

From NBMG OFR 83-9
See also 83-10 for
geochemical results. GOOD HOPE DISTRICT

(60)
Item 1

2170 0001

The Good Hope district is located in a remote area on the northwest slope of the Tuscarora Mountain Range, northern Elko County. The I-L Ranch is located about six miles north of the district and Tuscarora lies approximately fifteen miles to the southeast. The district is bordered on the south by the Rock Creek district.

Silver was produced from the volcanic hosted vein deposits in the early 1880's and again in 1921 (Granger, 1957). A total of about 91,000 ounces of silver were produced. Since tonnage amounts were not recorded, the grade of the mined ore is not known. In addition to silver, several thousand pounds of antimony were produced in 1950 (Smith, 1976).

There are three principal mine areas in the district. The mines occur in various sections of T41N, R49E in the northwest corner of the Mt. Blitzen 15' quadrangle. From west to east the mines are named the Buckeye and Ohio, Good Hope and Amazon. The Buckeye and Ohio is the best developed and was the largest producer in 1880's. A 5-stamp mill was constructed along Chino Creek (?) to process the silver ores from this mine (Emmons, 1910).

All three mine locations were visited briefly during our examination of the district in August, 1982. The workings appear old, are mostly slumped or caved and some are filled with water. Emmons, 1910, reports the mines were inaccessible at the time of his visit in 1908. Although most of the district is covered by current claims, there was no sign of recent exploration activity. Evidence of fairly recent surface work, however, was seen at the Buckeye and Ohio mine.

The geology at the minesites is not well exposed. The poor exposures are due to slumping, weathering and alteration of the wallrocks.

The northern part of the Tuscarora Mountain range is predominately

composed of rhyolite flows, andesite flows, and ash-flow tuffs. Paleozoic sediments are exposed locally in windows or in faulted blocks. At Good Hope, there are a few, small exposures of siliceous, western-facies rocks localized in the north-central part of the district. The rocks are mainly quartzites of the Ordovician Valmy Formation. (Smith, 1976).

A large portion of the district is covered by a sequence of Eocene (?) volcanic rocks composed of rhyolite to dacite ignimbrites and andesite flows and pyroclastic rocks (Hope and Coats, 1976). These units are overlain by younger Oligocene equivalents, which are best preserved in scattered erosional remnants lying outside the main district. According to Knox, 1970, the contact between the younger and older volcanic packages is an unconformity. Younger basalts (10 ± 0.5 my) flank the range to the north. (Hope and Coats, 1976).

Mineralization in the district is apparently hosted only by older (Eocene) densely welded, rhyolitic ash-flow tuffs which are cut by andesitic dikes (Knox, 1983). The ore minerals occur in narrow quartz veins and gangue localized along north to northeast - striking, high-angle faults. The zones are sheeted and contain altered and mineralized wallrock fragments (Emmons, 1910). The veins reportedly contain dark ruby silver, pyrargyrite, freibergite (argentiferous tetrahedrite), arsenopyrite and stibnite (Lawrence, 1963; Emmons, 1910). Dump samples collected from the district consist of sheared milky white to vitreous grey, vuggy quartz vein and bleached, silicified and sericitized wallrock. The samples contain abundant unoxidized pyrite and are coated by red and green-colored oxides possibly derived from iron, arsenic or antimony minerals. Some of the samples are so rich in pyrite they smell of sulfur. Clots of unidentified fine-grained metallic minerals were unidentified in hand sample but are probably silver or antimony sulfides.

The silver and antimony bearing veins of the Buckeye and Ohio Mine are described by Lawrence, 1963 and Emmons, 1910. Lawrence erroneously named the mine the Good Hope but gives a location and description which fits the Buckeye and Ohio. Quartz veins were deposited along two cross-cutting faults. Antimony oxides occur in the northeast cross structure and pods, veinlets and crystals of stibnite associated with white and yellow antimony oxides occur in the main north-northeast-striking fault zone. The ore-bearing portion of the main vein is about a foot in width (Emmons, 1910). Vein material collected from the dump contains abundant prismatic and twinned crystals of arsenopyrite.

Although the geology at the Good Hope mine is poorly exposed, rhyolite north of the mine and andesite to the south are notably bleached, silicified and iron-stained. The main shaft is sunk on a northeast-striking, northwest-dipping shear zone which is highly iron-stained. One half to 1" wide, east-west striking quartz veins cut the altered andesites. These veins are possibly post-mineral as indicated by their compact, sugary appearance (which differs from the more vitreous vein material found on the dump), cross-cutting orientation and lack of obvious mineralization.

The workings at the Amazon mine are badly slumped and weathered. Argillized and sericitized rhyolite tuff is the predominant rock type in the mine area. The workings are oriented along a northeast-striking fault shown on the geologic map of Hopes and Coats, 1975. The minesite consists of several prospects. The northeastern prospect is developed in black, indurated (silicified?), massive, carbonaceous shale or mudstone of probable Paleozoic age. The rock (sample 1598 A) contains minute discontinuous quartz encrusted vugs filled with fine-grained sulfides.

Selected References:

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- Knox, D. (1983) Tertiary volcanic-hosted precious metal deposits in the Tuscarora to Midas area, Elko County, Nevada: report submitted for Precious Metals Seminar, Geology 702R, Mackay School of Mines, Spring 1983.
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