REPORT ON THE WINTER 1986 DRILLING PROGRAM
Blackstone Mine
Elmore County, Idaho

Richard F. DeLong, M.A., M.Sc.
Department of Geological Engineering
University of Idaho - Moscow

This report summarizes the drilling program at the Blackstone Mine, Elmore County, Idaho. The project was planned and financed by Richwell Resources Limited of Seattle, Washington. Drilling commenced on February 3, 1986 by Layne Drilling Services of Tempe, Arizona. The author contracted to summarize the geology and mineralization of the Blackstone, based on surface and recent drill data.

Methodology
A total of 10 inclined, reverse-circulation rotary drill holes were completed to test the horizontal and vertical extent of the structure, alteration and mineralization. Three thousand and ten feet of drilling was completed; however, 250' were completed prior to the author's arrival.

Sampling was on 5 foot intervals. A 1/8 split of the sample was taken. This was further split into two samples. One of these was sent off for geochemical analysis and assay. The other was kept for further analytical work and in-house use. Chemical analysis of the samples was carried out by Mr. Dana Barclay, Mountain Home, Idaho, Hibbs Laboratory, Boise, Idaho, Bondar-Clegg and Company, Ltd., Vancouver, B.C., and Universal Laboratories, San Francisco, California. At the time of this report, values were available for the surface samples. A portion of the drill hole samples are reported herein and the balance are currently under analysis.

Mineralization
Surface development at the Blackstone consists of a 100' x 600' open pit located at the eastern end of the five patented claims. The open pit is developed on two east-west trending structures. Quartz veins and stockwork are developed along these structures. The adjacent country rock is intensely altered. At the surface, the southern structure hosts a stockwork that contains sulfides and intense alteration. The sulfides consist of pyrite, chalcopyrite, sphalerite, and galena as the major phases. In thin section, bornite or digenite rims can be seen around most of the calchopyrite. Surrounding the stockwork are three distinct zones of alteration with some mineralization. The zones from the stockwork outward are: a sulfide-epidote zone, a sulfide-sericite zone, and a sericite-manganese oxide zone.

The alteration in the sulfide-epidote zone is pervasive and extensive, with all original textures being destroyed. Alteration minerals include epidote, chlorite, and sericite. This alteration forms a three-meter wide zone around the stockwork. Silicification within this zone is relatively minor, but there are veins of quartz and epidote, with relict sphene. The mineralogy and style of alteration is similar to that of the fragments in the stockwork. The epidote ranges in size from 25 microns up to 1 millimeter. The finer-grained epidote is spatially associated with the veinlets. Sericite occurs as a fine-grained felty mass evenly distributed through the rock, and ranges in size from less than 2 to 200 microns. Chlorite also occurs as fine-grained patches throughout the rock. Apatite is present in this zone of alteration and is associated with the quartz veinlets. Calcite is present in this zone and is associated with the epidote and iron oxides. Iron oxides are most abundant near the outer edge of this zone where they comprise as much as 35% of the rock. The sulfides were probably pyrite, chalcopyrite, and galena.

The sulfide-sericite zone of alteration has an elongate, elliptical shape which varies in width from three to thirteen meters. Alteration is both selectively pervasive and veinlet-controlled. Alteration minerals include fine-grained patches that are up to two millimeters in diameter. The sericite is well developed and occurs as fine-grained masses in the rock. The grains are 1 to 40 microns in size. Some of the sericite is associated with the quartz stringers. Sericite also replaces epidote in this zone. The sulfides were probably pyrite and chalcopyrite.

The sericite-manganese oxide zone is the most widespread alteration associated with the deposit. The zone encloses other zones of alteration, but is not uniform in width. The alteration is both selectively pervasive and veinlet-controlled. The former is dominant near the stockwork. Sericite is 1 to 500 microns in size and is an alteration product of the plagioclase and potassium feldspar. Manganese oxide occurs as disseminated grains throughout the zone. The manganese oxide is a soft, sooty material that does not have a dinstinctive X-ray defraction pattern. Electron microprobe analysis indicates a significant amount of zinc associated with the manganese. The biotite occurs as fine grain aggregates associated with the iron oxides. This type of alteration also forms a linear zone north of the main structure. Nine of the ten holes intersected at least one of the two known structures. Data from the tenth hole was not available to the author. Other minor, parallel structures were intersected in several of the holes.

The south structure, which is exposed in the pit, hosts well developed quartz veins at depth, up to 15' wide at depth. Sericite-pyrite alteration forms halos around the veins. Several minor zones of sulfide-epidote were intersected in some drill holes. The geologic target for silver mineralization appears to be the quartz veins and adjacent altered host rock. Cross-sections and plan views of the deposit show a series of at least 10 east-west trending structures, most of which have a significant amount of fault gouge. The quartz veins occurring along these structures have a pinch and swell structure. The veins generally have a greater vertical than horizontal extent. These quartz bodies form shutes and pods. The structures and quartz veins strike in an east-west direction and dip north between 50^o and 70^o.

At the surface, the southern structure is about 70' wide and the northern structure is about 40' wide. At depth, the two structures converge with a well developed zone of altered rock between them. The combined thickness of the structures is 90' to 130'. Horizontal extent of the body is about 600' in the drilled out area. Faults and altered host rock are exposed at the surface, 200' to 300' west of the current development. The vertical extent of the structures is at least 300' to 400', down dip, as indicated by drill holes nine and ten.

Mapping
Six plan views of the drilled out area have been compiled from the drill hole data. These maps give a horizontal view of the veins, structures and alteration encountered in the drill holes.

The mineralization occurring in the pit is best seen at depth in the 5,750' and the 5,700' plan views. This zone increases with depth, as seen in the 5,650' and 5,600' plan views.

A previously unknown structure was found south of the southern structure. Using the cross sections and plan views to develop a three dimensional model of the quartz veins, structures, and altered rock, a body of rock can be outlined which is approximately 600' x 200' x 400'. This body of altered and mineralized rock has been partially blocked out, has barren zones within it, and is possibly between three and four million tons.

Values
Values from the exposure of mineralization in the pit contain 3.8 to 11.3 ounces silver per ton in the stockwork; 5.1 to 11.2 ounces silver per ton in the sulfide-epidote zone; 3.3 ounces silver per ton in the sulfide-sericite zone, and 0.25 to 1.0 ounces silver per ton in the sericite manganese oxide zone. Base metal values ranged from 0.66% to 6.40% lead; 0.46% to 5.4% copper, and 0.38% to 6.95% zinc. Down hole analysis is under analysis by the previously mentioned labs.

Conclusions & Implications
The data gathered thus far indicates a potential for mineralization at depth. Additional work is needed to determine the size and shape of the outlined zone of quartz veins and altered host rock. This would include a minimum of 1,500 feet of drilling, as well as trenching in several localities. These trenches should be mapped and sampled to help correlate surface geology and mineralization to that in the drill holes.

In addition to the work in the pit area, evaluation of several areas to the west and north are needed. Initial work would include sampling and mapping. If anomalies are found in the first survey, it should be followed with a geophysical survey and trenching, as well as additional mapping and sampling to delineate the structures and select drill targets.

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