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GOLDEN BEAR MINE

EXPLORATION PROPOSAL

BEAR, BEAR 1, TOTEM
MINERAL CLAIMS

MUDDY LAKE

TATSAMENIE LAKE AREA, B.C.

ATLIN MINING DIVISION

LATITUDE 58° 11' N

LONGITUDE 132° 17' W

CLAIMS OWNED BY

CHEVRON CANADA MINERALS LTD.

AND

NORTH AMERICAN METALS CORP.

BY

E.D. TITLEY, B.Sc.
PROJECT GEOLOGIST

OCTOBER 18, 1988

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composition to the volcanic package intrudes the volcanic rocks in the vicinity of the fault.

Deformation of the stratified rocks resulted in folding and metamorphosis to the greenschist facies. Within the aureoles of the batholiths, metamorphism rises to the amphibolite facies. This deformation was probably immediately preceded and driven by the emplacement of granitoid batholiths in the Jurassic. Later in this event, development of a major system of north-south brittle faults resulted in formation of extensive carbonate and quartz breccia and emplacement of gold mineralization along the faults. During the Cretaceous and Tertiary, basalts were extruded to the north. Post-ore mafic dykes in the mineralized zone were likely emplaced at this time.

Underground and surface exploration programs focussed on the Bear zone which was the scene of major slope movements in recent geologic time. The most notable was a rock avalanche which occurred 2,000 - 4,000 years ago. A radio-carbon age of 2,280 years was recently obtained from a piece of wood collected from a borehole sample near the base of the silt deposits in Muddy lake (S.Evans G.S.C. June 1988, personal communication). This event had a volume of 134 million cubic metres (Tod, 1988) travelled up to 3.5 kilometres along the valley of Bearskin Creek and left a pile of mainly gabbro rubble up to 75 metres in depth that dammed the valley and formed Muddy Lake.

