from NBMG OFR 83-9
See also 83-10 for geochemical results.

(59)
Item 12

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GOLD CIRCLE DISTRICT

The Gold Circle mining district is located in western Elko County at the townsite of Midas. Some authors and many Nevadans simply refer to the district as Midas. The low ridges just east of Midas are covered by extensive underground and surface workings which are concentrated in a northwest trending belt approximately 4 miles long and 1 to 2 miles wide. This belt of mineralization occupies the central portion of T39N, R46E. Two mines, the Eastern Star and Red Arrow, are located outside of the main district about 3 miles to the northeast of the town of Midas.

In terms of the total quantity of silver and gold produced prior to 1949, Gold Circle ranks third in Elko County, outranked only by the Tuscarora, Jarbidge and Aura districts (Granger, 1957). Between 1950 and 1965, existing stockpiles and dumps were reworked and contributed an additional 242 oz. gold, 4,484 oz. silver and some copper and zinc to the districts' total recorded production (Smith, 1976).

Small scale mining of a few vein deposits has occurred intermittently since the last actual production. During 1982, the Ripsaw mine, located in a canyon one-half mile northeast of Midas, was an active open-pit gold operation employing 4 persons. However, when we visited the district in the summer of 1982, most of the mines were inactive. Nevertheless, many of the properties are covered by valid claims. Recent assessment work has been done on several of the claims and a few dumps show evidence of recent sampling.

The geology and ore deposits of the Gold Circle district are well described by Emmons, 1910, Rott, 1930 and Smith 1976. The district is entirely underlain by Tertiary volcanics. Rott, 1930, recognized three stratigraphic

divisions in the main part of the district. From oldest to youngest, these units are pre-andesite rhyolites, andesites and post-andesite rhyolites. All the units are altered or mineralized, faulted and intruded by dikes. The rhyolites are the most dominant lithology in the district. They consist of flows, ignimbrites and pyroclastics interbedded with minor tuffaceous sediments and clastic rocks. Throughout much of the district, the rhyolites host the majority of vein deposits, but because of extensive alteration at the minesites it is extremely difficult to distinguish between the pre and post-andesite rhyolites in the field. Felsic and mafic dikes intrude fault zones within and near the mineralized areas. Some of the dikes are altered or pyritized and are probably, in some way, associated with the process of mineralization.

The Tertiary volcanic group described above is unconformably overlain by unaltered and unmineralized rhyolitic welded tuffs (Cougar Point Tuff) dated at 12.2 m.y. (Roberts, et al, 1971). These rocks are little disturbed by faulting.

The individual ore deposits of the central district display similarities in their mineralogy and occurrence. In most cases, adjacent mines explore separate portions of the same vein along strike. Rott, 1931, describes five or more of these extensive vein systems and their related ore shoots.

The veins typically fill sheeted, shattered, or brecciated zones developed along faults. The mineralized structures generally have strikes which range from N10W through N40E and are steeply inclined or vertical. In general, the zones are explored for widths of 10' or less. The faults often form rhyolite-andesite contacts and are avenues for intrusive dikes.

Rott, 1930, states "the veins were formed along open fissures or zones of brecciation which existed during the period of mineralization." Milky white to glassy grey quartz is the main constituent of the veins, although calcite, adularia and rarely chlorite also occur (Rott, 1931). The quartz often has a sugary appearance. In outcrop, the fissure veins have sharp contacts with the altered wallrocks, are typically open-centered, and display cockscomb or ribbon structure of the quartz. Siliceous breccias are also common. The breccias contain fragments of altered volcanic rock, pyritized quartz vein and gossan. They are cemented by chalcedonic or prismatic quartz, which often encrusts fragments. Several generations of brecciation and veining are evident, indicating repeated periods of movement and silicification along the fault zones. Altered wallrock and vein material collected from the dumps contained sparse to moderate amounts of pyrite, some arsenopyrite, gossan and iron-oxides.

Alteration of the wallrocks at the minesite is intense and often traceable along strike for several thousand feet. The vertical extent of the veins reach up to 550' (Buchanan, 1981). Immediately adjacent to the veins, the rocks are strongly silicified, argillized or sericitized and show abundant pyrite or iron-oxides. Fine stockworks of vitreous grey quartz extend outward from the main veins into the bleached and silicified wallrock. The rocks exposed in the steep-sided walls of the stopes are generally highly fractured but uncaved. Occasionally the rhyolite is kaolinized to soft, friable masses. Away from the veins alteration decreases rapidly and the rocks are typically propylitized or bleached.

The vein mineralogy, as described by Rott, 1931 and Buchannan, 1981, includes pyrite, stromeyerite (CuAgS), native gold, tetrahedrite, argentite,

native silver, stephanite (AgSbS), and polybasite (AgCuSbS). Few metallic minerals other than pyrite were observed in dump samples from the district. This may indicate that the narrow high-grade vein deposits were entirely mined out. Only the mineralized breccia material which is of lower grade than the vein deposits remains (Roberts, 1971).

The deposits at the Eastern Star mine and Red Arrow claims deserve special mention as these deposits differ from those of the central district.

At the Eastern Star mine, an outcrop of highly siliceous, hydrothermal breccia forms a resistant knob directly north of the main shaft. The breccia contains both volcanic and sedimentary fragments suspended in an iron-rich matrix composed of grey silica and comminuted rock fragments. The sedimentary fragments consist of fine-grained quartzites and siltstones. The age and origin of the fragments are not known but it is possible they are pre-Tertiary in age and were brought up from depth along the breccia zone.

Numerous north-striking, vertical fissure veins cut across the breccia outcrop. The veins are about 1" in width; have open centers filled with prismatic quartz and display quartz-sulfide banding. The veins cut across breccia fragments and are (themselves) crosscut by a network of fine siliceous veinlets. A sample from the dump showed fine-grained, free gold locallized in glassy grey aphanitic quartz deposited along the selvage of a limonite-stained, banded vein. In addition, dark lenses of sulfides dispersed throughout the vein may contain abundant silver, as native silver and tellurides are both reported to occur at this location (unpub. report, NBMG mining district files). Sulfides, mostly pyrite, are disseminated in a silicified, dark grey spherulitic rhyolite, which is found in abundance at the minesite. Black

carbonaceous shales are exposed about five hundred feet north of the mine.

The Red Arrow claims are located one mile north of the Eastern Star mine. Rhyolite flows and tuffs are host to a cinnabar-bearing vein deposit which occupies a set of north, northeast and northwest fractures. The veins are white opaline quartz deposited as banded and botryoidal masses along the fracture surfaces of the rock. In addition to cinnabar, the veins also contain marcasite. Near the veins, the host rocks are silicified or altered to clays and iron-oxides. Two retorts are located on the property but appear to have had little use.

An age determination on vein adularia from the main Gold Circle district indicates the mineralization took place 15.0 m.y.a. (Roberts, et al, 1971).

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