPECTUS CONSTITUTES A PUBLIC OFFERING OF THESE SECURITIES ONLY IN THOSE JURISDICTIONS WHERE THEY MAY BE LAWFULLY OFFERED FOR SALE AND THEREIN ONLY BY PERSONS PERMITTED TO SELL SUCH SECURITIES.

NO SECURITIES COMMISSION OR SIMILAR AUTHORITY IN CANADA HAS IN ANY WAY PASSED UPON THE MERITS OF THE SECURITIES OFFERED HEREUNDER AND ANY REPRESENTATION TO THE CONTRARY IS AN OFFENCE.

**PROSPECTUS**

EFFECTIVE DATE: August 17, 1987

**CANTRELL RESOURCES LTD.**

(hereinafter called the "Issuer")

#302 - 543 Granville Street, Vancouver, B.C.

**PUBLIC OFFERING:**  
**400,000 Common Shares without par value.**

Shares	Price to Public	Agent's Commission	Net Proceeds to be Received by the Issuer *
Per Share .....	\$1.00	\$0.10	\$0.90
Total .....	\$400,000	\$40,000	\$360,000

\* Before deduction of the costs of the issue estimated not to exceed \$20,000.

There is no current market through which these securities may be sold. The price of shares offered hereby was determined by negotiation between the issuer and the agents.

A purchase of the securities offered by this prospectus must be considered as speculative. All of these properties in which the issuer has an interest are at the exploration stage only and are without a known body of commercial ore. No survey of any property of the issuer has been made and therefore in accordance with the laws of the jurisdiction in which the properties are situate, their existence and area could be in doubt. See also paragraph headed "Risk Factors".

Various of the directors and officers of the issuer are directors and officers of other material resources companies. Refer to the heading "Conflict of Interest" for details of how any conflicts of interest are to be resolved.

No person is authorized by the issuer to provide any information or to make any representation other than those contained in this prospectus in connection with the issue and sale of the securities offered by the issuer.

Upon completion of this offering this issue will represent 20.1% of the shares then outstanding, as compared to 51.89% that will then be owned by the promoters, directors, senior officers and substantial security holders of the issuer, and will have a net tangible book value of approximately \$0.30 per share resulting in an immediate dilution of \$0.70 per share, being 70% of the issue price. Refer to the heading "Principal Holders of Securities" for details of shares held by promoters, directors, senior officers and controlling persons, and associates of the agents and of the immediate pro forma dilution of a purchaser's investment based upon the book value of net tangible assets.

The Vancouver Stock Exchange has conditionally listed the securities being offered pursuant to this Prospectus. Listing is subject to the issuer fulfilling all the listing requirements of the Exchange on or before February 15, 1988, including prescribed distribution and financial requirements.

The agents conditionally offer these securities subject to prior sale, if, as and when issued by the issuer and accepted in accordance with the conditions contained in the Agency Agreement referred to under "Plan of Distribution".

**AGENTS****CANARIM INVESTMENT CORPORATION LTD.**

2200 - 609 Granville Street  
 Vancouver, British Columbia

**WOLVERTON & COMPANY LTD.**

1750 - 701 West Georgia St  
 Vancouver, British Columbia

DATED: APRIL 30, 1987

**PROPERTY FILE**

R. M.  
 92H/8  
 MURPHY TAILING  
 92HSE 144

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UPDATED  
REPORT ON THE  
HEDLEY TAILINGS PROJECT  
HEDLEY, BRITISH COLUMBIA

Prepared For

CANTRELL RESOURCES LTD.  
302 - 543 Granville Street  
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V6C 1X8

Prepared By

WAYNE ASH P. ENG.  
ASH & ASSOCIATES  
MINING CONSULTANTS  
811 - 543 Granville Street  
Vancouver, B.C.

May 29, 1986  
Updated December 9, 1986

**OTHER MATERIAL FACTS**

There are no other material facts not disclosed in this Prospectus.

**STATUTORY RIGHTS OF WITHDRAWAL AND RESCISSION**

The Securities Act provides a purchaser with a right to withdraw from an agreement to purchase securities within two business days after receipt or deemed receipt of a prospectus and further provides a purchaser with remedies for rescission or damages where the prospectus and any amendment contains a material misrepresentation or is not delivered to the purchaser prior to delivery of the written confirmation of sale or prior to midnight on the second business day after entering into the agreement, but such remedies must be exercised by the purchaser within the time limit prescribed. For further information concerning these rights and the time limits within which they must be exercised the purchaser should refer to Sections 66, 114, 118 and 124 of the Securities Act or consult a lawyer.

