PRELIMINARY ENGINEERING REPORT ON THE BLACKSTONE MINE PROPERTY

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Executive Summary

The Blackstone Mine property, consisting of five patented claims and 32 located claims is situated in the Bennett Mountains, 42 miles northeast of Mountain Home in Elmore County, Idaho. It is accessible from Boise by 80 miles of paved highway and six miles of graded county road.

The claims lie in a large area of tertiary granodiorite in contact with tertiary and quarternary volcanics. The main body of tertiary intrusive has been eroded to expose outcroppings of cretaceous instrusives consisting of granodiorites, quartz monzonites and related rock types which compose the core of the Idaho batholith.

The known mineralization on the claims is confined to an east-west striking zone of structural weakness in the cretaceous intrusive covering a strike length of about 7,500 feet. Economic minerals present in order of importance are silver, lead, zinc and copper with lower values of gold.

Since the discovery of the property in 1878, some small scale mining and shipping of high grade ore has been carried out by several companies. In 1980 Circa, Incorporated started to open up a surface pit and treat the ore by a leaching process in a plant in Mountain Home. No production figures are available to assess the results of this work, but mining was confined to the known high grade showing and no systematic exploration has been done to develop the potential of the area.

Recent sampling of the pit area suggests a grade of five ounces per ton silver might be achieved with sufficient tonnage to support an economic, low cost open pit mining and processing operation, subject to favorable metallurgical test results.

The exploration program proposed in this report consists initially of the drilling of eight reverse circulation percussion drill holes across and below the pit area to establish mineral grade and width. This would be followed up by a systematic exploration program over the claim area incorporating geochemical surveys, geological mapping and sampling, trenching and drilling. Phase I of the program is estimated to cost $400,000. Phase II is budgeted at $800,000.

Introduction

This report covers the results of a preliminary examination of the Blackstone Mine property located near Mountain Home, in Elmore County, Idaho. The writer conducted the examination on October 24, 1984 accompanied by Mr. James H. Hawley III.

Background information and other data incorporated in this report was obtained from reports, files, maps and copies of correspondence provided by the mine owners.

Location and Access

The mine property, which consists of five patented claims, four full claims, and 22 fractional claims, is situated 42 miles northeast of Mountain Home, Elmore County, Idaho in sections 13, 14, and 15, T.2 S., R.10 E., Boise Meridian.

Access to the property is by way of Interstate 84 southeast for 43 miles to Mountain Home, then east via U.S. Highway 20 for 37 miles. The property can then be accessed by six miles of graded dirt road.

Topography, Water, Etc.
The property lies on the north flank of the Bennett Mountains, at an average elevation of about 5,850 feet. The surrounding terrain of Elmore County consists primarily of eroded hills cut by dry gullies. Vegetation is mainly sagebrush, with light scrub in the valleys. There are no running creeks, but ample water can be obtained from wells drilled in the flatter country to the north of the main property.

Patented Clams

(Mineral Survey No. 1662)
Kentucky
Ohio
Iowa
Illinois
Oregon

Located Claims

Name	Full/Frac	IMC #
Kay	*full*	*54775*
Will	*full*	*54771*
Patty	frac	54766
Zip	*full*	*54770*
Lee	*full*	*54769*
Maggie	frac	54779
Jan	frac	54768
Pat	frac	54780
Sammy	frac	56153
David	frac	56152
Governor	frac	56151
Buz	frac	54781
Pam	frac	54774
Carol	frac	54773
George	frac	54782
Rachel	frac	56150
Ruby	frac	56149
Aggie	*full*	*56148*
Bobby	frac	54778
Chris	frac	54772
Bren	frac	54776
Bert	frac	54777
Ryan	frac	56147
Krystal	frac	56146
Deedle	frac	56145

Regional and Economic Geology

During the summer of 1984, Richard DeLong, M.Sc., geologist from the University of Idaho, mapped about 11 square miles of the Bennett Mountain area which included the Blackstone Mine claims.

The southern part of the map consists mainly of granodiorite intrusive of tertiary age in contact to the north and east with tertiary and quarternary volcanics. The main mass of tertiary intrusive has several windows exposing older (cretaceous) intrusive consisting mainly of granodiorites and related rocks which form the main body of the Idaho batholith. The tertiary intrusive is also cut by a number of east-west striking dikes and quartz veins of tertiary or later origin.

Known mineralization as exposed by exploration and development is confined to an east-west striking zone of structural weakness in the cretaceous intrusive which lies mainly in section 14 and extends into sections 13 and 15. Principal minerals present are chalcopyrite, galena, sphalerite, and magnetite associated with quartz monzonite, and carrying varying silver and gold values. Surface mineralization is entirely in the oxide form of the base metals but some chalcopyrite has been noted in the pit about 60 feet below the original surface.

Another large exposure of the cretaceous intrusive occurs mainly in sections 13 and 18, to the southeast of the known mineral zone. Although this area has not been sampled in detail, DeLong considers it favorable for similar mineral deposition to the known zone.

History of the Property

The following historical antecedents have been summarized from information provided by the owners of the property. The Blackstone Mine was discovered in 1878 by gold and silver prospectors and initial development consisted on some shallow pits and crosscut tunnels. The property was acquired by James H. Hawley and Samuel Rich. These two men later formed the Blackstone Mining Company which patented the present claims in 1903.

