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ELLENDALE DISTRICT

LOCATION

The Ellendale mining district is located in the south end of the Monitor Range, in the small portion of the range lying to the south of U.S. Highway 6 about 31 miles east of Tonopah. The mining area is in the southeastern tip of the range, toward Stone Cabin Valley, and is largely within the east half of Township 3 North, Range 46 East, the west half of Township 3 North, Range 47 East, and the northwest portion of Township 2 North, Range 47 East, Nye County.

HISTORY

High-grade float was discovered in the area on April, 1909 and shipments of rich ore were made from the district in 1910 and 1911 (Kral, 1951). The Ellendale Mine operated between 1909 and 1915 and its dumps were re-treated in 1938-39. When discovered in 1909, Ellendale was described as another Goldfield. Paher (1970), however, found evidence in newspaper articles of late summer, 1909, that implied that the camp was "another swindle". For whatever reason, the camp declined after about 1915. Barite was discovered about 1931 as deposits in the south end of the district and barite has been produced intermittently since that time. Total metal production from the district is about \$166,000 (Kleinhampl and Ziony, 1984) although locally the district is credited with up to one million dollars in production (Kral, 1951). Barite production has been about \$120,000 through 1960 (Kleinhampl and Ziony, 1984).

Exploration was done in the late 1960's for disseminated gold in the southern part of the district and some drilling has been done south of the Ellendale Mine within the past three years. Road building and drilling was done within the past year in the eastern part of the district, north of the Jumbo barite mine.

GEOLOGIC SETTING

The northern half of the Ellendale district is underlain by Tertiary volcanic rocks which include rhyolitic to basaltic andesite flows, dikes, and plugs and rhyolitic to rhyodacitic welded tuffs, tuffs, and tuffaceous sedimentary rocks (Kleinhampl and Ziony, 1984). The host rocks for the gold deposits at the Ellendale Mine are rhyolite plugs and domes, irregular masses and dikes of probable early to middle Miocene age.

In the southern part of the district, south of the Ellendale Mine, complexly faulted blocks of Paleozoic rocks crop out. The Paleozoic rocks include Cambrian phyllitic shale, quartzite, limestone, and shale, Silurian Roberts Mountains Formation, and undifferentiated Devonian-Silurian carbonate rocks. Large areas of metamorphosed Paleozoic rocks of undetermined age crop out near the Jumbo barite deposit. These rocks include hornfels, marmorized beds and tactite zones. Several outcrops of Tertiary quartz diorite and Tertiary or Cretaceous hornblende diorite occur along a northwest band that crosses the district from north of the Jumbo barite mine to south of the Ellendale gold mine (Kleinhampl and Ziony, 1984).

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The Ellendale district does not lie within or adjacent to any presently defined caldera systems. The Big Ten Peak caldera lies about ten miles to the north in the Monitor Range and the Kawich caldera lies about ten miles to the east in the northern Kawich Range. Ekren and others (1976) depict an older caldera in the southern Monitor Range which is cut by the Big Ten Peak caldera. The southern boundary of this feature is just to the north of the Ellendale district, roughly along the trace of U.S. Highway 6.

ORE DEPOSITS

In the northern part of the district, site of the original gold discoveries in 1909, most of the workings are in intrusive rhyolite near the contact with andesite porphyry. The rhyolite in the mineralized area is silicified and to a lesser degree sericitized and pyritized. Numerous fissures filled with iron-stained quartz cut the rhyolite and, in the mineralized zone, the rhyolite shows numerous rusty brown specks composed partly of jarosite (Ferguson, 1916). At the Ellendale Mine, the rhyolite is sheared and fissured along planes striking northeast. The fault and fissure zones range from several inches up to a few feet thick and contain up to several feet of gougy material along them (Kleinhampl and Ziony, 1984). Other than iron oxides and sulfates, no other minerals were noted on the Ellendale Mine dumps. Nearby properties, however contained pyrite, copper oxides, and some galena.

In the eastern part of the district, prospects expose quartz veins cutting diorite near its contact with sedimentary rocks. Copper oxides and sulfides are visible on the dumps here.

The Jumbo barite mine, on the south end of the district, is a bedded deposit of barite within chert, argillite, and limestone of early Paleozoic age. The barite body is pod-like in form, and is only partly concordant with the enclosing sedimentary bedding. The rocks in the area are brecciated and stained with iron oxides (Papke, 1984).

GEOCHEMICAL RELATIONSHIPS

Samples of ore taken from dumps of the Ellendale Mine and adjacent workings all contained gold, one sample contained 150 ppm--over four ounces per ton, but only trace amounts of silver. Both arsenic and antimony values were very low in these samples; base metal values were also low. Molybdenum values, while low, appear to be slightly anomalous. Two samples taken from prospects about one half mile northwest of the Ellendale Mine contained high silver associated with high lead, zinc, and copper. One of these samples contained high bismuth, antimony, and molybdenum; neither contained arsenic.

Samples taken in the southeastern part of the district, including one taken at the barite mine, were high to very high in barium. The barite mine sample contained no anomalous metal values, however. Other samples in this area were anomalous in copper, lead, zinc, and antimony. Silver values ranged from 1.5 to 700 ppm, and one sample reported 20 ppm gold.

Sampling in this district seems to indicate that there are two separate and distinct types of mineralization present: one associated with the diorite and

quartz diorite intrusive bodies and their contact zones; and another probably younger period of mineralization associated with the rhyolite intrusive bodies and their contact zones. The former is a base-metal silver association, the latter gold with little else except possibly molybdenum.

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