### CERTIFICATE OF QUALIFICATIONS

I, Wayne M. Ash, P. Eng., of 401 - 1765 Duchess Street, West Vancouver, British Columbia, do hereby certify as follows:

1. I am a graduate of the Haileybury School of Mines (Ontario, 1965) and Michigan Technological University (Michigan, B. Sc. Mining Engineering, 1969).
2. I have been directly associated with the mining industry for the past twenty-six years and have been a member of the Association of Professional Engineers of British Columbia since 1971 (Registration No. 7940).
3. I have no interest, either directly or indirectly in the property or securities of Cantrell Resources Ltd. or Candorado Mines Ltd., but may gain an interest in the future.
4. I inspected the property several times in 1984, 1985, and 1986, and have supervised all sampling and test work to date.
5. I hereby grant permission to Cantrell Resources Ltd. or Candorado Mines Ltd. to use this report, or any portion of it, for any legal purposes normal to the business of the firm, so long as the portions used do not materially deviate from the intent of this report, as set out in the whole.

Dated at Vancouver, B.C., this 9th day of December, 1986.



Wayne M. Ash, P. Eng.

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**SUMMARY**

The Hedley tailings project is defined as a project to install and operate a 4000 ton per day heap leach plant at Hedley B.C. to process the old Nickel Plate mill tailings. The plant would process an estimated 1,681,000 tons of tailings having an estimated average grade of 0.041 ounces gold per ton, plus minor silver. Value of gold and silver that would be recovered based on current market prices is estimated to be approximately \$26.9 million.\*

The tailings tonnage and precious metal values have been tested by various exploration companies in the past 13 years. The author supervised the drilling of 57 auger holes totaling some 1900 lineal feet (578 metres) in the two tailings piles.

The proven mineral reserves have been established at 1,681,000 tons grading 0.041 oz Au/ton. The in-depth laboratory test work presently in process is lending increasing optimism that the Hedley tailings project will be an economically viable operation. Incomplete test work to date suggests that gold recoveries in the range of 70 to 75% may be anticipated.

In the likely event that the laboratory tests continue to confirm that the tailings can be re-treated at a profit, a major program of leaching on-site test heaps will be conducted. The results of this work will be utilized in the final feasibility study and ultimately in full production. The on-site tests will require approximately three months. Construction of the production plant is estimated at 4 to 8 months, depending upon the plant design resulting from the lab and on-site leach tests. The likely start-up date for the full scale operation is expected to be June, 1988.

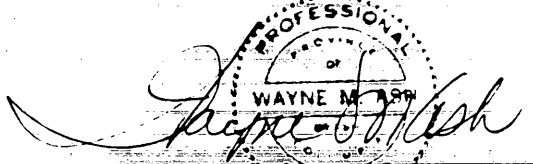
To process the tailings, a heap leach plant was selected for the preliminary design. This plant would be operated for 3 years based on a 3 shift day 7 day week and 6 month year. Fifteen operating personnel per day would be required to operate the plant. Operating costs have been estimated to be \$5.25 per ton of tailings based on a Heap Leach Plant design and include labour, reagent supplies, maintenance, reclamation, electric power, fuel, water and overhead charges.

Capital investment has been estimated to be \$3.2 Million (plus 0.6 million working capital) and operating cost has been estimated to be \$11.3 Million, including royalties and refining. Return on investment for the project participants would be \$11.5 Million before interest charges on capital and taxes.\*

\*Based on an assumed recovery of 70%, a gold price of \$400 U.S. per ounce, and a 72¢ Canadian dollar.

<b>Phase II</b>	
- Final feasibility study	\$ 100,000
	<hr/>
<b>Total Phase I &amp; II</b>	<b>\$ 275,150</b>

Submitted by,

  
 Wayne M. Ash, P. Eng.  
 December 9, 1986

### RECOMMENDATIONS AND ESTIMATED COSTS

In order to gain its 45% working interest in the Hedley Tailings Project, and assuming the present laboratory tests continue to produce positive results, Cantrell will conduct a two-phase program, the second phase being contingent upon favourable results of the first phase:

- Phase I will include intermediate feasibility studies, pollution control test work, baseline environmental study, hydrological field work, produce the hydrological, environmental and stage reports, obtain all permits necessary for production, and conduct public information meeting.
- Phase II, contingent on approvals in Phase I, would consist of the final feasibility study.

Cantrell will also pay for all property payments which come due during its program time interval.

#### ESTIMATED COSTS

<b>Phase I</b>	
- Intermediate feasibility studies	\$ 30,000
- Pollution control test work	15,000
- Baseline environmental study	15,000
- Hydrological field work	12,000
- Environmental report	5,000
- Hydrological report	3,000
- Stage I report	40,000
- Permitting	15,000
- Public informational meetings	6,000
- Property payments	16,000
- Contingencies 15%	18,150
	<hr/>
	175,150

### INTRODUCTION

The author proposes to process 1,681,000 tons of tailings from the old Nickel Plate mill site near Hedley, B.C. Hedley is located 210 miles by road due east of Vancouver, B.C. (Figure 1). The tailings consist of 2 large piles containing an estimated 0.041 ounces of gold per ton and lesser quantities of silver.

Over the years various sampling and testing programs of the tailings have been carried out. The results of these have been reviewed by the author. Tailings piles have been test-drilled and preliminary test work which showed much promise is being followed-up by a large battery of lab tests. The laboratory, located in Vancouver, was specifically designed for the in-depth test work of the Hedley tails.

