NBMG OFR 83-11 1710 0020
See also 83-12 for geochemical results.

(27)
Item 20

ELDORADO DISTRICT

The Eldorado (El Dorado, Colorado, Nelson) mining district is located in and around the town of Nelson in Eldorado Canyon, west of the Lake Mead Recreation Area, Clark County, Nevada. The Eldorado Canyon trends east-west through the southern end of the Eldorado Mountain. Nelson is approximately 25 miles south of Boulder City, Nevada, by way of U.S. Highway 95 and Nevada Highway 60. All areas of the district are accessible along good to poor dirt roads from Highway 60. Prior to the building of Hoover Dam, the district extended to the Colorado River.

The Eldorado district, one of the oldest in Nevada, began operations about 1857 when gold ore was discovered on what is now the patented Eldorado Rand property. Nelson was founded and the Colorado mining district organized in 1861. The early miners found the remains of workings which dated prior to 1860, indicating that the district probably had been worked by the Spanish or Mexicans several hundred years ago (Vandenberg, 1937). The Southwestern Mining Company acquired most of the producing mines and controlled mining activity from 1862 to 1897 (Longwell, et al. 1965), Ore produced during this time, which consisted of free gold and hornsilver, was shipped down the Colorado River to towns in California or on to the Gulf of California. In the early 1900's, the Techatticup and Eldorado Rand mines were the main producers, with most of the other properties idle or producing intermittently. During this time, interest declined in the district as other districts throughout Nevada came into production making the remoteness of Eldorado Canyon less attractive. Activity up to the present has been relatively consistent with the rise and fall of metal prices. Ransome (1907) estimates production in the district prior to 1906 to be between 2 and 5 million dollars. Longwell (1965) reports production from 1907 to 1961 to be an estimated $4.5 million in gold, silver, copper, lead, and zinc. The district was extensively explored, both surface and subsurface, during the "1981 gold rush". At the time of inspection, activity was noted west of Nelson in the vicinity of Wall Street and

Black Hawk mines where heavy equipment was observed moving surface dirt, or possibly removing the old dumps for residual values. However, no large scale active mining or ore production was observed, and generally, activity in the district is confined to independent owners and lessees conducting yearly assessment work. Year round residents live at Nelson and scattered throughout the district.

The Eldorado district is underlain by a Precambrian granitic metamorphic basement complex and overlain by Tertiary volcanics, which in turn, are intruded by Middle Mesozoic to Late Tertiary felsic and mafic plutons, masses, dikes, and ore bearing quartz veins.

The Precambrian rocks are composed of rapakivi granite, granite gneisses, porphyries and schists overlain with erosional remnants of Tertiary megabreccias and volcanic flows and lavas. The extrusives represent at least three episodes of volcanic activity in the Tertiary. The Lower Tertiary Patsy Mine volcanics consist of andesite lavas and flow breccias, and rhyolite breccias. The Mount Davis and Golden Door volcanics overlie the Patsy Mine volcanics conformably and consist of rhyolite ash-flow tuffs overlain by an eastward thickening wedge of andesitic rhyo-dacite lavas interbedded with clastic debris (Anderson, 1971). The volcanics strike north and generally dip to the east with the northernmost volcanics dipping west. The volcanics exhibit a broad anticlinal structure, probably an expression of the underlying Precambrian rocks. Structurally controlled and in fault contact with the basement and volcanic rocks are middle Mesozoic to Tertiary granodiorite, quartz monzonite and microgranite plutons and masses. North trending irregular dike swarms of pegmatites, aplites, andesite porphyries, and fine-grained rhyolite cut the metamorphics. A few later rhyolite dikes intrude the volcanic rocks (Ransome, 1907; Volborth, 1973; Anderson, 1971). Erosion has removed much of the Tertiary volcanics from the basement rocks. Everywhere in the district, the Precambrian basement rocks are separated from the volcanics by a layer of well-sorted,

poorly-bedded, angular detritus composed of conglomerate, limestone, and sandstone cemented with calcite (Anderson, 1971). Rocks exposed on the dumps suggests that the district is underlain by extensive plutonic rocks at shallow depth. East of Nelson, along Eldorado Canyon, and in the extreme southern part of the district, megabreccias of Precambrian gneisses and Tertiary intrusive and extrusives were thrust over basement rocks during the Lower to Middle Tertiary (end of the Laramide Orogeny?).

Volborth (1973) suggests that the present structure of the Eldorado Mountains is the result of Cenozoic Basin and Range type faulting and is a southern extension of the province. The district is cut by parallel, normal, north and northwest trending faults, possibly related to the Las Vegas Shear. With local exceptions, the downthrown side of the fault block is to the west. The east-west trending Nelson fault (Nelson Wash) divides the district into two distinct fault blocks, with the northern Nelson block downthrown and shifted westerly relative to the southern Precambrian granitic complex. North of the Nelson fault, Tertiary volcanics are downthrown between Precambrian metamorphics in an elongated, north-northwest graben and horst structure. Along the two parallel fault zones are granitic, granodioritic, and volcanic megabreccias.

