NBMG OFR 83-11
See also 83-12 for geochemical results.

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Item 6

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DIVIDE DISTRICT

The Divide (Gold Mountain) mining district is centered on Gold Mountain, 9 km south of Tonopah. The workings in the district are quite extensive; many of them are shafts with lateral workings. The production part of this district is located on the north side of Gold Mountain, but shallow shafts were sunk in both mineralized and unmineralized areas for several km around Gold Mountain. The deepest workings (420 m) are at the Tonopah Divide Mine.

The geology and mining history of the district is summarized in Bonham and Garside (1979). Much of the following is taken from that report. Gold was discovered in the district in 1902 and small gold-bearing veins on Gold Mountain were mined intermittently until 1917 when the discovery of silver ore triggered one of the last major Nevada silver rushes. By 1919 an area of over 130 km^2 surrounding Gold Mountain has been staked, and over 100 mining companies had been formed in the district. The boom soon subsided as only a few of the properties were found to contain ore in minable quantities.

Most of the ore mined in the district was produced during the period between 1920 and 1929 and most of the production came from the Tonopah Divide Mine. The district has a total production of approximately $3.5 million from 3,275,079 ounces of silver and 32,474 ounces of gold. There has been no recorded production since 1950, however, considerable exploration work has been done since 1976 in the district. Bulldozer trenching and sampling along the main mineralized lode was done in the late 1970's, and Falcon Explorations Co. mined a considerable amount of material from the vicinity of the Tonopah Divide Mine in 1982 and hauled it to a heap-leach facility about 8 km south of the mine. In addition, Cordex Exploration Co. has located (by diamond-drilling methods) an estimated 5 million tons of ore containing 0.06 oz/ton gold and 1.5 oz/ton silver (Bonham, 1982). This deposit is located on Hasbrouck Mountain at the west edge of the district.

Two main types of precious-metal deposits have been mined in the Divide district. Prior to the discovery of the high-grade silver ore body at the Tonopah Divide Mine, mining was confined to narrow veins, valuable chiefly for their gold content, occurring in Miocene Oddie Rhyolite or silicified rocks of the Siebert Formation adjacent to the Oddie Rhyolite. These veins are relatively narrow, seldom exceeding 1 m in width, and are simple mineralogically. They contain, where unoxidized, fine-grained quartz, silicified angular fragments of wall rock, pyrite, free gold, and minor silver sulfides.

The disseminated deposit of Cordex Exploration Co. at Hasbrouck Mountain is related to the high-gold type of mineralization. This deposit is located in strongly silicified volcaniclastic and tuffaceous sedimentary rocks of the Miocene Siebert Formation. The area of silicification is surrounded by argillic alteration. Features such as silicified hydrothermal breccia zones and the presence of siliceous spring sinter in the Siebert indicate the shallow nature of the mineralizing hydrothermal system.

The second type of precious metal mineralization in the district is the silver-bearing lodes, from which most of the production of the district has come. The principal host rock for these lodes is the Tonopah Summit Member of the Fraction Tuff, although mineralization of this type also occurs in the Oddie Rhyolite and in the Siebert Formation. These lodes typically occur in fracture and fault zones in the Fraction Tuff and vary in width from a few centimeters to about 30 m. Their surface outcrops are marked by weakly to moderately silicified, iron-stained zones traversed by numerous fractures. The walls of the lodes are usually well defined and commonly slickensided. The Fraction Tuff where these lodes occur, is altered to an aggregate of quartz, sericite, and adularia. Numerous small quartz veinlets occur within the lodes but bold quartz veins do not occur.

The oxidized ores contained cerargyrite as the chief silver mineral and variable amounts of free gold. Ferrimolybdenite and powellite occurred in oxidized ore at the Tonopah Divide Mine, and highly anomalous amounts of molybdenum (up to several thousand ppm) are present in many of the other mineralized zones in the district. Barite is present in many of the mineralized lodes, particularly in the southern part of the district. Based on samples from dumps and underground, the primary ore contains pyrite, sphalerite, argentiferous galena, chalcopyrite, molybdenite and tetrahedrite(?). Supergene acanthite was an important ore mineral in the district.

Approximately 40 km^2 of hydrothermally altered rocks are present in the Divide district, of which only a few square kilometers have been productive. The alteration is zoned around fractures and fault systems which are the sites of the productive and unproductive lodes within the district. The lodes consist of quartz, sericite, adularia, and pyrite and are enclosed by an envelope of propylitized rock which grades outward into zeolitized tuff.

There does not seem to be a dominant or systematic pattern to the mineralized lodes in the Divide district. The main lode at the Tonopah Divide strikes northwest and is nearly vertical; however, the strike of other veins and lodes ranges from east-west to north-south. The considerable thickness of the Fraction Tuff in the Divide district suggests that the district may be located within a caldera that was the source of this tuff. If this caldera exists, the Divide district would be located on its southern margin.

The age of mineralization at the Divide district has been determined quite accurately based on K-Ar determinations of vein and host rock minerals. This age of mineralization is believed to be about 16 m.y. (Bonham and Garside, 1979, p. 125).

Bonham and Garside (1979) suggest that the silver lodes of the Divide district represent fracture-controlled leakage haloes from a major hydrothermal system

genetically related to a subjacent composite stock underlying the district. The occurrence of anomalous amounts of base metals, particularly molybdenum, in these fracture systems suggests the possibility of a buried, porphyry-type, molybdenum-copper deposit beneath the Divide district.

Geochemical anomalies in Pb, Zn, Ag, Au, Hg, As, W, Sb, Bi and Mo occur in the Divide district centered on Gold Mountain (Bonham and Garside, 1982).

REFERENCES - Divide District

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