

# Mount Polley Project

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## *History*

Although copper showings on Mount Polley were known for many years in this historic placer gold mining area, the first recorded exploration was in 1964. Drilling by Cariboo-Bell Copper Mines Limited began in 1966.

In the period from 1966 to 1972, 18,341 m of diamond drilling and 8,533 m of percussion drilling were completed in 215 holes. In 1981, E & B Explorations Inc., a company managed by the Imperial Metals Group, optioned the property from Highland Crow and that year completed 1,746 m of diamond drilling, 1,295 m of rotary drilling, a soil geochemical survey and a ground control survey.

In 1982, E & B acquired a 100% interest in the property subject to a 22% net profit interest on its own behalf and that of Imperial and the Geomex Partnerships. Work completed from 1982 to 1987 included 3,585 m of diamond drilling and 4,026 m of reverse circulation overburden drilling, as well as soil geochemistry, geological mapping, magnetics, ground geophysics and induced polarization.

In 1988 Imperial, as operator, completed an induced polarization survey and trenching, plus an additional 99 diamond drill holes totalling 8,878 metres. Higher grade gold-copper mineralization was identified within a widely mineralized porphyry system. A preliminary economic evaluation was also completed which indicated potential for a profitable open-pit mine operation.

In 1989, a further 139 holes totalling 18,639 m of diamond drilling were completed to detail reserves in the Central and West zones and to determine the nature and distribution of non-sulphide copper mineralization in greater detail.

A total of 535 percussion, rotary and diamond drill holes, comprising of 62,482 m of drilling, were completed at Mount Polley to the end of 1989.

In 1990, Wright Engineers Ltd. completed a comprehensive feasibility study based on a 5 million tonne per year plant.

In 1991 Imperial acquired a 100% interest in Mount Polley.

In November 1994 Imperial and Bethlehem Resources Corporation agreed to merge with the intention of establishing a company capable of bringing Mount Polley into commercial production.

In December 1994 Imperial purchased the 22% net profits interest royalty payable to Noramco Mining Corporation, further improving project economics.

In February 1995 Imperial commenced a Revised Feasibility Study on Mount Polley in consultation with C.S.F.M. Engineering Ltd.

In April 1995 the Company reached agreement in principle with Sumitomo Corporation of Japan on a project financing-joint venture arrangement for the development of Mount Polley.

## *Feasibility Study Design*

In 1990 Wright Engineers Ltd. (WEL) completed a comprehensive feasibility study based on a 5 million tonne per year plant. The mill design was based on a single line, semi-autogenous grinding (SAG) mill/ball mill combination. The ore reserve estimate was 49 million tonnes grading 0.38% copper and 0.556 g/t gold, calculated using the inverse distance cubed method.

In 1994 Imperial initiated an in depth review of the WEL feasibility study design, capital cost and ore reserve estimate. This work became the starting point for a fundamental redesign of the plant using a more conventional rod mill/ball mill/pebble mill set up and incorporating used equipment wherever possible.

Additional holes were drilled into the ore body to provide fresh ore for metallurgical testing and check data for the ore reserve. All drill data was verified and all holes drilled after 1990 were added to the reserve data base. Reserve block grades were re-estimated using standard kriging methods. The open pits were redesigned using a Lerch-Grossman floating cone algorithm which provided good correlation and a positive check between the original pits in the WEL reserve statement and the pits within the revised ore reserve. At the same time, extensive metallurgical testwork was carried out.

The result of this work was a redefinition of the Mount Polley project as primarily a gold deposit with associated copper. Reserves were restated to 82.3 million tonnes grading 0.417 g/t gold and 0.3% copper containing 1.1 million ounces of gold and 544 million pounds of copper. Mill throughput was increased to 6.5 million tonnes per year with design flexibility for an increase to 7.5 million tonnes by the addition of a further

pebble mill, one more short head crusher, and other minor modifications.

The mill design is based upon a conservative and well proven concept. Most of the major process equipment has been identified and purchased. The plant presents no unusual construction difficulties and can be quickly and easily built and subsequently expanded as necessary. The design fits within the current permitted plant, tailings and mine site areas and will be capable of operation within the scope of existing permits.

The plant will process some 2 million tonnes of ore in 1997, the first calendar year of operation, with production increasing to approximately 6.5 million tonnes per year in 1998, its first full year of production.

### ***Ore Reserves***

Ore reserve definition is based on a valuation of each ore block which assigns a dollar value to each block after taking into account both the gold and the copper content of the ore, the different recovery levels for the different oxidization levels of the ore, the costs of producing each metal, and the prices of each metal. Reserve estimation is an iterative process which must take into account increased mining and milling costs as mining progresses. This principle was observed for the Mount Polley ore reserve estimate.