The ore zones in the Eldorado district occur in epithermal quartz and calcite fissure veins in the Precambrian metamorphics and in the shattered quartz monzonite-granodiorite plutons which are filled and cemented with quartz and calcite (Hansen, 1962; Longwell, et al. 1965). The ore bearing veins also follow the brecciated contacts between the plutons and propylitically altered andesite dikes. The quartz/calcite veins strike east-west, dip vertical to horizontal, and range from minute stringers to several feet in thickness (Ransome, 1907). Some veins exhibit post-emplacement crushing. Early mining removed free gold and hornsilver from the oxidized ore on the surface leaving gold-bearing sulfide minerals in the quartz/calcite veins below the oxidization level. Chalcopyrite, pyrite, galena, sphalerite,

and chrysocolla are the principle ore minerals. The quartz veins were observed to carry specularite and bladed boxworks, suggesting stibnite. The alteration of the primary sulfides produced surface coatings of copper oxides on the veins and country rock. Sericitic and chloritic alteration is common along the contacts between quartz veins and country rock which is locally silicified. Late stage flooding of hydrothermal silica coats open spaces and fissures in quartz veins and host rocks, and cements breccia in the fault zones. Jarosite was noted coating fracture surfaces at the Nevada Gold Co. claims and at the Tonne claims. Bailey (1944) reported the occurrence of mercury at the Patsy Mine. The workings follow the contact between highly altered and fractured Tertiary rhyolite and andesite flows. No mercury was observed at the mine or on the dump.

REFERENCES - Eldorado District

Anderson, R. E. (1971) Thin skin distension in Tertiary rocks in southeastern Nevada: GSA Bulletin, v. 82, p. 43-58.

_____ (1977) Composite stratigraphic section of Tertiary volcanic rocks in the Eldorado Mountains, Nevada: USGS Open-file Report 77-483.

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

_____ (1978) Chemistry of Tertiary volcanic rocks in the Eldorado Mountains, Clark County, Nevada, and comparisons with rocks with some nearby areas: USGS Journal of Research, v. 6, p. 409.

_____ (1978) Geologic map of the Black Canyon 15-minute quadrangle, Mohave County, Arizona, and Clark County, Nevada: USGS Map GQ-1395.

Anonymous (1982) Eldorado Mountain G-E-M Resource Area: Great Basin GEM Joint Venture Technical Report, GRA No. NV-37.

Bailey, E. H., and Phoenix, D. A. (1944) Quicksilver deposits in Nevada: NBMG Bulletin 41.

Carpenter, J. A. (1929) Mineral Resources of Southern Nevada: NBMG Bulletin 2.

Garside, L. J. (1973) Radioactive mineral occurrences in Nevada: NBMG Bulletin 81.

Hansen, S. M. (1962) The geology of Eldorado mining district, Clark County, Nevada: Missouri School of Mines PhD Thesis.

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

Hill, J. M. (1912) The mining districts of the Western United States: USGS Bulletin 507.

Hillen, A. G. (1909) Mining operations in Eldorado district, Nevada: The Mining World, v. 30, p. 1025.

Kantor, T. (1961) Geology of the East-central portion of the Nelson quadrangle, PhD Thesis, University of Missouri, School of Mines, Rolla, Missouri.

Koschmann, A. H., and Bergdendahl, M. H. (1968) Principal gold-producing districts of the United States: USGS Professional Paper 610.

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.

NBMG (Undated) Unpublished report on the Lopez Claims, Clark County: NBMG Open-file Report 25, Item 4.

Qualheim, B. J. (1978) Hydrogeochemical and stream sediment reconnaissance basic data report for Kingman NTMS quadrangle, Arizona, California, and Nevada: NBMG Misc. Open-file Report GJB-122 (78).

Quillin, J. (1979) Eldorado Canyon: Nevada Magazine, v. 39, #5, p. 44.

Ransome, F. L. (1907) Preliminary account of Goldfield, Bullfrog, and other mining districts in southern Nevada: USGS Bulletin 303.

Schilling, J. H. (1965) Isotopic age determinations of Nevada rocks: NBMG Report 10.

Vandenberg, W. O. (1937) Reconnaissance of mining districts in Clark County, Nevada: USBM IC 6964.

Vandenberg, W. O. (1936) Placer mining in Nevada: NBMG Bulletin 27.

Volborth, A. (1973)Geology of the granite complex of the Eldorado, Newberry, and northern Dead Mountains, Clark County, Nevada: NBMG Bulletin 80.