

4.0 GEOLOGY AND RESERVES

The Mount Polley porphyry copper-gold deposit is one of several major deposits of this type in British Columbia, such as Island Copper, Similkameen, Afton, Brenda, Gibraltar and Bell Copper. In addition to copper as a primary product, the deposits of this type usually contain significant quantities of gold and molybdenum.

4.1 REGIONAL GEOLOGY

The Mount Polley deposit occurs in an alkalic intrusive complex in the Quesnel Trough. The trough is a 35 kilometre wide northwest trending early Mesozoic volcanic-sedimentary belt of regional extent. It is fault bounded against metamorphic Paleozoic Cache Creek argillite, greenstone, limestone, greywacke and chert on the west side and by Kaza and Cariboo Group shale, limestone and quartzite on the east side. The intrusive complex is one of several alkalic complexes in the Cordillera with associated porphyry copper-gold mineralization. The absolute age of the complex is 184 ± 7 million years, apparently coeval with the Upper Triassic volcanics that enclose the complex. Historically, the Cariboo District mineral production was from both placer and hard rock mines. Several former producers (Mosquito Creek, Cariboo Hudson, Boss Mountain, Dimac) are presently shut down for economic reasons or exhausted ore reserves. The QR gold deposit, located 18 kilometres north of Mount Polley, is currently in the mine development stage with planned production of 500 tonnes per day.

4.2 PROJECT GEOLOGY

The Mount Polley intrusive complex is located between Bootjack Lake on the west side and Polley Lake on the east. Detailed mapping combined with drill information suggests that its length is approximately 6 kilometres and its thickness at the centre 2-3 kilometres. The shape of the complex, being concordant with the northeast dipping volcanic strata, resembles a laccolith. It may be divided into five lithological members that constitute different phases of the intrusive, while the sixth and most important unit is an intrusion breccia which hosts copper-gold mineralization. Intrusion breccias underlie the central part of the property. Two out of three main breccia bodies outlined by drilling to date host economic concentrations of porphyry type copper-gold mineralization. The third breccia, which underlies the top of Mount Polley, is void of mineralization and appears to be younger than the other two breccias. Breccias consist of fragments of syenodiorite, monzonite porphyry and volcaniclastics cemented by pink, fine-grained syenite matrix made of potassium feldspar and plagioclase. Superimposed on the intrusion breccia is crackle breccia, which consists of a stockwork of irregular veinlets, Pods and drusy cavities containing magnetite, chalcopyrite and various alteration minerals. The intensity of copper-gold mineralization is directly proportional to the degree of crackle breccia development.