It is proposed to construct and operate a cyanide leaching facility at Hedley near the old mill sites. The potential feasibility of this has been investigated and the following report discusses resources, grade, metallurgical questions, plant design, construction schedules and costs.

### PROPERTY

The property consists of the two mill tailings piles, the "Old" and "New" tailings piles (see Figure 2) located within lot 2900 in the Similkameen Division of the Yale Land District in the Province of British Columbia, and the rights to utilize that portion of lot 2900 necessary for the treatment of such mill tailings.

The current legal status of the property is beyond the scope of this report and may be verified through independent legal opinion.

### HISTORY

The Hedley area is an old mining camp that has had production from a series of gold-bearing ore bodies located in the Nickel Plate Mountain one mile north of Hedley, B.C. The ore which was discovered in 1898 and was mined through two underground mines, called the Nickel Plate mine and the Mascot Fraction.

The Nickel Plate mine is one of the oldest mines in the Province. The mine operated from 1904 to 1930 and, after a period of shut-down, from 1935 to 1955. In the first period the Yale Mining Company and Daly Reduction Company operated for six years and the Hedley Gold Mining Company for twenty-one. In the second period the mine was revived by the Kelowna Exploration Company Limited, whose name was changed to Kelowna Mines Hedley Limited in 1951.

The Nickel Plate Mountain ore zones were largely mined through the Nickel Plate workings, but Hedley Mascot Gold Mines Limited mined about 680,000 tons of the main ore zone from the Mascot Fraction between 1936 and 1949. The tailings piles for this production are situated directly north of the town of Hedley, one on either side of the 20-Mile Creek which flows south through the town.

The total ore mined and milled, from the Nickel Plate property and the Mascot Fraction, according to published government records, has amounted to 3,967,350 tons with a recovered gross content in ore and concentrates of 1,556,749 ounces of gold, 188,139 ounces of silver, and 4,077,305 pounds of copper.

#### ORE RESERVES

The tailings available to Cantrell Resources Ltd. consist of two piles, #3 and #4 from the Nickel Plate Mill, containing an estimated 1,681,000 tons and an estimated grade of 0.041 ounces gold per ton. Based on the results of drilling, sampling and assaying in 1986, the individual piles contain the following proven (assured) tonnages and grades.

	<u>Tonnage</u>	<u>Ounces Gold/Ton</u>
Pile #3 ("Old" pile)	612,000	0.0352
Pile #4 ("New" pile)	<u>1,069,000</u>	<u>0.0444</u>
	1,681,000	0.041

#### Operating Costs Summation

Reagents: Cyanide 2.0 lbs/ton @ .72 =	1.44
Lime 15 lbs @ 4.6¢	0.69
Cement 15 lbs @ 4.6¢/lb (delivered) =	0.68
Parts & Supplies	0.10
Power	0.07
Reclamation	0.50
Pads	0.35
Equip't rental & maint.	1.00
Labour	<u>0.40</u>
	\$ 5.24 /ton

#### FINANCIAL ANALYSIS

(x \$1000 Cdn.)

<u>Year</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>Total</u>
Oz. of Gold Produced	17,220	22,960	8,040	48,220
Value at \$556 per oz.	9,574	12,766	4,470	26,810
Oz. of Silver Produced	4,600	6,100	2,100	12,800
Value at \$8.30 per oz.	38	51	17	106
Gross Revenue	9,612	12,817	4,487	26,916
Operating Costs	3,150	4,200	1,470	8,820
Cost of Refining	81	109	38	228
Royalty	237	399	140	776
Preproduct Exp.	1,700	-	-	1,700
Capital Amortization*	1,371	1,827	640	3,838
Net Profit before Interest Charges & Taxes	3,073	6,282	2,199	11,554

\* Including working capital but not interest on capital.



**Leaching**

Pregnant pond: 200' x 200' @ (3.60 x 1.56) + 7.20 + 10.76	48,000
Barren pond: 200' x 200' @ \$12.82/m <sup>2</sup> + 10.76	48,000
Surge (Protection) pond (as above)	48,000
Pipes, pumps, valves,	<u>150,000</u>
	294,000

**Gold Recovery**

Carbon Columns, Stripping, Carbon regeneration incl. Bldg.	150,000
Assaying Lab	90,000
Electrowinning	80,000
Refinery	<u>75,000</u>
	395,000
Total	2,617,000
Contingencies (20%)	<u>524,000</u>
	<u>\$3,141,000</u>

**OPERATING COSTS**

Test work has not yet progressed to the stage where the reagent consumption can be totally evaluated. However, due to the apparent short leach cycle requirement, the strongly alkaline composition of the agglomerations, the long allowable curing period, and considering the cyanidation test data obtained to date, the author considers the reagent consumptions to be in the order of 0.5 to 2 lbs. per ton for cyanide, 10 to 20 lbs. per ton of cement, and 10 to 20 lbs. per ton of lime.

