

The Blackdome Gold-Silver Deposits, British Columbia

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Gold and silver mineralization occurs in South Central British Columbia, on the flanks of Blackdome Mountain which is located on the east margin of Chilcotin Plateau between 6,300 feet and 7,000 feet ASL. The City of Vancouver lies 140 miles to the south and the Fraser River 10 miles eastward. The rounded and gently sloping terrain is covered by open pine forest up to an elevation of 6,600 feet.

Gold bearing quartz veins were found at Blackdome Mountain in 1947. More recently, since 1978, 42,500 feet of diamond drilling and 5,000 feet of underground development have been completed at a cost of approximately six million dollars. There has been no production to date, however, in 1980, reserves indicated by diamond drilling reached an economic threshold and production is anticipated by 1985.

As of December 1983 drill indicated reserves determined at three cut-off grades were as follows:

Gold equivalent cut-off	Short tons	Average Gold equivalent
0.10 oz./T	455,000	0.38 oz./T
0.20 oz./T	236,000	0.53 oz./T
0.25 oz./T	165,000	0.65 oz./T

The gold equivalent value is determined by equating 45 ozs. of silver to one oz. of gold. These estimates provide a minimum mining width of five feet, but do not allow for further dilution or metallurgical losses.

The region surrounding Blackdome Mountain is a rolling plateau occupied by Tertiary volcanic rocks which have a total thickness greater than 2,000 feet. These rocks are underlain by Cretaceous Jackass Mountain sediments and Kingsvale lavas. In the near vicinity of the gold-silver veins about 1,500 feet of gently arched volcanic strata occur from top to bottom as follows: post-ore plateau basalt, massive andesite flows, rhyolitic volcanics, and massive dacite flows. The rhyolite has a restricted lateral extent and may represent the edge of a caldera basin. Excepting the basalt, all of the volcanic units occur as ore zone wall rocks.

The metal bearing veins form a discrete oval-shaped area approximately 1 mile by 3 miles. A series of NE trending normal faults with dips of 65 degrees NW to 90 degrees define the long axis of this area and localize the occurrence of mineralized quartz "bonanza" lodes. The faults are continuous clay seams that vary from 6 inches to 18 inches in thickness and

are enveloped by zones of argillic alteration from a few feet to several tens of feet wide.

The quartz lodes are composed of wall breccia, vuggy and cockscomb quartz as well as dense chalcedonic varieties. Metal values are in the form of disseminated native gold and native silver. The silver to gold ratio averages 8.4 to 1. Other metallic minerals present in total amounts averaging not more than 2% are: pyrite, tetrahedrite, minor amounts of various other sulfosalts, galena and chalcopyrite.

Three shoots of high grade ore which have been outlined in some detail by drifting and raising have an average horizontal length of 140 feet, a maximum 50 degree plunge axis length of 300 feet and an average thickness of about 7 feet. The localization of this material appears to be controlled by subsidiary fractures which cross the main structure at very oblique angles. The three zones contain 29,721 Tons averaging 1.16 oz./T Au and 8.0 oz./T Ag.

Four principal fault structures containing material of potential ore grade have been identified to date. One of these is the No. 1 vein system which contains all of the reserves included in the estimates. It has been extensively explored by 128 diamond drill holes and 5,000 feet of underground workings over a strike length of 6,000 feet and a vertical range of 1,000 feet. Approximately 30% of the drill holes encountered mineralized material averaging more than .1 oz./T Au equivalent over true widths of 5 feet or greater. The No. 1 vein fault structure displays a distinct mineralized horizon or interval that is about 650 feet in height with a plunge along its "keel" of approximately 200 feet per mile to the southwest. In general this vertical mineral zonation lends itself to a deposition model related to the boiling point of ore forming fluids as cited by L. J. Buchanan and others.

The Blackdome Mountain Area contains a number of gold-silver deposits classically formed by post-volcanic epithermal activity. It is typical of many ore-fields found in the American and Mexican Cordillera. Most of these produced very high grade ore early in the early part of this century and prior to it. Blackdome is relatively unique because it is one of a very few such fields, in Canada, that has been identified and developed in recent times.