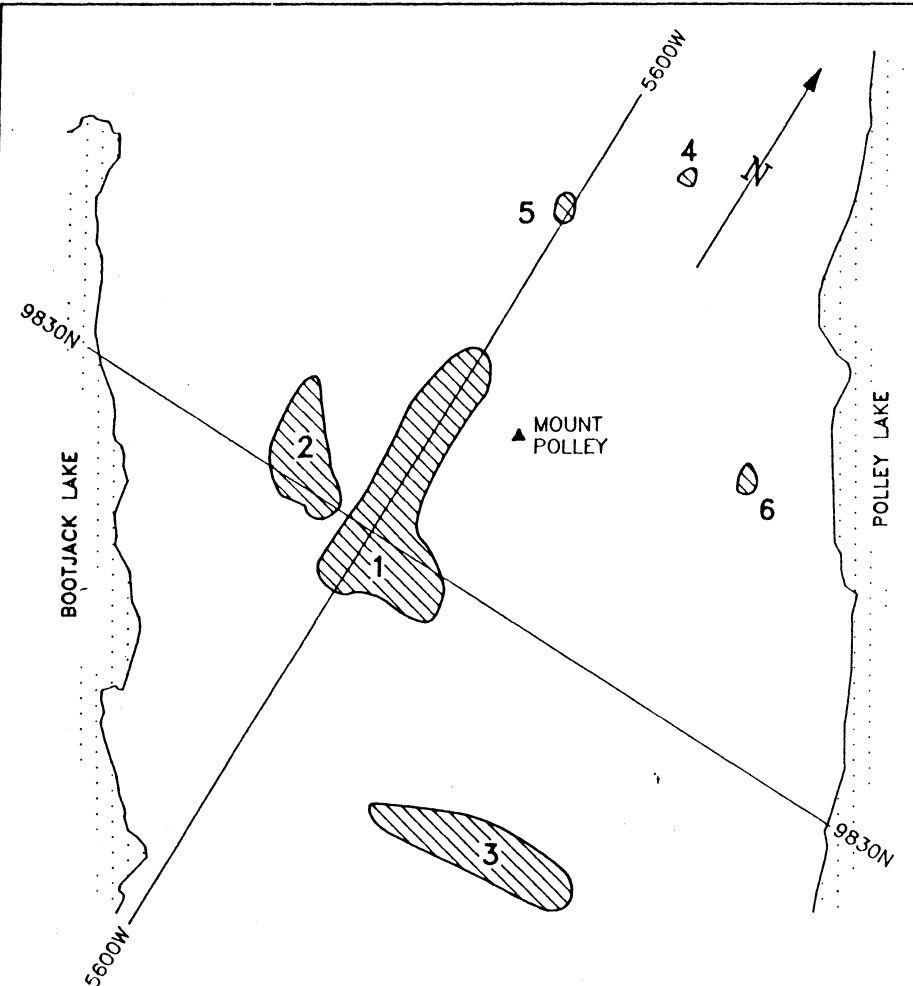
4.3 MINERALIZATION

Six zones of significant copper-gold mineralization have been outlined by drilling to date. The most important economic concentrations are found in the two main breccias that host the Central and West Zone (Figure 4, page 24). Primary minerals in the deposit include magnetite, chalcopyrite, very minor pyrite and trace amounts of bornite and native gold. Magnetite and chalcopyrite occur as very fine-grained disseminations and in fractures and drusy cavities in the host rock.

The West Zone presently measures 450 metres in diameter and has been drilled to a depth of 275 metres. The Central Zone is a tabular body of mineralized breccia measuring 1,100 metres in length and 450 metres in width. A pyrite zone that measures 4,500 metres long and up to 1,000 metres wide is located east of and well outside of the proposed pit limits.