*Gold reserve = 165M tonnes*

### ***Mineable Ore Reserves***

	Ultimate Pit	Central Pit	North Pit	West Pit
Tonnage	82,324	43,022	9,428	29,875
Gold (g/t)	0.417	0.501	0.329	0.324
Copper (%)	0.300	0.285	0.260	0.333
Strip Ratio	1.16:1	0.54:1	1.35:1	1.90:1

Imperial used standard kriging to assign block grades, and Lerch-Grossman methods to produce a pit design containing a total of 174 million tonnes of ore and waste as compared to 216 million tonnes in the original WEL estimate in which inverse distance cubed interpolation, copper equivalent grade cut off and floating cone pit design methods were used.

Specific gravity results were linked both to rock type and also to the total iron content of the different rock types. Wherever appropriate, iron grades were cut to ensure under estimation of specific gravity rather than over estimation. This resulted in a 3% reduction in specific gravity for the Imperial reserve compared to that employed by WEL in its 1990 study.

### ***Mining***

Present mining design includes the use of a base fleet of equipment and the utilization of a contractor to make up stripping shortfalls. The exclusive employment of contract mining for the first three years, is under review.

Extensive mineralogical testwork on the deposit indicates that the recovery of sulphide copper and gold is independent of the oxide content of the ore. As a consequence a decision has been made not to maintain an ore stockpile, as earlier anticipated, eliminating a complicated and costly operational element. If required the upper benches of the North pit will be opened to allow some blending of sulphide ore into the mill to maintain the volume of copper concentrate production.

Open pits have been designed with an average wall slope of 45° and with ramps at 10% grade.

### ***Milling***

The move away from SAG milling to a more conventional rod mill/ball mill/pebble mill set up was driven by concern over the applicability of SAG milling, the additional flexibility of the more

conventional approach, and the ability to utilize second hand equipment to reduce capital costs.

Work done in the crushing section was increased to take advantage of the lower crushing index of the ore, allowing a corresponding reduction in work done in the grinding circuit. Imperial's operating personnel have considerable familiarity with pebble grinding, having successfully operated such plants both in British Columbia and abroad. These mills can be operated with an additional ball charge and have proven very flexible in operation. Pebble tests carried out on Mount Polley ore have demonstrated that good pebbles can be produced and that pebble consumption can be easily met by the current mill design.

### ***Construction Costs***

The current construction cost estimate for Mount Polley is based on firm prices for the major milling components, the mill and crusher buildings, detailed engineering of the foundations, actual quotes for mine equipment, and advanced engineering for the majority of the remaining items. The plant site has been cleared, eliminating the potential for unforeseen excavation costs during foundation construction. Off site assembly will be maximized so that whenever possible, components including offices, power and switch centers will be containerized to ensure timely and cost effective construction.

The construction elements already in place significantly increase confidence levels in the Cdn.\$123.5 million capital cost estimate.

# Report to Shareholders

Last year we set as our first priority the development of the Mount Polley gold mine. We are pleased to report that this objective has been achieved. Construction has commenced and full scale production is anticipated for the fall of 1997.

Mount Polley development financing and joint venture terms were finalized with Sumitomo Corporation of Japan in April 1996. Sumitomo will provide to Imperial up to \$54 million in project debt financing and will acquire a 45% interest in Mount Polley. Imperial will operate with a 55% interest and will receive bonus revenues beyond its participating interest share based on operating performance. In addition, Sumitomo will act as concentrate marketing agent for the joint venture.

The financing/joint venture arrangement entered into with Sumitomo for the development of Mount Polley took almost one year to finalize, during which many challenges had to be overcome, a tribute to the Mount Polley development team led by Henry Ewanchuk, Brian Kynoch and Malcolm Swallow. Confirmation drilling and detailed metallurgical testwork carried out during the due diligence period redefined the Mount Polley project as primarily a gold deposit with associated copper. Mineable reserves were increased to 82.3 million tons grading 0.417 g/t gold and 0.3% copper containing 1.1 million ounces of gold and 544 million pounds of copper. Ore reserves are open for expansion within the projected pit limits and elsewhere on the property. As a result of the increased economic importance of the gold in the deposit and enlargement of the mineable reserve, the stripping ratio has been reduced to 1.16:1 from the prior estimate of 1.76:1. Also of note, Mount Polley is not subject to any royalty, net profits or other underlying interests.

