ANTELOPE SPRINGS DISTRICT

LOCATION

The Antelope Springs district is located in the southern end of the Humboldt Range in T27N,R34E, Pershing County. It is accessible by paved road from Colado.

HISTORY

The Antelope Springs district, also known as the Relief or Pershing district, was originally explored for antimony at the Hollywood Mine in the 1800's (Johnson, 1977). High-grade silver ores were found in the original Relief Mine in 1869 and the mine was worked from the 1870's until the early 1900's producing ore valued at between $200,000 to $2,500,000.

Mercury was discovered in 1907 at the Red Bird Mine. Subsequently a number of other mercury mines were discovered in the district including the Pershing, Juniper, Montgomery, Eastern Star and Lori mines. The mines have been worked on an intermittent basis, from 1914 through the 1970's. The total production exceeds 12,500 flasks of mercury.

The Relief gold mine, now the only active mine in the district, was discovered in the early 1980's by exploration conducted initially by Duval Corp., and subsequently by Lacana and the Southern Pacific Co. The discovery, made in the vicinity of the old Bohannon fluorspar prospect, was put into production by Lacana in 1984.

Total antimony production from the district has amounted to over 514 tons of metal from the Hollywood and Cervantite mines. Exploration is currently being conducted for gold mineralization in the vicinity of the antimony and mercury deposits.

GEOLOGIC SETTING

Rocks exposed in the Antelope Springs district include a section of Mesozoic rocks ranging in age from Lower Triassic to Middle Jurassic and Tertiary basaltic flows and Quaternary lacustrine and alluviul deposits. Rhyolitic volcanic rocks of the Koipato Group crop out in the northern part of the district. They are overlain to south by rocks of the Prida, Natchez Pass and Grass Valley Formations. In the southern part of the district the Grass Valley and Dun Glen Formations and the Auld Lang Syne Group are present. The Mesozoic rocks are complexly folded and faulted. The Relief fault, a low-angle thrust, extends through the northern part of the district. Rocks in the southern part of the district are thrown into a sequence of northwest trending recumbent to overturned synclines and anticlines.

ORE DEPOSITS

The old Relief silver mine is located in the basal member of the Prida Formation in a geologic setting similar to many of the silver deposits in the Humboldt Range. The new Relief gold mine is located in

rocks of the upper member of the Natchez Pass Formation. Some mineralization also occurs in limy shales of the Lower Grass Valley Formation. The chief host rock for the gold mineralization is a silicified carbonate breccia which has been interpreted as a debris flow and as a breccia in the sole of a thrust fault. Extensive areas of jasperoid occur in the mine area and much of the ore is silicified carbonate breccia. Locally abundant fluorite is present in the ore zone. The ore averages 30 m thick and is oxidized. The ore zone continues both to the east and west of the mine area, but the depth of overburden becomes too great for economic recovery of the gold. The announced reserves are 8 million tons grading 0.035 ounce per ton gold as of September, 1984.

The mercury deposits occur in the southern part of the Antelope Springs district in limestone breccia of the Dun Glen Formation and in dolomite conglomerate of post Dun Glen age. The mercury deposits are clearly localized in these stratigraphic units and this constitutes a guide to ore in the southern part of the district.

The main ore mineral is cinnabar. Associated with the cinnabar in some of the mines are stibnite, pyrite, sphalerite and galena. Bindheimite and antimony oxides are also present. Cinnabar typically occurs in carbonate veinlets cutting breccia or conglomerate and as crystalline cinnabar in the conglomerate matrix. Powdery red cinnabar associated with bindheimite at the Red Bud Mine, is probably of supergene origin.

The main antimony deposit in the district is the Hollywood Mine. Quartz veins, and veinlets in sandstone and phyllite of the Grass Valley Formation contain pods and lenses of stibnite and antimony oxides. The vein zone trends N40°-60°W and dips N60°-70°E. The wallrocks are strongly sericitized adjacent to the veins.

GEOCHEMISTRY

Samples taken of typical mineralized rock at the Relief gold mine are anomalous in silver, arsenic, weakly anomalous in boron, anomalous in beryllium, antimony, and lead. One sample contained anomalous copper, molybdenum, and vanadium. Three samples contained 0.55, 1.7 and 3.2 ppm gold, respectively.

Geochemical data are not available at this time for the mercury or antimony mines in the district, although it is known, that in addition to mercury and antimony, the mines contain anomalous lead, zinc, and locally, gold.

SELECTED REFERENCES

Johnson, M. G. (1977) Geology and mineral resources of Pershing County, Nevada: Nevada Bureau of Mines and Geology Bulletin 89, p. 115.

Wallace, R. E., Silberling, N. J., Irwin, W. P., and Tutlock, D. B. (1969) Geologic map of the Buffalo Mountain Quadrangle, Pershing and Churchill Counties, Nevada: U.S. Geological Survey Map GQ821.