TABLE 6

GOLDEN BEAR PROJECT

GEOLOGIC CHRONOLOGY OF THE GOLDEN BEAR PROPERTY

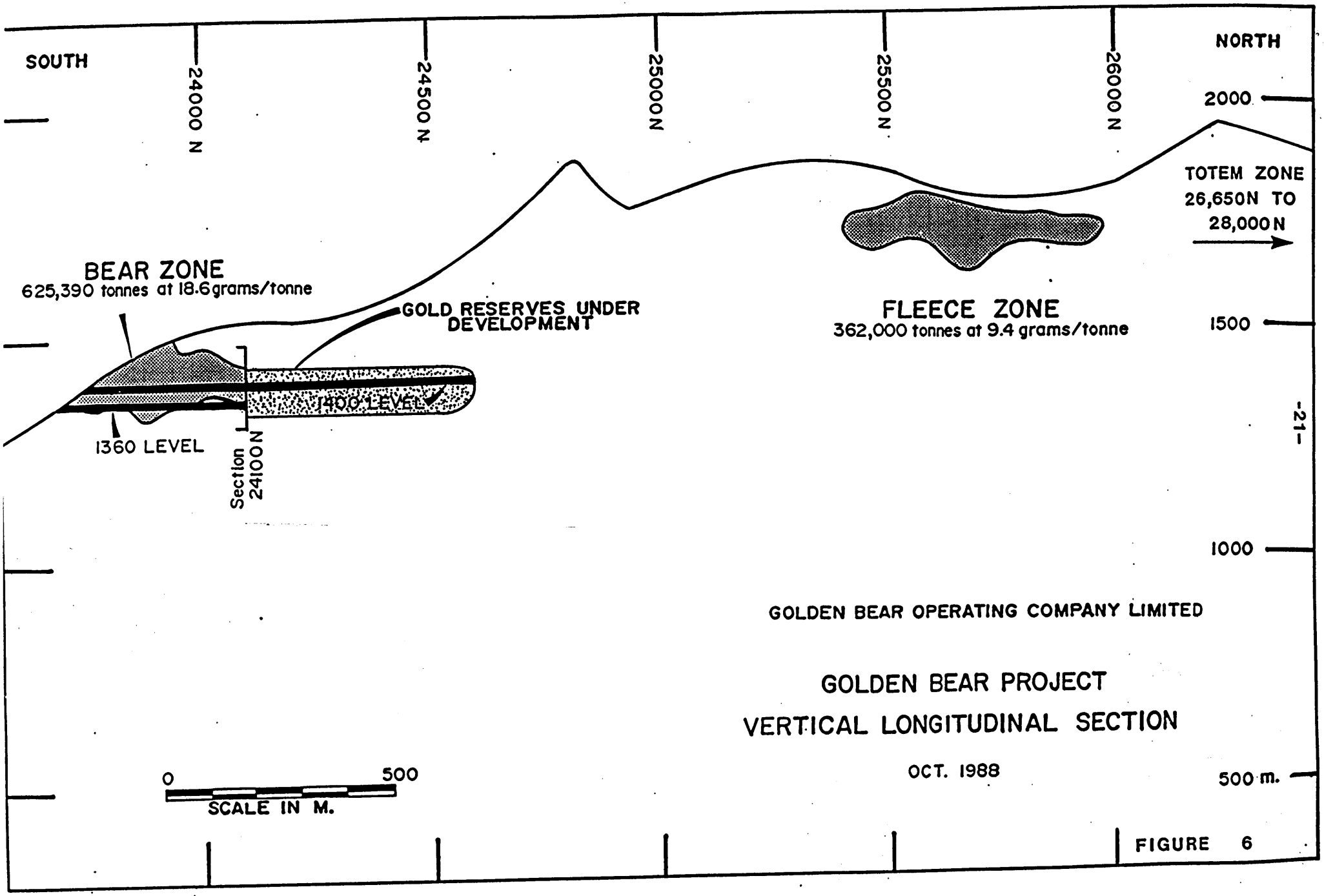
Time Period	Ma	Event	Feature
Quaternary	0-2	Sedimentation	Alluvium, Glacial Deposits, Landslide Debris
Upper Tertiary to Quaternary	0-25	Volcanism	Level Mountain Group Dykes and Flows
Middle Tertiary to Quaternary	0-38	Erosion	Glacial and Stream Dissection
Lower Tertiary	38-65	Tectonism	Uplift and Extensional Block Faulting
Lower Cretaceous to Upper Tertiary	38-98	Volcanism	Sloko Group Dykes
Jurassic	150-200	Alteration	Golden Bear Mineralization?
Middle Jurassic	163-181	Intrusion	Non-Foliated Diorite F-1 Dykes
Middle Triassic	231-248	Tectonism	Tahltanian Orogeny
Middle to Lower Triassic	231-248	Intrusion	Foliated Diorite
Permo-Triassic	231-286	Volcanism	Stikine Terrane Volcanics (2000m)
Permian	248-286	Sedimentation	Stikine Terrane Carbonates (750m)
Permian or Older	248+	Intrusion?	Serpentite

G MINERALIZED ZONES

The deposit consists of a series of tabular mineralized zones situated along north-south fault system known as the Bear Fault System. Mineralization generally occurs in breccia and dissseminated pyrite localized along faulted contacts of limestone, dolomite or silicified limestone with mafic volcanics. Mineralized zones are steeply dipping, tabular and elongate with a sub-horizontal plunge.