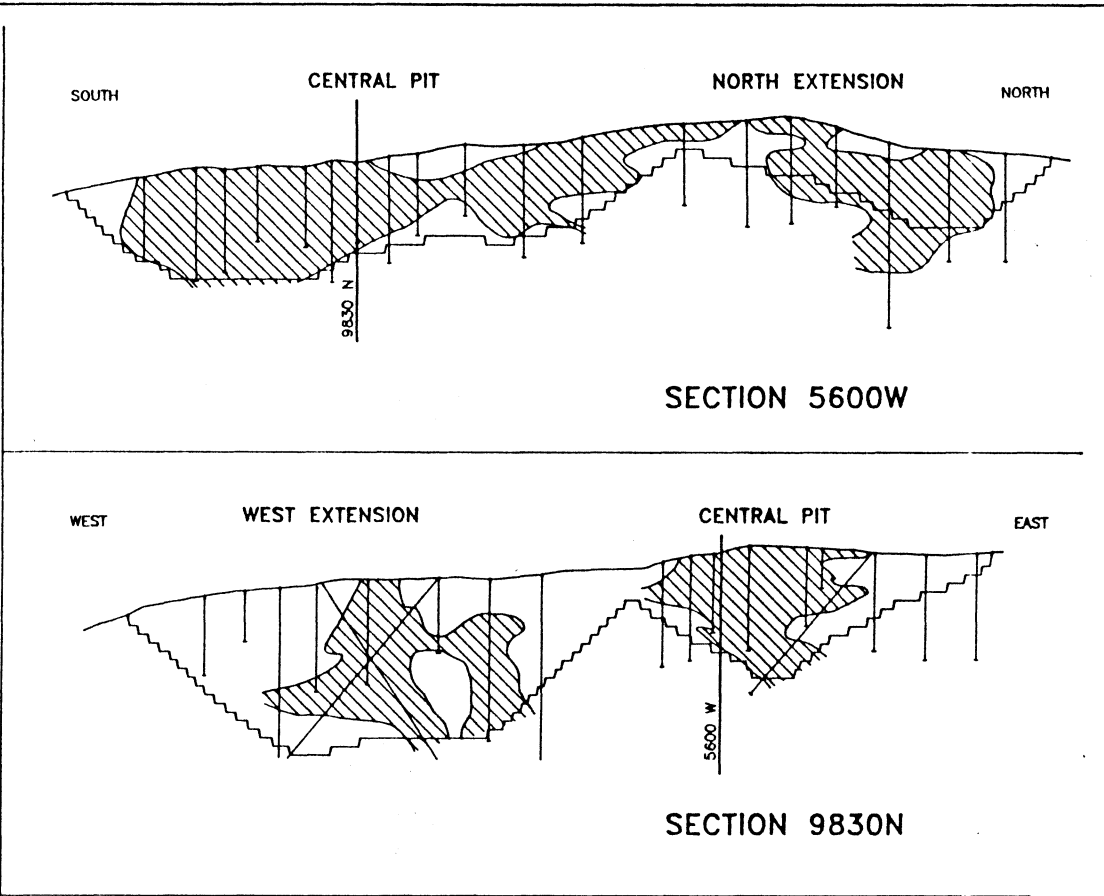
4.4 MINERAL RESERVES

A reserve estimate in the Central and West Zone was done in January 1989 using the information from current and previous drill programs. Table 1 is a summary of ore reserves calculated by using 0.30% recovered copper equivalent as a cutoff grade.



LEGEND:

- MINERALIZED ZONE
($>0.30\%$ Cu, $>0.4\text{g/T Au}$)
- 1 CENTRAL ZONE
- 2 WEST ZONE
- 3 SOUTH ZONE
- 4 ROAD ZONE
- 5 ZONE FIVE
- 6 ZONE SIX



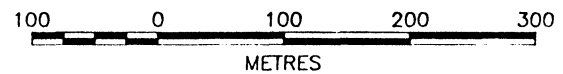
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CARIBOO MINING DIVISION, B.C.

FIGURE 4

NTS: 93 A/12

MINERALIZED ZONES



SCALE:	GEOLOGIST: R. PESALJ
DATE: APRIL 1989	DRAWN BY: S. WOOLVERTON

TABLE 1
MOUNT POLLEY - PIT DESIGN ORE RESERVES

Central Zone (S. End)

Tonnes	22,763,000 (25,096,000 tons)
Copper	0.44%
Gold	0.781 gr/tonne (0.023 oz/ton)
Strip Ratio	0.94:1

Central Zone (N. End)

Tonnes	9,714,000 (10,710,000 tons)
Copper	0.36%
Gold	0.534 gr/tonne (0.016 oz/ton)
Strip Ratio	1.18:1