At this time it is also assumed that the company's operating crew will consist of 15 people.

Based on current market prices of \$400 (U.S.), or \$556 (Can.) per ounce gold and \$8.30 (Can.) per ounce silver the gross value of precious metals contained in the tailing is \$38.3 million. The average precious metal value per ton is therefore \$22.80.

Literature concerning the character of the ore indicates that the precious metal values in each of the tailings piles would be in the form of free gold and as sub-micron particles in sulphides and gangue minerals.

**METALLURGY**

Preliminary metallurgical tests were carried out for the author on composite samples taken from both of the tailings piles. These involved 72-hour cyanidation tests on each of the 13 composite samples taken.

**1. Sampling**

A major sampling program of the tailings was supervised by the author in early April. Some 57 auger holes (1900 lineal feet or 580 lineal metres), 8½ inch (21.5 cm) in diameter, were drilled on the "new" and "old" tailings piles (see Figure 2). These holes were drilled completely through the piles into the original land surface, at approximately equidistant spacing. Each hole was sampled at 4 to 5 foot intervals (1.2 to 1.5 metres). In consequence some 360 samples were recovered, comprising over 20 tons of material. This is presently in Vancouver being utilized in metallurgical test work.

**Drilling Summary**

<u>Deposit</u>	<u>No. of Auger Holes</u>	<u>Lineal Feet (m)</u>	<u>No. of Samples</u>
Old Tailings Pile (#3)	26	870 (265)	157
New Tailings Pile (#4)	31	1056 (322)	206

**2. Test Work**

In June 1986, 40 selected samples from the total of 363 samples available were combined to form 13 composites. These were made up of various categories of tailings (i.e. leached surface, oxidized surface, etc.). Each of these 13 composites were then cyanided for 72 hours. In addition each of the 363 samples was assayed for gold content.

While the purpose for the above test work was simply for the assessment of possible treatment procedures for the 363 individual samples, the test results obtained gave some very encouraging information on the character of the tailings material:

- a) The arithmetic mean of the assays was 0.041 oz. Au/ton, exactly the same as the average weighted assay of the mineral reserve. This confirms the consistency of the drill hole spacing and relative assay grade consistency between drill holes.
- b) The arithmetic mean of the overall grade recovery from the 13 samples was 74.4%, somewhat higher than the recovery anticipated by the author.
- c) An average of 93% of the recoverable gold was recovered in the first 24 hours of leaching, suggesting that pad leaching will produce rapid recovery.

It should be noted that while the above figures are most encouraging and add further credibility to the potential of the project, final judgement must be withheld until the major metallurgical test work is complete.

The metallurgical tests presently being conducted in Vancouver include cyanidation agitation tests on 363 samples, bench agglomeration tests, small heap leach tests, column tests, precipitation and gold winning tests, alternative process tests using Bio-D and thiourea.

**CAPITAL COSTS**

It should be noted that suggesting a capital cost at this time, before adequate testwork has been done, is putting the cart before the horse. However, the author has attempted to come up with some estimated figures on capital costs. It should be again noted that the process considered at this time is the heap leach process.

The following basic assumptions are made in preparing the capital costs for the heap-leach plant:

- 1) Production will operate on a 180 day year at a rate of 4,000 tons per day.
- 2) The tailings will be picked up by earth moving equipment, hauled to the agglomeration area, dumped into a hopper, conveyed to an agglomeration plant, and thence to leach pads where cyanide solutions will be sprayed, percolated through, and collected for processing in a central processing plant.
- 3) The central processing plant will consist of pregnant and barren solution ponds, carbon adsorption, pollution control system and gold refinery.

Capital Cost

<b>Highway Underpass</b>	\$ 580,000
<b>Agglomeration</b>	
Hopper: (50 Cu yds)	50,000
Conveyors: 2 @ 50' @ \$400/ft	40,000
Cement Bins: 4 @ 40 tons @ \$1,000/ton	160,000
Screw Conveyors: 4 @ 7,000	28,000
Agglomerators: 2 @ \$300,000	600,000
Conveyors: 2 @ 250' @ \$600/ft	300,000
Transformer	100,000
Misc tanks, piping, valves	70,000
	1,928,000

**Precipitation and Gold Winning**

The gold may either be recovered by the activated carbon process or the Merrill-Crowe process. It is expected that the activated carbon process will be used in this instance. When the pregnant solution is pumped through the carbon, the gold drops out of solution and is adsorbed (precipitated) onto the coconut carbon. The gold may then be recovered from the coconut carbon by one of several carbon stripping - reactivation processes, one of which includes the electrowinning of gold through electrolysis, not dissimilar to an electric battery process. The gold is then stripped from the cells, poured into bars, and sent to the Royal Canadian Mint for final refining.

**Pollution Control**

In general, it is expected that the process will require no positive effluent discharge to the environment, due to the aridity of the local climate. On the other hand, the author is well acquainted with pollution control processes, having several times designed and operated both alkaline-chlorination and INCO sulphur-dioxide - air processes in several British Columbia mines. A standby pollution control process will be installed in case the need to discharge arises.