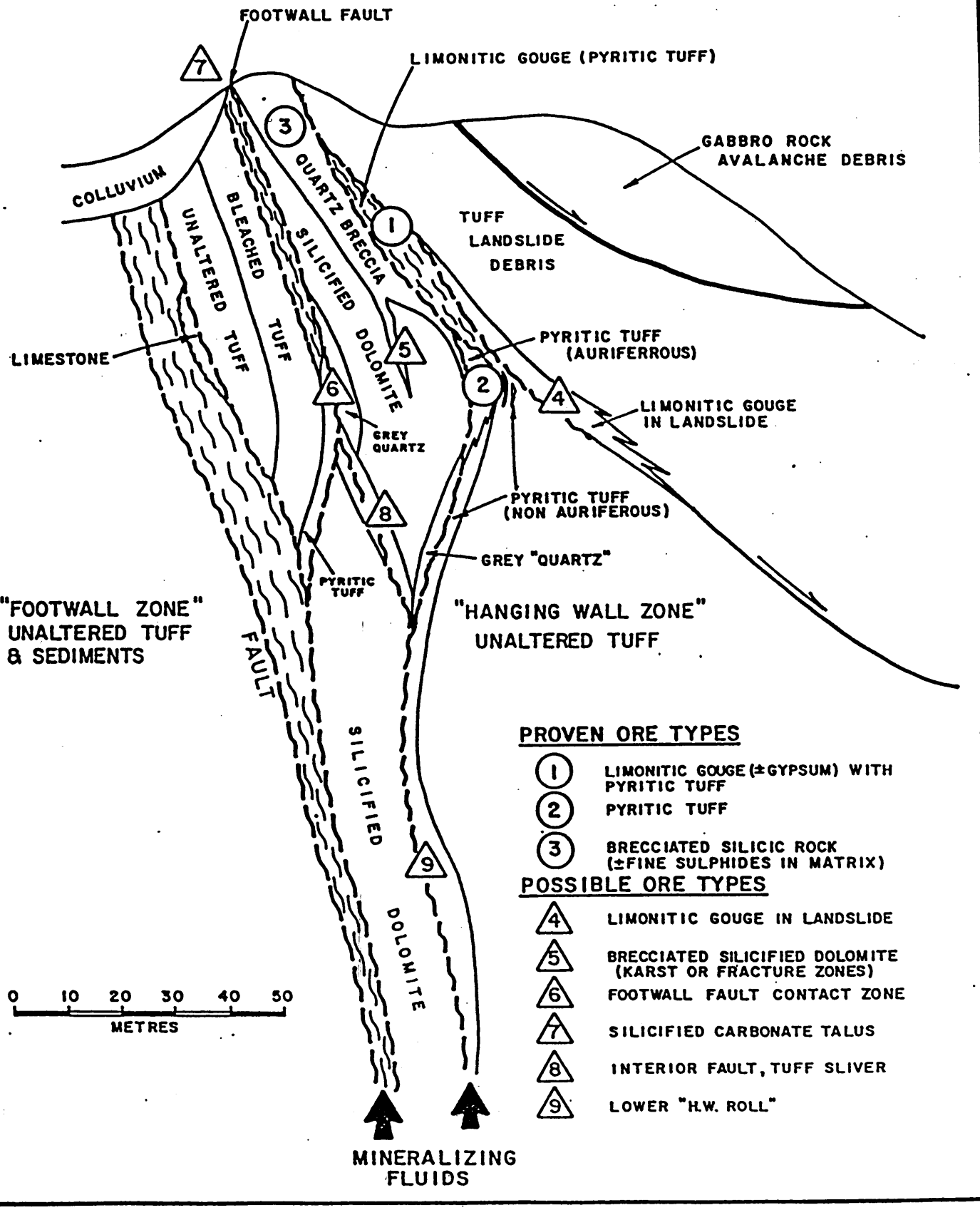
Three zones have been explored to date by diamond drilling (Figure 6). The largest of these is the Bear Zone, which has been explored by drifting, cross-cutting and raising. Known dimensions of the zone give a length of 350 metres, vertical extent of 140 metres and width ranging from 2.5 to 14.5 metres and averaging 18.63 grams Au/tonne. Figure 7 shows an idealized cross-section in the main part of the Bear Zone. Much of the ore is concentrated above a roll in the main hanging wall structure. Ore consists of 33% pyritized tuff, 20% fault gouge and 45% dolomitized and silicified carbonate breccia. Further exploration has traced drill indicated reserves an additional 450 metres to the north. Prospective areas further north, to the south and down dip are largely unexplored.