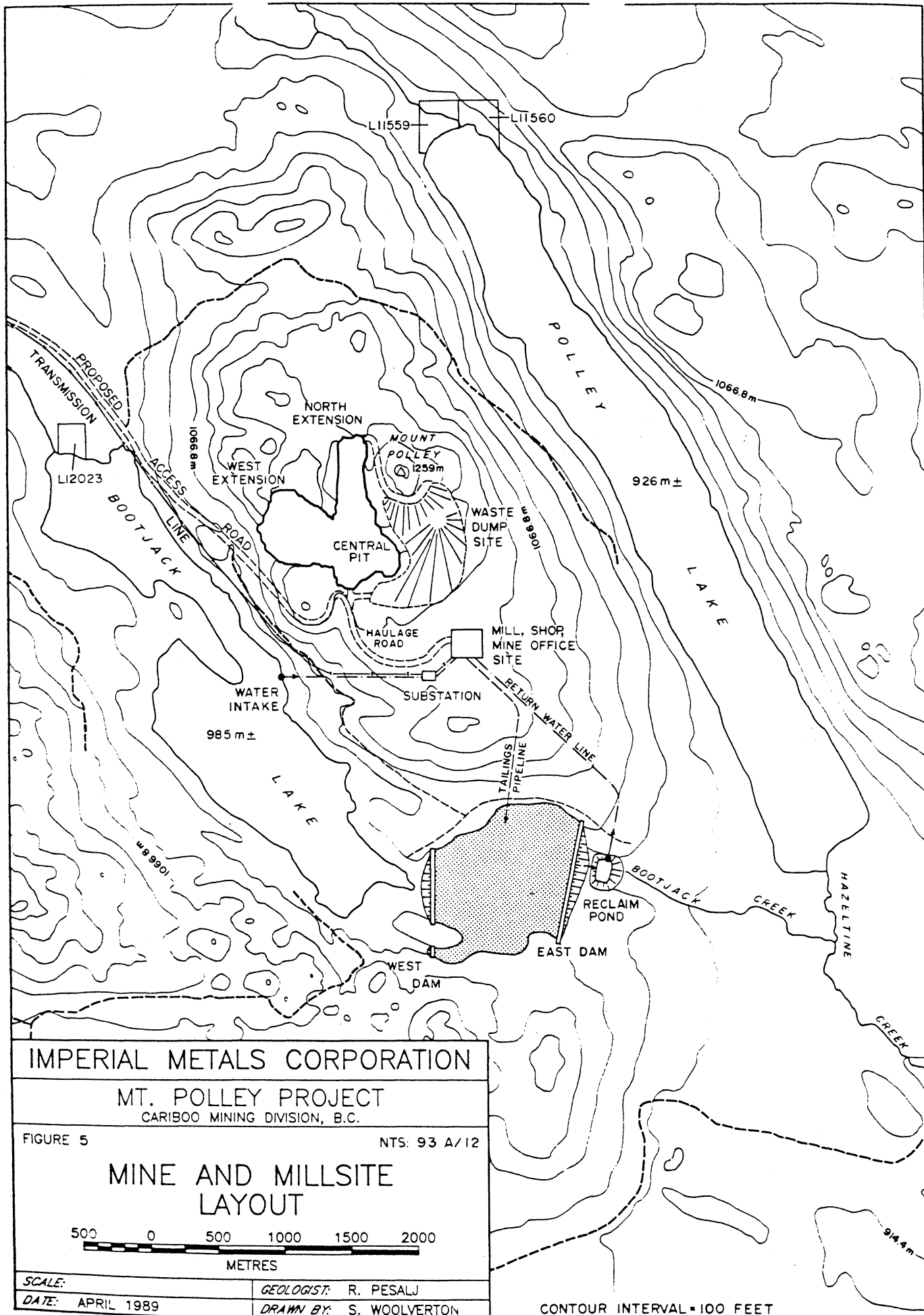
West Zone

Tonnes	16,092,000 (17,742,000 tons)
Copper	0.46%
Gold	0.416 gr/tonne (0.012 oz/ton)
Strip Ratio	3.33:1

TOTAL

Tonnes	48,569,000 (53,549,000 tons)
Copper	0.44%
Gold	0.61 gr/tonne (0.017 oz/ton)
Strip Ratio	1.9:1

*n 36 m tons @ .4% Cu
+ .02 oz/ton Au*



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FIGURE 5 NTS: 93 A/12

MINE AND MILLSITE LAYOUT

500 0 500 1000 1500 2000
 METRES

SCALE:	GEOLOGIST: R. PESALJ
DATE: APRIL 1989	DRAWN BY: S. WOOLVERTON

CONTOUR INTERVAL = 100 FEET

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