**PRODUCTION SCHEDULE**

Table 1 gives an estimate of the feed supplied to the plant over a proposed operating period of 3 years. The estimated gold recovery is also shown.

**TABLE 1**

	1988	1989	1990
Feed (tons)	600,000	800,000	280,000
% Gold Recovered	70	70	70
Ounces Gold	17,220	22,960	8,040
% Silver Recovered	60	60	60
Ounces Silver	4,600	6,100	2,100
Production Value	\$ 9,612,000	\$12,817,000	\$4,487,000

Gold \$400 (U.S.) or \$556 (Cdn) per ounce / Silver \$8.30 (Cdn) per ounce

Assays to do with the present test program are not yet available. However, the test work to date indicates that overall cyanide consumption may be lower than previously anticipated and lower than that shown.

**PROCESS PLANT**

Based on information available, three possible plant designs for leaching the tailing appear to be feasible. These are listed as follows:

- Conventional Cyanide Leach Process
- Cyanide Heap Leach Process
- "Bio-D" Leach Process

Laboratory tests presently being conducted will determine which of the above processes is suitable for treatment of the Hedley Tailings.

Although it is too early to conduct a full feasibility study, the author has used the data gleaned to date to assess the general profitability. It is assumed that a cyanide heap leach process will be used, as data to-date suggests this as the process likely to be most feasible. The heap leach process has shown itself to be very successful in the processing old mine tailings in southwest U.S. It is further assumed that 1,680,000 tons of tailings are leached, which contain an average of 0.041 oz. Au/ton, with 70% gold recovery.

A preliminary flow sheet was prepared for the Heap Leach Process and capital costs for plant construction have been estimated. The various components for the plant are listed as follows:

- Feed System
- Agglomeration Plant
- Leaching Pads
- Carbon Adsorption Process
- Refining

### AGGLOMERATION-HEAP LEACH PROCESS DESCRIPTION

In ordinary cyanidation processes cyanide is used to "dissolve" the gold from the ore. The gold, is held as a fluid constituent of the cyanide solution by any of several chemical processes.

Cyanide can only dissolve gold with which it comes in contact. If the rock is porous, the cyanide may actually percolate through the rock, dissolving and transporting the gold in its soluble form on its way through. However, in most cases, the rock is not very porous and in this situation the only gold that can be dissolved is gold which actually "peeks-out", or is partly exposed.

In heap leaching, the cyanide solution is sprayed on a heap of crushed, granular ore particles. As the cyanide percolates downward through the pile it wets the ore particles, dissolves and transports the gold.

When gold-bearing limestone or other absorbant rocktype is heap-leached the cyanide can percolate through boulders over 2 feet in diameter, but in the case of other rock types, such as chert which "reject the solutions", poor recoveries may be achieved even though the rock may be crushed so that the largest particle is no larger than a pea.

In tailings the size of all particles are very small, and all things being equal, can yeild very high recoveries in gold.

Some types of rock produce a significant amount of clay-sized rock particles. These may be as part of the rock, or may be formed by the crushing operation. However, when more than a few percent of the particles are clay-sized or smaller, "blinding" occurs. The clay particles form an essentially impervious layer, acting like an umbrella, shielding the ore particles below from contact with the cyanide solution. This can lead to the slowdown of percolation to the point where enough gold cannot be extracted to pay for the operation.

The tailings particles of the Hedley tailings piles are so finely-ground that they may be entirely classed as being "clay-sized", and cannot be heap-leached by normal means. However, by the process of agglomeration, blinding does not occur, excellent percolation characteristics may be maintained, and the pellets are porous, thus allowing the cyanide solution to pass directly through, dissolving and picking up all the "exposed" gold. Agglomeration is the forming of semi-spherical pellets by combining tailings with cement and/or lime, and a small amount of water, rolling the mixture around. Between 15 and 30 lbs of cement (and/or lime) per ton of ore are normally required for agglomeration of tailings.

### SPECIFIC PROCESS DESCRIPTION

#### Mining

In this process the tailings are excavated and transported to the agglomeration plant by earth moving belly-loaders. This is then heaped into a conveyor hopper by D-7 Caterpillar bulldozer and conveyed to the Agglomerator.

#### Agglomeration and Stacking

In the agglomerator (several types are available) the tailings, cement and water are combined and rotated, forming the agglomerations. These pellets are then stacked by a stacking conveyor onto a large leach pad.

#### Leach Pad and Leaching

The leach pad is constructed on pre-sloped ground which has been smoothed by tamping and covered by a thick PVC plastic sheet (liner). The stack of "pellets", after deposition on the leach pad, is allowed to cure. Then a weak solution of sodium cyanide, water and sodium hydroxide (or lime) are sprayed over the heap. The cyanide solution percolates through the heap. The agglomerations, due to their porous nature, allow the solution to pass through them, dissolving and flushing the dissolved gold from the "pellets". When the solution reaches the PVC liner it trickles down the slope of the PVC liner and is recovered in the "pregnant" (gold-bearing cyanide solution) pond.