Within the Fleece zone, a tectonically emplaced sliver of tuff is surrounded by altered limestone. Alteration and mineralization is similar to the Bear Zone. A mineralized felsic dyke which appears to be closely related to mineralizing events is also seen in the


SOUTH
24000 N
24500 N
25000N
25500 N
26000 N
NORTH
2000
1500
1000
500 m.
TOTEM ZONE
26,650N TO
28,000N
BEAR ZONE
625,390 tonnes at 18.6grams/tonne
GOLD RESERVES UNDER
DEVELOPMENT
1400 LEVEL
1360 LEVEL
Section
24100N
FLEECE ZONE
362,000 tonnes at 9.4 grams/tonne
0
500
SCALE IN M.
GOLDEN BEAR OPERATING COMPANY LIMITED
GOLDEN BEAR PROJECT
VERTICAL LONGITUDINAL SECTION
OCT. 1988
FIGURE 6

BEAR MAIN ZONE

IDEALIZED CROSS-SECTION SHOWING MINERALIZATION (LOOKING NORTH)



PROVEN ORE TYPES

1. LIMONITIC GOUGE (±GYPSUM) WITH PYRITIC TUFF
2. PYRITIC TUFF
3. BRECCIATED SILICIC ROCK (±FINE SULPHIDES IN MATRIX)

POSSIBLE ORE TYPES

4. LIMONITIC GOUGE IN LANDSLIDE
5. BRECCIATED SILICIFIED DOLOMITE (KARST OR FRACTURE ZONES)
6. FOOTWALL FAULT CONTACT ZONE
7. SILICIFIED CARBONATE TALUS
8. INTERIOR FAULT, TUFF SLIVER
9. LOWER "H.W. ROLL"

Fleece Zone. The Fleece Zone contains drill indicated reserves of 362,000 tonnes of 9.4 grams Au/tonne.

The Totem Zone has structural and lithologic similarities to the Bear and Fleece deposits. More work is required to evaluate this occurence.

MINERALIZATION

Extensive petrographic, mineralogical and metallurgical study has identified Golden Bear ore as a sulphide-rich gold ore with a complex history involving several episodes of fracturing and alteration. More than half the gold and silver occurs in an unleachable (in straight cyanide) form as submicroscopic arsenide minerals (Melis, Clifford and Clifford, 1987). Part of this gold and silver is concentrated at the edge of early pyrite overgrowths and part occurs disseminated in early pyrite and bravoite. Leachable minerals include gold and tetrahedrite both of which contain some silver.

There are three main ore types: quartz breccia mineralization, disseminated mineralization in tuff, and fault gouge mineralization. Gold in the quartz breccia is concentrated in the black matrix which cements fragments of silicified carbonate rock and altered tuffaceous volcanics. The black matrix consists of an intimate mixture of finely crushed? quartz, illite and pyrite.

Gold within the tuff is concentrated within massive pyrite and pyrite stockwork mineralalization. Fault gouge ore is generally mixed with the pyritized tuffs in the weathered zone near surface, and at the base of the landslide where it is in contact with the mineralized zone. Visible gold is seen in one location in the Bear Zone within pyritized tuff quartz breccia.

ALTERATION

The limestones have undergone quartz-dolomite + pyrite alteration. Dolomite-kaolinite + chlorite and dolomite-illite + pyrite alteration developed in the metavolcanic rocks. Alteration occured along fractures and open spaces in extensive brecciated zones adjacent to fault structures, particularly within the limestone package. Dolomite and silica alteration took place initially. The deposition of silver and trace elements and the remobilization of some dolomite and silica occured later. It is likely that the gold-bearing sulphide-rich phase occured in the final stages of alteration.

K/Ar sericite and whole rock age dates from five drill core samples of altered tuff from the Bear, Fleece and Totem Zones range from 177 Ma to 205 Ma (Schroeter 1987). These dates are presumed to represent the age of mineralization. Two other K/Ar hornblende and whole rock dates from a mineralized hornblende feldspar porphyry which cuts tuffaceous rocks along the Bear Fault system, and a large albitite body northwest of the property (Hewgill 1985) gave