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Three ore zones have been outlined. The Central zone is a tabular sill-like mineralized area striking to the north and dipping east. It is approximately 1,000 metres long x 180-260 metres wide. The West zone is roughly circular measuring 460 metres in diameter. It plunges to the west and is open at depth below 260 metres.

The mineralized zones are centrally located within a broad copper soil anomaly, vice-president of mineral exploration Zarko Nikic told a Spokane, Wa., audience in December, 1989. He noted that there is almost perfect overlapping of magnetic and induced polarization anomalies, gold and copper soil anomalies, and copper-gold mineralization.

The Mount Polley deposit was identified as early as 1964. Over the next 22 years, a number of companies mounted exploration programs which included prospecting, trenching, geophysics, and more than 33,500 metres of drilling.

Imperial Metals began its investigation of the property by diamond drilling 238 holes for a total of 27,500 metres during 1988-89. The results were encouraging. Last year the com-

pany asked Wright Engineers to prepare a feasibility study. It was positive, assuming a long-term price of US95¢ per pound for copper and US\$425 per ounce for gold with an exchange rate of US80¢ per Canadian dollar.

MINING & MILLING

Reserves at Mount Polley, as calculated by Mintec Inc., will support a 5 million-tonne per year operation for 10 years. Average grades are 0.38% copper and 0.55 g gold per tonne (0.016 oz. gold per ton).

Plans call for extracting 86.2 million tonnes of waste including 24.7 million tonnes of low grade material (averaging 0.22% copper, 0.24 g gold per tonne or 0.007 oz. gold per ton) which will be stockpiled.

Mining will begin in the southern portion of the Central zone where gold values are greatest and the stripping ratio anticipated to be lower than average. It will proceed north in the sixth year and west a year later.

During the first year of operation, an estimated 110,000 oz. of gold will be produced due to the good grades in the southern end of the Central zone. Gold production is expected to fall to

100,000 oz. in the second year and thereafter average 60,000 oz. per year. Copper production should be 31.5 million lb. annually over the life of the project.

Production will be extended beyond the 10-year estimated mine life by processing the low grade stockpile over the ensuing six years.

Open pit mining will be conducted in a conventional manner using electric shovels and 85-ton diesel-electric trucks. Trucks will dump at the primary crushing plant near the mill. No in-pit crushing or extraordinary conveying systems are foreseen. Waste dumps are to be established east and north of the pit area. Waste rock has a low acid-generating potential; indeed it is acid-consuming, according to Imperial.

Pilot plant metallurgical testing is now competed; therefore, plans for the concentrator remain subject to change.

At press time, the most likely mill plan included semi-autogenous grinding and conventional flotation, although column flotation had not been ruled out. With a rated capacity to treat 13,600 tonnes per day, the concentrator will have an annual production of 50,000-60,000 tonnes of concentrate containing 25-28% copper, 1.5-2.0 oz. gold per ton and 1-2 oz. silver per ton. Recovery rates are estimated at 80% for gold and 75% for copper. Imperial expects to find Pacific Rim customers for its concentrates.

An estimated 450 jobs will be created during development. In the mining phase, 250 employees will be needed.

ENVIABLE POSITION

Imperial Metals is in the enviable position of having a project easily accessible by road and where experienced miners are found. Moreover, if the start-up date is the end of 1992, it will correspond with the closing of three other B.C. copper mines.

The Mount Polley claims also have the potential to expand operations or to extend the life of the mine. Drilling outside the pit area has identified four other areas that might someday be classified as ore. Geologically-inferred reserves on the property total 106 million tonnes with grades of 0.34% copper and 0.44 g gold per tonne (0.013 oz. gold per ton). **CMJ**

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A Royal Development

Imperial Metal's big Mount Polley open pit mine awaits cabinet approval, financing.

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by Marilyn Scales

BRITISH Columbia's next new base metal mine will likely be the Mount Polley project 56 km northwest of Williams Lake. The property is held 62% by Imperial Metals Corp. (operator of the project) and 38% by Corona Corp.

The porphyry copper deposit that is generating so much interest has probable reserves of 54 million tons grading 0.38% copper and 0.016 oz. gold per ton. Contained recoverable metal is estimated to be 466 million lb. of copper and 900,000 oz. of gold.

Once in production, the open pit and mill, running at a rate of 13,700 tonnes per day, will have an approximate annual output of 54,000 tonnes of gold-containing copper concentrate.

The company's second quarter report issued at the end of September, 1990 indicated that start-up could be as early as the end of 1992.

Exactly when production might begin is "the toughest question of the whole lot," says Eric Lavarack, Imperial's director of investor relations. Development will take only 22 months after a decision is made, he explains, but the official go-ahead will not be given until financing has been secured. Imperial is spending this winter getting that lined up.

The Mount Polley project is estimated to cost \$131.5 million, including \$13 million for contingencies and \$5 million for working capital.

With 60% of the revenue from copper and 40% from gold, at current prices the project should have a payback of less than four years.

Imperial Metals applied for Stage 1 approval by the end of last year. Once the B.C. Cabinet gives the nod, the project will be fast tracked, added Lavarack.

The Mount Polley intrusive complex is a multiple alkalic laccolith



Application has been made for Stage 1 approval of the Mount Polley mine and mill in central B.C.

centrally located in the Quesnel Trough. Six lithologic phases, five of which occur primarily as concordant lenses within the northeast-dipping volcanic strata, have been recognized. The sixth is an intrusive breccia pipe plunging steeply west.

The deposit is hosted by intrusive and crackle breccia in monzonite

porphyry or in crackle breccia in lapilli crystal tuff.

The main copper-bearing mineral is chalcopyrite with minor pyrite. Gold usually occurs as microscopic inclusions in the chalcopyrite and occasionally as small visible blebs. Other hypogene minerals in the ore zones include magnetite, and bornite.