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

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(22)
Item 4

ALUNITE DISTRICT

The Alunite (Railroad Pass) mining district is situated along Railroad Pass at the southeastern end of Las Vegas Valley in S2,T23S,R63E, and includes the workings in the northeast trending Black Hills. The district is located about 20 miles south of Las Vegas and 5 miles west of Boulder City in central Clark County, Nevada. Outlying areas are accessible by way of good dirt roads from U.S. Highway 95, while the main part of the district is within walking distance from the Railroad Pass Casino parking lot.

Lincoln (1923) reported that gold was first discovered in the Black Hills west of Railroad Pass prior to 1908, but R. T. Hill is credited with discovering gold and alunite in the district in 1908. The area's favorable similarity to the Goldfield mining district in the genesis and occurrence of alunite, along with similar country rock, alteration products, mineralization, and structural controls generated early hope that the Alunite district would be defined as a Goldfield-type gold deposit (Hill, 1908). The Alunite Mining Company soon formed, but was abandoned after a short and non-productive period of operation. In 1915, interest was revived in the district for alunite, valuable in itself for its potash content, but the venture was unsuccessful when the percent of potash proved too low to be mined economically (Lincoln, 1923). Interest was revived for a third time during WW I when the district was considered as a possible source for aluminum, but grade and distribution of the alunized rock was unfavorable for commercial exploitation (Longwell, et al., 1965). No production of alunite has ever been recorded. The Quo Vadis Mining Company began operations at the Quo Vadis Mine in 1915, but activity was sporadic and the mine closed in 1923 (lincoln, 1923). The only recorded production for the district came from the Quo Vadis Mine in 1935 and 1936 and amounted to less than $35,000 in gold with minor silver (Longwell, et al., 1965). The district has since been prospected intermittently up to the present. The recent field inspection noted no activity in the district except the surface exploration from the "1981 gold rush".

The Black Hills southwest of Railroad Pass is an eroded finger of the Miocene quartz monzonite Boulder City Pluton, overlain by propylitically altered andesite flows at the southern tip of the hills, and in fault contact on the western side with massive Tertiary andesite flow breccias and lavas. The rocks along the contact are argillically altered and locally silicified (Anderson, 1977). The pluton is uplifted relative to the volcanics along a north-trending, vertical shear zone. In the vicinity of Railroad Pass, the rocks are andesite and latite flows, breccias, and lavas, which are interstratified with sandy to conglomeratic sedimentary layers (Hill, 1908; Anderson, 1977). The volcanics are intruded by numerous dikes and irregular intrusive masses.

The Alunite district is located along intersecting zones of intense fracturing and faulting. The main fault trace extends northwest-southeast, with intersecting sets of strong north-south and east-west fractures and shears (Hill, 1908), (an extension of the Las Vegas Shear Zone?). Along Railroad Pass, the faults generally trend north-northwest and are downdropped to the southwest.

Hill (1908) suggests that the mineralization and alterations in the Railroad Pass area is probably the result of hot, acidic, solfataric, ascending volcanic vapors following brecciated zones in the volcanics. Alunite, along with silica, gypsum, and kaolin, replace Tertiary volcanic rocks in a belt along a complex zone of faulting. The alunite is widely disseminated throughout the altered volcanics, but occurs most conspicuously as small, massive, irregular, white to pinkish veins (Callaghan, 1936). Jarosite occurs as small crystals in vugs in the alunitized rock. Minor gold and silver also occur disseminated in the altered rock and in quartz veins (Longwell, et al., 1965).

The Quo Vadis Mine appears to be following the north-northeast trending fault zone which defines a graben and horst structure that is intersected by an east-west set of shears. The workings are long the east and west contacts of a down-dropped block of quartz monzonite between andesite breccia. The rocks along the

contact are extensively and locally altered (argillic, propylitic, alunitized, and silicic). The fault breccia is coated with hydrothermal quartz and the fragments exhibit milling. Barite, calcite, and quartz veins cut across all rock types and structures. Mineralization at the property occurs as very fine sulfides (pyrite and chalcopyrite) along with free milling gold (Vandenberg, 1937) carried by quartz, barite, and manganese-stained calcite veins, which fill fault zone fissures. The veins and country rock are stained by malachite and iron oxides. The eastern fault contact appears to have carried a greater degree of mineralization than the western fault zone, however, the majority of workings follow the western fault zone.

The Blue Quartz Mine workings follow a 6-8 foot wide, vertical, northerly trending fault zone in propylitically altered andesite flows. Brecciated quartz and barite veins and stringers, carrying andesite fragments, pyrite and chalcopyrite, fill fault zone fissures. The sulfides are altered to malachite, and other copper and iron oxides. Barite crystals are intergrown with the quartz and malachite. Late stage silica flooding coats the veins, breccia, and country rock with fine galena grains and drusy quartz.

REFERENCES - Alunite District

Anderson, R. E. (1977) Geologic map of the Boulder City 15-minute quadrangle, Clark County, Nevada: USGS Map GQ-1395.

Anonymous (1982) McCullough Mountains G-E-M Resources Area: Great Basin GEM Joint Venture Technical Report GRA No. NV-36.

Carpenter, J. A. (1929) Mineral resources of southern Nevada: NBMG Bulletin 2.

Gale, H. S. and Phalen, W. C. (1917) Potash Salts in USGS Mineral Resources, 1915, Pt. 2, pp. 111-112.

Hewett, D. F., et al. (1936) Mineral resources of the region around Boulder Dam; USGS Bulletin 871.

Hill, R. T. (1908) A scientific search for a new Goldfield: EMJ, v. 86, p. 1157.

REFERENCES: (continued)

Hill, R. T.(1908) Goldfield, Nevada, type of ore occurrence: EMJ, v. 86, p. 1096.

_____ (1908) Camp Alunite, a new Nevada gold district: EMJ, v. 86, p. 1203.

Hill, J. S.(1915) The mining districts of the western United States: UBGS Bulletin 507.

Lincoln, F. C. (1923), Mining districts and mineral resources of Nevada: Nevada Publications Co., Reno.

Longwell, C. R. (1963) Reconnaissance geology between Lake Mead and Davis Dam, Arizona-Nevada: USGS Professional Paper 374-E.

Longwell, C. R., et al. (1965) Geology and mineral deposits of Clark County, Nevada: NBMG Bulletin 62.

Stewart, J. H. and Carlson, J. E. (1976) Cenozoic rocks of Nevada: NBMG Map 52.

Vandenburg, W. O. (1937) Reconnaissance of mining districts in Clark County, Nevada: USBM Information Circular 6964.