Summary Report  
Mineral Reserves  
Hedley Tailings Project  
Hedley, British Columbia

for

Cantrell Resources Ltd.,  
302-543 Granville Street,  
Vancouver, B.C.  
V6C 1X8

by

Ash & Associates - Mining Consultants

Wayne M. Ash P. Eng.

September 4, 1986

The mineral reserves within the "old" and "new" tailings piles within Lot 2900 are calculated to contain 1,681,000 tons of tailings, grading an average of 0.041 oz Au/ton.

#### Drilling

Drilling was conducted by the use of an eight-inch diameter auger drill. The holes were drilled to the old land surface profile, in five-foot sections. Each hole was drilled vertically. As best as possible, each hole was equidistally spaced. Twenty-six holes were drilled on the "old" tailings piles while 31 were drilled on the "new" pile.

#### Sampling

Each 5-foot run of "core", approximately 80 to 100 lbs., was placed on a plastic sheet and mixed thoroughly by the "folding" procedure used to mix pulps in assay offices. Each sample was "folded" 24 times. An eight to ten pound sample was then taken for the next phase of work to be conducted in Vancouver. The rest was bagged in fiber bags and stored in a warehouse on-site.

#### Assaying

A total of 363 samples (over 1 1/2 tons of material) was taken to Vancouver. A selected group of samples was weighed wet, and dry, for the determination of average moisture content.

All 363 samples were mixed (damp) at the assay office, dried, dissolved by aqua regia and assayed by Atomic absorption technique at Acme Labs.

#### Bulk Density Tests

Bulk density tests were conducted at three locations; two on the "new" tailings pile and one on the "old" pile. In each case a seven-inch diameter auger hole was drilled by hand auger, to depths of 15 to 18 feet. The material recovered was weighed (damp), mixed and sampled. Each sample was then dried and re-weighed in order to determine the average moisture content. The holes were then lined with oversized plastic tubing and filled with a known weight of water. The calculations to a tonnage factor were identical in all three instances to three decimal places, or for an average of 21.23 cubic feet per dry ton.

## Results

### Moisture Content

The moisture content of the tailings varied from 12 to 24%. However, the tonnage of the tailings piles was based on an estimate of dry tons.

### Tonnage

Figure 1 is a tabulated summary of the holes drilled in the "old" tailings pile. Figure 2 shows the plan of the "old" tailings pile, with the hole numbers and boundaries of the area of influence of each hole, as used for tonnage calculations. In all cases the tonnage factor of 21.23 cubic feet (dry) per ton was used. Figure 3 is a tabulated summary of the holes drilled in the "new" tailings pile while Figure 4 shows the plan of the "new" pile, with hole numbers and area-of-influence boundaries.

### Summary of Tonnages & Grade

<u>Pile</u>	<u>No. of Holes</u>	<u>Total Tons</u>	<u>Grade oz Au/ton</u>
old	26	612,059	0.0352
new	31	<u>1,069,010</u>	<u>0.04437</u>
		<u>1,681,069</u>	<u>0.04103</u>

Submitted by:

Ash & Associates - Mining Consultants

Wayne M. Ash P. Eng

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**FIGURE 1 HEDLEY TAILINGS PROJECT Sept 4/86**  
**ORE RESERVES SUMMARY OLD TAILINGS PILE**

Hole #	Depth (ft)	Area (Sq. ft)	Tons**	Grade % Au/ton	Total oz.
51	15	26819	10949	0.0277	525
52	12	30222	17459	0.0231	403
53	17	20808	16662	0.0118	197
54	23	25339	27452	0.0315	865
55	18	21015	17877	0.0370	661
56	16	19606	14776	0.0294	434
57	27	14242	18113	0.0397	719
58	30	30222	43649	0.0496	2165
59	23	19605	21240	0.0450	956
60	33	52285	34788	0.0398	1380
61	21	17201	17015	0.0220	374
62	26.4	34957	43470	0.0412	1790
63	32	21455	28403	0.0453	1740
64	34	17756	28437	0.0241	685
65	25	17756	20907	0.0339	709
66	25	17941	21127	0.0344	727
67	38	13272	24820	0.0350	896
68	31	17386	25387	0.0421	1068
69	31.5	14797	21755	0.0402	883
70	29	14242	19454	0.0450	875
71	32	16461	24812	0.0263	653
72	34	14427	23105	0.0213	492
73	25	12207	16375	0.0488	702
74	15	14057	9932	0.0316	314
75	24	15907	17982	0.0253	455
76	33	19236	29900	0.0300	897
TOTAL OLD T.P.			612,059	0.0352	
New T.P.			1,069,010	0.04437	
			1,681,069	0.04103	

\* ESTIMATE  
 \*\* Based upon a tonnage factor of 21.23 Gt/ft<sup>3</sup> (dry)

