Location/Identification

MINFILE Number: 092HSE060
National Mineral Inventory Number: 092H8 Au3
Name(s): **GOOD HOPE**
NIGHTHAWK

Status: Past Producer
Mining Division: Osoyoos
Mining Method Underground, Open Pit
Electoral District: Yale-Lillooet
Regions: British Columbia
Resource District: Okanagan Shuswap Forest District
BCGS Map: 092H040
NTS Map: 092H08E
UTM Zone: 10 (NAD 83)
Latitude: 49 20 22 N
Northing: 5469507
Longitude: 120 00 18 W
Easting: 717554
Elevation: 1542 metres
Location Accuracy: Within 500M
Comments: Open pit on the boundary between the Good Hope No. 1 claim (Lot 3917s) and the Good Hope No. 2 claim (Lot 3918s), 3.2 kilometres northeast of the Similkameen River and 5.5 kilometres east-southeast of Hedley (Assessment Report 10196, Plate 3).

Mineral Occurrence

Commodities: Gold, Silver, Copper, Bismuth, Molybdenum, Tungsten

Minerals
Significant: Arsenopyrite, Pyrrhotite, Pyrite, Marcasite, Chalcopyrite, Bismuth, Molybdenite, Hedleyite, Gold, Scheelite
Associated: Quartz, Actinolite, Epidote, Calcite
Alteration: Hedenbergite, Pyroxene, Quartz, Calcite, Garnet, Epidote
Alteration Type: Skarn, Silicific'n
Mineralization Age: Unknown

Deposit
Character: Stratabound, Disseminated, Massive, Vein
Classification: Skarn, Hydrothermal, Epigenetic
Type: K04: Au skarn
Shape: Tabular **Modifier:** Faulted
Dimension: 55x20x1 metres
Comments: Flat-lying, slightly saucer-shaped orebody about 1.2 metres thick.

Host Rock

Dominant Host Rock: Metasedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Triassic	Nicola	French Mine	------
Triassic	Undefined Group	Peachland Creek	------
Lower Jurassic	------	------	Hedley Intrusions
Middle Jurassic	------	------	Cahill Creek Pluton

Isotopic Age	Dating Method	Material Dated
------	------	------
------	------	------
199 Ma	Uranium/Lead	Zircon
168 Ma	Uranium/Lead	Zircon

Lithology: Limestone, Garnetite, Pyroxene Quartz Garnet Skarn, Diorite Sill, Basaltic Ash Tuff, Aplitic Dike, Andesite Ash Tuff, Biotite Granodiorite, Granodiorite, Granite

Comments: Hedley Intrusions age date from Geological Fieldwork 1989, page 271. Host rocks also includes feldspar hornblende porphyritic diorite.

Geological Setting

Tectonic Belt: Intermontane
Physiographic Area: Thompson Plateau
Terrane: Quesnel

Metamorphic Type: Contact
Relationship: Pre-mineralization, Syn-mineralization

Inventory

Ore Zone: SOUTH
Year: 1980
Category: Indicated
Report On: Y
Quantity: 37,200 tonnes
NI 43-101: N

Commodity	Grade
Gold	5.4500 grams per tonne

Comments: Reserves in area of percussion drilling, adjacent to and south of pit. Mining in 1982 amounted to 6874 tonnes which depleted the reserves.

Reference: Dolmage, Mason and Stewart Ltd, 1980.

Summary Production

		Metric		Imperial	
Mined:		11,115	tonnes	12,252	tons
Milled:		11,115	tonnes	12,252	tons
Recovery	Gold	166,915	grams	5,366	ounces
	Silver	119,539	grams	3,843	ounces
	Copper	602	kilograms	1,327	pounds

Capsule Geology

A small amount of high-grade gold ore was produced from the Good Hope mine, 3.2 kilometres northeast of the Similkameen River and 5.5 kilometres east-southeast of Hedley.

This area northeast of the Similkameen River is underlain by various sediments and volcanics comprising the Ordovician to Triassic Apex Mountain Complex, the Middle to Upper Triassic Peachland Creek Formation and the Upper Triassic Nicola Group. This sequence is cut by hornblende porphyritic diorite dykes and sills of the Early Jurassic Hedley Intrusions, and intruded by granodiorite of the Middle Jurassic Cahill Creek pluton.

