

888885

RUN DATE: 08/13 96
RUN TIME: 10:23 04MINFILE / pc
MASTER REPORTPAGE: 1
REPORT: R08N0100GEOLOGICAL SURVEY BRANCH - MINERAL RESOURCES DIVISION
MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCESMINFILE NUMBER: 104A 001

NATIONAL MINERAL INVENTORY: 104A4 Cu2, Au5

NAME(S): TODD CREEK (SOUTH ZONE), TODD 1-6, TOC 10-11,
TODD*Similarities to CLONE?
i.e. hematite-ox*STATUS: Developed Prospect
NTS MAP: 104A04W
LATITUDE: 56 13 15
LONGITUDE: 129 46 23
ELEVATION: 0945 Metres
LOCATION ACCURACY: Within 500MMINING DIVISION: Skeena
UTM ZONE: 09
NORTHING: 6230705
EASTING: 452060

COMMENTS: Southwest end of mineralized zone (Assessment Report 18800).

COMMODITIES: Gold Copper

MINERALS

SIGNIFICANT: Chalcopyrite Pyrite
ASSOCIATED: Quartz Hematite Malachite
ALTERATION: Malachite Quartz Pyrite Sericite Chlorite
Siderite
ALTERATION TYPE: Propylitic Sericitic Carbonate Oxidation
MINERALIZATION AGE: Unknown

DEPOSIT

CHARACTER: Vein Stockwork Breccia
CLASSIFICATION: Hydrothermal Epigenetic
TYPE: Subvolcanic Cu-Ag-Au (As-Sb)
SHAPE: Tabular
MODIFIER: Fractured
DIMENSION: STRIKE/DIP: 030/75W TREND/PLUNGE:

HOST ROCK

DOMINANT HOST ROCK: Volcanic

STRATIGRAPHIC AGE

Triassic-Jurassic

GROUP

Hazelton

FORMATION

Unuk River

IGNEOUS/METAMORPHIC/OTHER

LITHOLOGY: Feldspar Porphyry
Andesite Flow
Andesite
Andesite Agglomerate
Feldspar Porphyry Flow
Feldspar Porphyry Intrusive

GEOLOGICAL SETTING

TECTONIC BELT: Intermontane
TERRANE: Stikine

PHYSIOGRAPHIC AREA: Boundary Ranges

INVENTORY

ORE ZONE: SOUTH

CATEGORY: Inferred YEAR: 1988

QUANTITY: 207000 Tonnes

COMMODITY GRADE
Gold 5.4800 Grams per tonneCOMMENTS: Geological reserves.
REFERENCE: Hemlo Gold Mines Inc. Annual Report, 1988.

CAPSULE GEOLOGY

The Todd Creek (South Zone) prospect is located at the headwaters of Todd Creek, immediately north of the toe of Todd Glacier, 35 kilometres northeast of Stewart.

The prospect was discovered in 1959 by Newmont Mining Corporation. Newmont conducted a limited trenching and drilling program (5 holes?) on the prospect in 1960 (Minister of Mines Annual Report, 1960). W. Christians staked the Todd 1-6 claims over the occurrence for Kerr-Addison Mines in 1969; no work was reported. A.G. Hodgson conducted a geological examination in 1971. In 1986, Noranda Exploration Company Limited staked the Toc 1-12 claims; the prospect lies on the Toc 10-11 claims. During 1986-88, Noranda performed geological mapping, sampling, trenching and drilling (34 holes, totalling 3186 metres) on the zone. Golden Nevada Resources Inc. entered into a joint venture with Noranda to earn 50 per cent in 1987. In 1989, ownership of the Toc claims was Goldnev Resources (50 per cent), Noranda Inc. (13.9 per cent), Branda Mines Ltd. (13.9 per cent) and Hemlo Gold Mines Inc. (13.9 per cent).