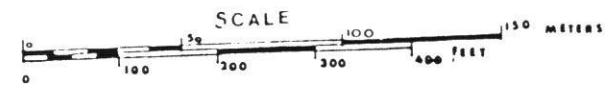
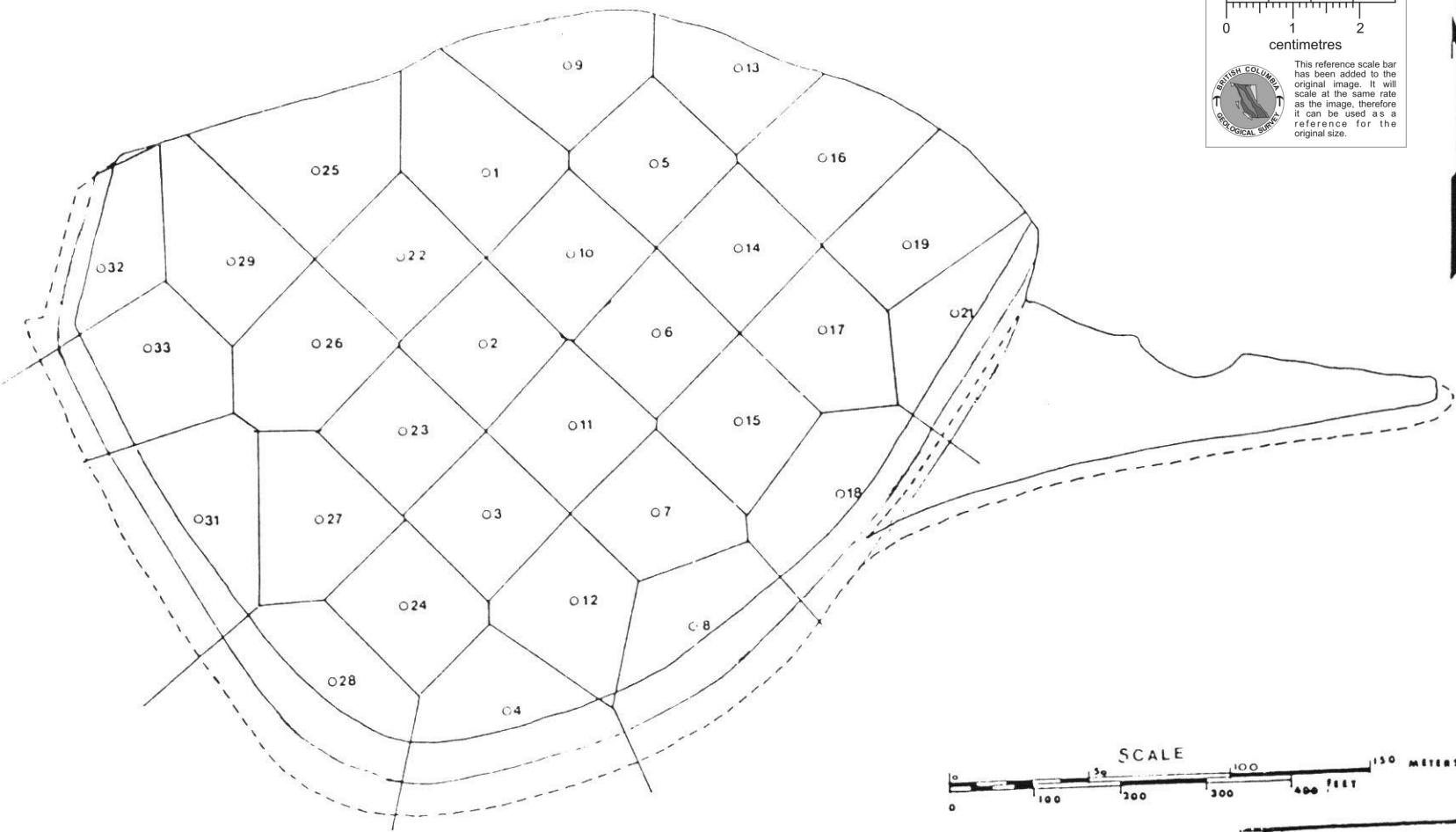
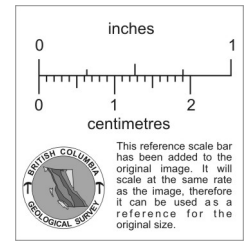
**FIGURE 3**