The Blackstone Mining Company began development by driving a 330 foot cross cut tunnel which is reported to have cut a six foot wide vein from which three carloads of hand sorted ore were shipped. This ore returned assay values of 15% copper, 30 ounces silver, and .04 oz gold per ton. A 40 foot winze was sunk, but was later closed due to bad ground conditions.

In 1936, the Volcano Mining Company operated the mine under lease, and shipped 54 tons of ore to the United States Smelter at Salt Lake City, Utah. According to Blackstone Mining Company records, this shipment returned:

Tons shipped	% Cu	Ag oz/ton	Au oz/ton
22.82	2.60	11.0	
31.17	2.30	5.5	0.01

Work since 1980 has consisted of a legal survey of the patented and located claims. Old surface cuts and trenches were examined and an open cut was made on the mineral zone indicated by the old workings on the Kentucky and Ohio claims.

Ore has been stockpiled at the mine and some tonnage has been transported to Mountain Home and processed in a recovery plant using an amonium thiosulphate leach process. Production and recovery figures are incomplete, but recovery is said to be in the range of 80% for gold and silver.

Description of the Mine

The Blackstone Mine property was visited and sampled by the writer on October 24, 1984, the examination being confined to the pit area and a surface showing to the east of the main pit.

The pit itself is an east-west striking trench about 600 feet long with a width at the bottom of about 60 feet, with the deepest part of the pit at the east end, being about 60 feet below the original surface.

The main ore zone under exploration appears to be about 45 to 50 feet wide, but accurate assessment of the boundaries was difficult due to the slough of low grade material and waste from the sides of the pit and of the pit floor itself. About 180 feet at the east end had been cleaned sufficiently to permit sampling of in situ mineralization.

Sampling

Six samples were cut from the pit floor over varying widths using a light sample pick. The samples, each 15 to 20 pounds, were crushed to 1/4" size in the Mountain Home plant, split to about five pounds each and then submitted to Chemex Laboratories for assay. The results are tabulated below.

Sample	%Cu	%Pb	%Zn	Ag	Au	Location
7751	1.48	0.24	0.36	12.00	.003	W.pit, 44' N-S ch.
7753	0.64	4.24	3.01	3.90	.003	E.pit, 35' N-S ch.
7754	0.40	0.13	0.27	2.80	.003	E.end 90'W37'N.ch.
7755	0.51	0.10	0.17	3.90	.003	E.end 90'W16'N.S.ch
7756	0.76	0.18	0.11	5.07	.006	E.end+120'W,30'N-S
7757	0.40	1.78	2.17	4.94	.003	grab from ore clump
7758	0.02	0.05	0.06	0.17	.003	grab from discovery pit

After the writer's examination, the mine staff cut ten channel samples across the pit floor over a strike length of 180 feet with each sample being 45 feet in a north-south direction. These samples were crushed and split in the same manner as the previous samples, with a split of each being submitted to Chemex Laboratories. The results are tabulated below.

Sample #	Ag oz/ton	Au oz/ton
1	2.57	0.008
2	2.57	0.012
3	4.33	0.006
4	5.91	0.010
5	8.51	0.012
6	7.53	0.016
7	4.82	0.020
8	7.84	0.016
9	17.28	0.018
10	8.52	0.003

The material mined from the pit to date has been entirely oxidized, but a few small pockets of unoxidized chalcopyrite have been found in the lowest part of the pit. The transition zone from oxide to sulphide mineralization is expected at the water table horizon, expected to be from 300 to 500 feet below the present surface.

Ore Reserves

Insufficient exploration has been completed to formulate anything but a very rough estimate the total mineral potential and silver grade. The five potential claims cover a strike length of 7,500 feet. It is assumed that to qualify for patent each much have some indication of a mineralized structure exposed in the discovery pit. As far as probable width of the structure is concerned, there is a north-south section plan through the Kentucky claim drawn up from the results of several rotsary drill holes put down by the company in 1982. These have been certified by Lee F.

Miller, M.E., P.Eng., and show the ore grade mineralization to be at least 150 feet wide to a depth of 90 feet below the pit floor at the time.

Using the above data, an inferred block of 3,600 feet (about one-half of the strike length) with a width of 100 feet and a depth of 100 feet would represent 36 million cubic feet, or three million tons at 12 cubic feet per ton.

The arithmetic average of the five channel samples cut by the writer was 5.53 ounces silver per ton. The average of the ten other samples was 6.99 ounces silver per ton. Thus, an overall average for the entire inferred block of 5.0 ounces silver per ton would not be unrealistic and should be economic for a low cost open pit operation.

Conclusions

The economic viability of the Blackstone mineral deposit is contingent upon two factors:

(a) Tonnage and grade of deposit, and
(b) an effective metallurgical recovery process.

Tonnage and grade prospects have been dealt with in the previous section and it appears that there are reasonably good expectations that an ore body of two to three million tons could be developed with an average grade of five ounces silver per ton. This would represent a gross metal value of approximately $35.00 per ton in silver values alone, plus recoverable values in gold, copper, lead and zinc. On the scale with which an open pit mine could be operated with the above reserves, mining and processing costs should be low enough to leave a good margin of profit.

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