The area is underlain by Hazelton Group rocks of the Upper Triassic to Lower Jurassic Unuk River Formation. The mineralized zone occurs in feldspar porphyry (flows?, intrusive?) which is exposed over an area 950 by 500 metres. The porphyry is bound to the

MINFILE NUMBER: 104A 001

RUN DATE: 08/13 96
 RUN TIME: 10:23 04

MINFILE / pc
 MASTER REPORT
 GEOLOGICAL SURVEY BRANCH - MINERAL RESOURCES DIVISION
 MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

PAGE: 2
 REPORT: RGEN0100

CAPSULE GEOLOGY

west and north by dark green-grey andesite flows and agglomerates and to the south and east by glacial till. The western contact is not exposed. The northern contact is defined by a north-trending, east-dipping fault.

The feldspar porphyry is pervasively altered. Most of the western portion of the porphyry exhibits quartz-pyrite alteration. Further east, near the mineralization, quartz-sericite alteration prevails over locally developed chloritic and iron carbonate alteration.

Mineralization on surface comprises chalcopyrite, pyrite, specular hematite and malachite. The mineralization is hosted in a 5 to 15-metre wide north-northeast trending, steeply west-dipping fracture zone that cuts the eastern portion of the exposed porphyry. The mineralization occurs along the southern 425 metres and the northern 100 metres of the exposed zone (Assessment Report 18800). The fracture zone is transected by several east-striking post-mineralization faults that exhibit both minor dextral and sinistral displacement.

In the fracture zone there are two types of mineralization: a) massive pyrite-chalcopyrite stringers and veins, 1 to 10 centimetres wide and b) a zone of quartz-hematite-chalcopyrite stringers and breccia veins up to 3 metres wide. The sulphide veins generally exhibit higher molybdenum, copper and arsenic values than the breccia veins.

Typically, the mineralized fracture zone comprises 1 or 2 large quartz breccia veins, separated by a stockwork of narrow quartz-hematite veins. The larger breccia veins generally occur along the footwall and hangingwall of the zone.

A channel sample from taken from trench 13 in 1987 assayed up to 4.35 grams per tonne gold across 1.9 metres. The 1987 drilling program resulted in a sample which assayed up to 6.85 grams per tonne gold and 0.23 per cent copper across 6.15 metres (hole NTC-87-9) (Assessment Report 17423).

The 1988 drilling tested the downdip continuity of the zone in holes NTC-87-2 to 9 and the northward continuity of the higher grade mineralization encountered in NTC-87-9. The best interaaction assayed 3.61 grams per tonne gold and 0.27 per cent copper across 29.75 metres in hole NTC-88-19; this included 6.91 grams per tonne gold and 0.36 per cent copper across 8.15 metres (Assessment Report 18800).

The Todd Creek (South Zone) is reported to contain inferred geological reserves of 207,000 tonnes grading 5.48 grams per tonne gold (Hemlo Gold Mines Inc. Annual Report, 1988).

BIBLIOGRAPHY

EMPR AR 1960-7
 EMPR GEM 1972-513
 EMPR EXPL 1984-384; 1985-C378; 1987-A15,C368; 1988-A15,A32; 1990-35
 EMPR BULL 63
 EMPR ASS RPT 3428, 15988, 17423, *18800
 EMPR MAP 8
 EMPR PF (In 082M141 - Goldnev Resources Inc., Prospectus, July 1989)
 EMPR MER 1987-13; 1988-51
 EMR MIN BULL MR 223 B.C. 317
 GSC OF 2582
 GSC MAP 9-1957; 1418A
 GCNL #172, #211, #214, #235, 1987; #121, #223, 1988; #127, 1989
 CMH 1989-90, p. 226
 Hemlo Gold Mines Inc., Annual Report, 1988

DATE CODED: 850724
 DATE REVISED: 910904

CODED BY: GSB
 REVISED BY: WC

FIELD CHECK: N
 FIELD CHECK: N