**HEDLEY TAILINGS PROJECT SEPT 4/86**  
**ORE RESERVES SUMMARY NEW TAILINGS PILE**

HOLE #	DEPTH (ft)	AREA (Sq. ft)	Tons *	Grade % Au/ton	Total oz.
1	2.3	27,501	29,793	0.0394	1174
2	23	19,531	21,159	0.0924	1955
3	35	19,062	31,426	0.0348	1094
4	57	26,718	71,735	0.0418	2999
5	24.5	20,781	23,982	0.0306	734
6	30	19,531	27,599	0.0487	1344
7	34	19,375	31,129	0.0484	1508
8	57	25,469	68,381	0.0474	3241
9	29	22,656	30,947	0.0482	1492
10	24	20,000	22,610	0.0392	826
11	30	20,312	28,703	0.0379	1088
12	42	21,718	42,965	0.0389	1671
13	25	15,781	18,583	0.0230	427
14	24	19,219	21,727	0.0204	443
15	33	20,781	32,302	0.0314	1014
16	25	23,750	27,967	0.0534	1493
17	32	20,625	31,088	0.0314	976
18	37	25,000	43,570	0.0555	2418
19	25	23,437	27,599	0.0464	1281
21	35	19,688	37,458	0.0497	1613
22	29	19,062	26,039	0.0503	1310
23	33	18,281	26,416	0.0418	1188
24	42	20,000	39,567	0.0456	1804
25	30	28,125	39,743	0.0539	2142
26	25	23,594	27,784	0.0510	1417
27	39	23,281	42,768	0.0344	1471
28	57	26,875	72,156	0.0369	2662
29	25	24,063	28,336	0.0537	1521
31	40	25,312	47,691	0.0537	2561
32	23	18,437	19,975	0.0547	1093
33	25	26,250	30,511	0.0458	1416
			1,069,010		0.04437

\* Based upon tonnage factor of 21.23 Gt/ft<sup>3</sup> (dry)

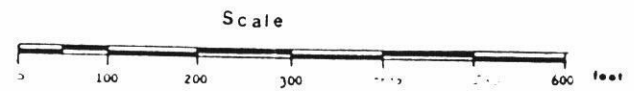
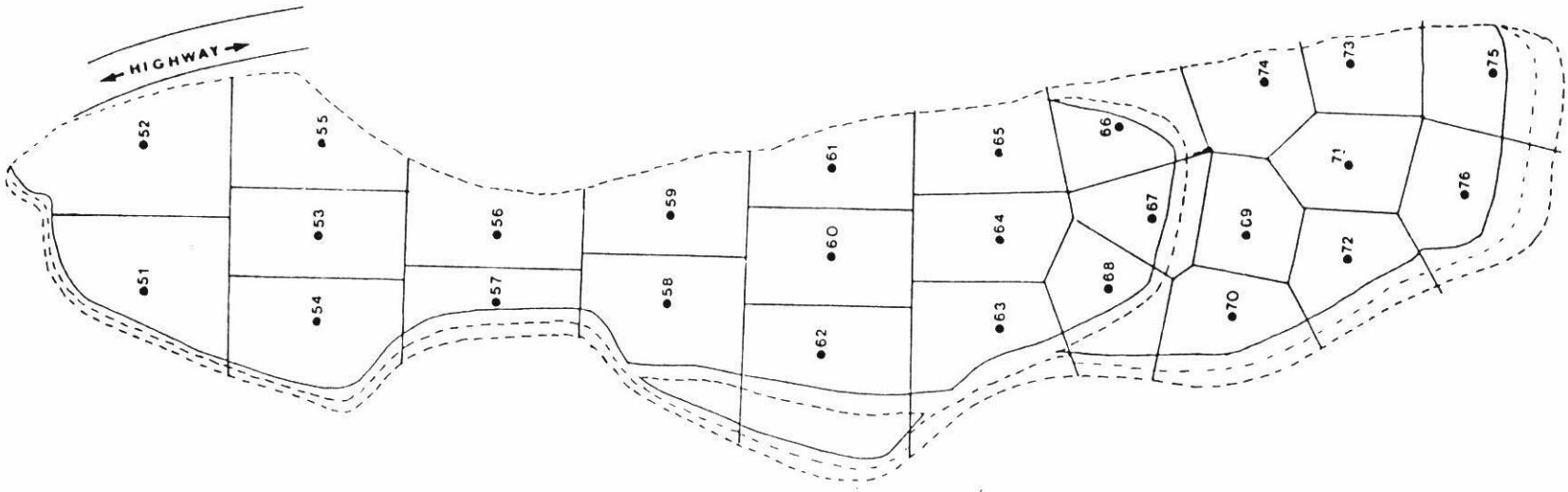
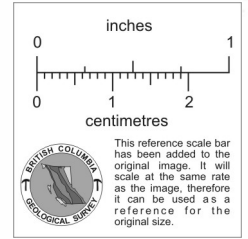
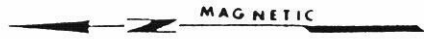




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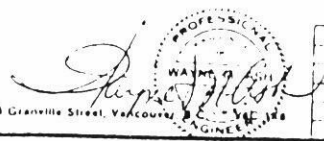
PROFESSIONAL  
WAYNE M. ANH  
*Wayne M. Anh*  
V.P.C.

HEDLEY TAILINGS PROJECT "NEW" TAILINGS PILE DRILL HOLE LOCATIONS				
CANDORADO MINES LTD.				
DATE	SCALE	DATE	SCALE	DATE



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NO.	DATE	BY	REVISION

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10-136			