

THE BLACKDOME MINE

History and Location:

The Blackdome minesite is located on Blackdome Mountain in the Camelsfoot Range on the west side of the Fraser River at elevations between 1870 and 2110 metres. Access is by 125 km of gravel road from Highway 97 at either Clinton, 100 Mile House, or Williams Lake.

The first discovery of gold on Blackdome Mountain is credited to Lawrence Frenier a local prospector. The first claims were located in 1947, along with adjoining claims located by Norman Hilborne and Karl Schrader. The claims were optioned to Empire Valley Gold Mines, and Silver Standard Mines during the 1950's. The properties lay idle until 1977 when Barrier Reef Resources staked ground around the existing Crown Grants, and consolidated them under the name Blackdome Exploration Limited.

From 1977 to 1981 Blackdome carried out programs of surface trenching, diamond drilling, and underground development. The property was optioned to Heath Steele Mines (A Noranda Subsidiary) during 1982 and 1983. Noranda dropped the option and in 1984 Blackdome continued underground development, and surface drilling. Sufficient ore grade material was outlined to make a production decision that year. Construction of the Mill, Plant, Tailings Dam, and Camp was started during the summer of 1985, and final completion of the facilities and mill start up was in May 1986.

Geology and Ore Reserves:

The deposits at Blackdome are tertiary epithermal gold-silver lodes typical of many throughout the cordillera region of western North America. Small high grade ore shoots averaging 50 metres in length and 100 metres in height occur along several strong northeasterly striking fault zones dipping 55 to 75 degrees northwest. Ore minerals consist of fine to medium grained native gold, silver, electrum, aguilarite, acanthite, and tetrahedrite. Accessory minerals include pyrite, chalcopyrite, pyrrhotite, covellite, chalcocite, bornite, sphalerite, and galena. These minerals, which generally comprise less than 2% of the ore are disseminated throughout quartz veins, stockworks, and breccias, which are up to five metres in thickness. The host rocks are Eocene calc-alkalic tuffs and flows which vary in composition from andesite to rhyolite. A post ore basalt flow of early Miocene or late Oligocene age obscures the host assemblage on many parts of the property.

There are three common alteration assemblages associated with the ore zones, the most important of which is the quartz veining

itself. Quartz is always present where gold mineralization is found and takes the form of drusy and cockade veinlets. Adjacent to these zones the wall rocks appear bleached and are difficult to identify. The bleached zones adjacent to the ore contain abundant clay, as well as chlorite, adularia, and minor celadonite. A clay-quartz pebble gouge of 0.1 to 0.5 metres is often found adjacent to the vein. The second alteration assemblage is a zone of silicification which forms an envelope up to 5 metres thick adjacent to the vein. The third common assemblage is a very weak propylitic alteration which comprises fine grained chlorite, epidote, pyrite, and minor quartz. This assemblage is best developed in andesitic rocks, and can occur up to 15 metres from the vein.

Ore reserves as of the end of January 1989 in all categories are estimated to be as follows:

ORE RESERVE FIGURES TO JANUARY 31, 1989 CUT AND DILUTED

Category	tonnes	Au	Ag
Proven	46848	25.31	85.33
Probable	65898	16.82	49.23
Possible	83511	17.52	39.83
Total	196257	19.14	53.85

Mining Method:

The vein structures are accessed by cross cuts and drifts from portals at 1865, 1870, 1920, 1960, 2050, and 2110 metre elevations. The most extensive workings are on the #1 and #2 veins which strike over a distance in excess of 2 km. Other workings are found on the Watson Vein to the south, and on the Red Bird Vein to the north and west.

Stoping is generally by conventional overhand cut and fill using hand held stopers and jacklegs, and air or electric slushers. Under-cut and fill is used where hanging wall conditions are very bad. Backfill used is either hydraulic fill or waste rock, or a combination of both.

Development drifting, raising, and subdrifting is done by jackleg. The recent purchase of a new diesel hydraulic jumbo will increase productivity, and will be used to drive ramps to access ore shoots below existing haulage levels.

About 75,000 tonnes of ore and 70,000 tonnes of waste are mined annually. Some ore has been mined by small open cuts along the surface exposure of the veins.

Underground haulage is by 2.5 cubic yard scooptrams, and 10 and 13 ton trucks.

Blackdome Mill and Plant:

The Blackdome mill operates at an average capacity of 200 tonnes per day on a continuous basis. Ore from underground is dumped into a concrete coarse ore bin of 100 tonne capacity which feeds via an apron feeder to a scrubbing trommel. This trommel is a necessary to wash out the clay fraction in the ore which can be as high as 30% of the feed. The clay fraction from the trommel reports to a spiral classifier where the coarser fraction is lifted back onto the belt to the fine ore bin. The fine fraction is pumped to the mill circuit where it finds its way to the flotation cells. Once washed the ore is crushed via a 18"x30" jaw and 3' standard cone crusher to minus 1/2", and is conveyed to the 400 tonne fine ore bin. The ore is ground to 60% minus 200 mesh in a 7'x13' ball mill. The ball mill discharge passes over an 18"x24" duplex jig where the coarse gold is recovered. This high grade jig concentrate is upgraded on two 8'x4' Deister tables before reporting to the refinery where dore bars are poured. Dore bar production accounts for about 60% of the gold production, the remainder is in the form of a bulk sulphide floatation concentrate.

Gold production in 1988 was 51,000 oz and a similar amount is projected for 1989.

Electrical power and compressed air are produced at the minesite by diesel driven units. Electrical power usage is about 1.1 megawatts and compressed air usage about 3000 cfm at 100 psig. Complete maintenance shop and warehouse facilities are located on site.

Transportation and Accommodation:

Camp accommodations for 195 workers are located about 1 km from the plantsite and mine entrances. Workers work on a rotation basis of either one week in and one out, or two weeks in and one out. Transportation of workers from Highway 97 at 58 mile house is by Bell 212-B helicopter.

Transportation of freight is by conventional trucks from nearby centers such as 100 Mile House, Williams Lake, and Kamloops. Fuel and propane is also delivered by truck throughout the year.

Exploration:

Some 93,000 ft of surface and underground diamond drilling in 1988 tested exploration targets throughout the property. A combination of geochemistry, trenching and diamond drilling has been and will continue to be used to delineate areas of potential ore grade mineralization. This systematic program has continued to produce encouraging results, and the potential for finding additional reserves is good.

Blackdome Mining Corporation
Operating Statistics
May 1986 to December 1988

Tons milled-----	207,357
Ounces Gold Produced-----	128,135
Gross Revenue-----	\$73,168,709

Operating Statistics
1988

Tons milled in 1988-----	87,519
Tons milled daily 1988-----	240
Millfeed grade oz/ton Au in 1988-----	0.63
Millfeed grade oz/ton Ag in 1988-----	2.90
Number of full time employees Dec 1988-----	139