Gold grades are higher near surface and during the first four years of operation, Mount Polley will produce in excess of 100,000 ounces of gold annually together with approximately 28 million pounds of copper annually, ranking it as the third largest gold producer in the Province of British Columbia. The production cost per ounce of gold, with copper as a credit at present Canadian dollar and copper prices, is less than US\$180 per ounce.

Total capital cost for the 18,000 tonne per day plant is estimated at Cdn. \$123.5 million. Under the terms

of the financing arrangement with Sumitomo, Imperial is required to make an equity contribution of \$14 million. Imperial has already spent \$8 million of the required \$14 million in equity, and with working capital of \$16.5 million, including cash on hand of \$14 million, is well funded to cover the additional \$6 million equity contribution required. The remainder of Imperial's cost share will be financed through the project loan facility from Sumitomo of up to \$54 million.

As part of the joint venture-financing arrangement, Sumitomo will receive two million Imperial common share purchase warrants. One million warrants are exercisable until June 30, 1997 at a price of \$1.40 per share and one million warrants are exercisable until June 30, 1998 at a price of \$1.70.



Mount Polley plant site preparation - September 1995.

## Relationship with Sumitomo

Sumitomo Corporation has interests in businesses ranging from minerals and machinery to textiles, foods and chemicals. It is the fourth largest trading company in the world with revenues in 1995 of US\$181 billion. It holds interests in other major mining projects such as Morenci in the United States, La Candelaria in Chile, Northparkes in Australia, Jinlong Smelter in China, and most recently, Batu Hijau Project in Indonesia. Sumitomo brings world class expertise in concentrate marketing to the Mount Polley project.

Gold Res. = 188M tonnes  
(cf. mineable @ 82.3M)

Imperial's relationship with Sumitomo, through predecessor companies such as wholly owned Bethlehem Resources Corporation, dates back to the early 1960's with the financing of the Bethlehem Copper Mine in the Highland Valley. In 1990, Sumitomo and Nippon Mining & Metals Co., Ltd. financed development of the Goldstream Mine which ceased production in January of 1996. The Company, through Bethlehem Resources Corporation, was operator and 50% owner of Goldstream during the operating period and has now entered into an agreement with Goldnev Resources Ltd. to purchase Goldnev's 50% interest in the production facilities and tailings dam disposal area.

More recently, Imperial, at the invitation of Sumitomo, agreed to act as operator of the M'Banga Gold Concession in Niger, West Africa under a 60% Imperial 40% Sumitomo joint venture arrangement.

The long history of successful cooperation between Sumitomo and Imperial was a key factor in the Mount Polley go ahead decision. The combination of Sumitomo's global reputation and outstanding financial strength with Imperial's proven track record as a lean and efficient mine developer and operator creates a very powerful alliance which continues to generate new opportunities for growth such as the M'Banga gold exploration project in Niger, West Africa.

### ***New Properties Acquired in the Mount Polley Area***

The establishment of large scale mining and concentrating facilities together with related infrastructure at Mount Polley will have a long term impact on the economics of other deposits within trucking distance of the mill. With this in mind, Imperial has acquired several new exploration properties in close proximity to Mount Polley.

### ***M'Banga Gold Concession***

Exploration work progressed rapidly on the M'Banga Gold Concession in Niger, West Africa following the signing of a joint venture agreement with Sumitomo in December, 1995. Imperial is the operator of the joint venture and holds a 60% interest while Sumitomo holds 40%. The Government of Niger has the right to acquire up to a 20% interest, 10% without cost and the additional 10% by contributing 10% of the equity required to fund development following completion of a

feasibility study. At the development stage, the parties will incorporate a company under the laws of Niger to hold this project. In the event that the Government of Niger exercises its acquisition rights in full, the new Niger company would be held 48% by Imperial, 32% by Sumitomo and 20% by the Government of Niger. Imperial has the right to increase its interest to 51% by purchasing 3% of Sumitomo's interest for fair market value.



*Artisanal gold recovery at M'Banga.*

Airborne and ground geophysics have now been completed. Over 4,000 auger soil samples have been collected and 11 trenches have been dug in three areas on the M'Banga Gold Concession. All trenches have returned gold values. Trench 7 intersected a 30 metre wide zone with gold values in excess of 0.89 g/t. The trenching program will be followed up by selective diamond drilling later this spring. This year's program is budgeted at US\$1.2 million. In order to maintain the Concession the joint venture must expend approximately US\$2.5 million during the first three years and has one year to complete a feasibility study. The Concession is renewable upon request for two subsequent three year exploration periods.

The M'Banga Gold Concession is immediately adjacent to other Birimian Formation concessions granted by the Government of Niger to Barrick Gold, Ashanti Goldfields and Hansa Geomin/Etruscan.