The Good Hope mine is hosted in limestone of the Upper Triassic French Mine Formation (Nicola Group). The unit is locally underlain by basaltic ash tuff of the Peachland Creek Formation and overlain by andesite ash tuff of the Whistle Creek Formation (Nicola Group). A body of coarse-grained biotite granodiorite related to the Cahill Creek pluton outcrops 240 metres west of the mine area. A second 24- metre thick sill of Cahill Creek granodiorite and granite lies 20 metres below the old workings, outcropping just east of the pit. A 2-metre thick sill of feldspar-hornblende porphyritic diorite of the Hedley Intrusions separates the limestone from the underlying tuff. Bedding dips gently (up to 25 degrees) north, northeast and northwest in the vicinity of the mine.

The limestone is altered along its lower contact with the underlying diorite sill to a pyroxene-garnet skarn and garnetite. The pyroxene-garnet skarn, immediately underlying the limestone, is characterized by large prismatic crystals of dark green hedenbergite with interstitial glassy ("watery") quartz and coarsely crystalline calcite. Reddish brown garnet occurs locally in this zone of alteration, which is discontinuous and less than 0.3 metres thick. The pyroxene-garnet skarn passes downward into a zone up to 2 metres thick comprising massive coarse-grained garnetite or a fine-grained skarn comprised of garnet, pyroxene, quartz, calcite and epidote. The garnets and pyroxenes are locally partially replaced by a dark green amphibole. The limestone is also locally recrystallized and silicified.

The 1.2-metre thick orebody is hosted in the upper portion of the skarn, immediately underlying the limestone. The deposit is flat lying, slightly saucer-shaped, and oval in plane view, with a north-south length of 55 metres and an east-west distance of 20 metres. Mineralization also occurs in a 3-metre wide fault zone, striking 010 degrees and dipping 80 degrees west, in the western portion of the open pit.

Mineralization is generally sparse and consists of disseminated to massive pyrrhotite, arsenopyrite, pyrite, marcasite, and chalcopyrite, with minor native bismuth, hedleyite (lead-bismuth telluride) and native gold. These minerals, in addition to quartz and calcite, commonly occur in fractures in hedenbergite crystals. The gold is erratically distributed and does not appear to be associated with any particular mineral. Small grains of gold occur in cleavage cracks in hedenbergite and coarse calcite. Gold is also casually associated with quartz, arsenopyrite and native bismuth. Mineralized grab samples assayed up to 94 grams per tonne gold (Paper 1989-3, page 29).

This skarn is cut by north-striking quartz-actinolite-epidote- calcite veins, sometimes containing molybdenite and scheelite, that border aplitic dykes of the Cahill Creek pluton.

A second zone of mineralization in garnetite and skarn occurs 70 metres south of the main workings. The zone strikes northeast for 60 metres and dips variably northwest. Percussion drilling between this zone and the pit to the north in 1980 outlined indicated reserves of 37,200 tonnes grading 5.45 grams per tonne gold (National Mineral Inventory - Dolmage, Mason and Stewart Ltd., 1980).

Some 4241 tonnes averaging 21.10 grams per tonne gold were mined by open pit by Hedley Mascot Gold Mines Ltd. between 1945 and 1948. A further 6874 tonnes grading 11.26 grams per tonne gold, 17.39 grams per tonne silver and 0.00875 per cent copper were mined from underground workings by Good Hope Resources Ltd. and Dankoe Mines Ltd. in 1982.

Bibliography

EMPR AR 1944-57,58; 1945-93; 1946-125; *1947-142-144; 1948-124; *1961-56-58; 1967-217
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EMPR FIELDWORK 1985, pp. 101-105; 1986, pp. 65-79; 1987, pp. 59-80; *1989, p. 275
EMPR OF 1987-10; 1988-6; 1998-8-M, pp. 1-74
EMPR P *1989-3, pp. 29,30
EMR MP CORPFILE (Hedley Mascot Gold Mines Ltd., Highawk Mines Ltd., Good Hope Resources Ltd., Grove Explorations Ltd.)
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Date Coded:	1985/07/24	**Coded By:**	BC Geological Survey (BCGS)	**Field Check:**	N
Date Revised:	1991/11/20	**Revised By:**	Peter S. Fischl (PSF)	**Field Check:**	N