Site Description

Golconda

(updated 2012)

Geologic setting: The Golconda tungsten-manganese deposit may have formed during the high-water stage of Lake Lahontan (see Willden, 1964, p. 111). The deposits are ~30 m above the highest late Pleistocene shoreline (Kerr, 1940), but associated springs would have reached maximum discharge when the lake and surrounding groundwater levels were high (Willden, 1964). The relationship with Pleistocene-era Lake Lahontan makes the deposit very young, probably less than 50,000 years old. Erickson and Marsh (written commun. in Berger and others, 1975) suggest the deposit results from spring activity younger than 5 Ma. Basalt flows younger than 6 Ma are present 4 km south of the Hot Springs area (Stewart and Carlson, 1976).

At the Golconda Mine in Sec. 36, T36N, R40E, up to 2 m of tungsten-bearing ferruginous and locally manganiferous clayey gravel rests on steeply-dipping Cambrian rocks. Much of the ore is overlain by up to 6 m of travertine. The tungsten may have been deposited as water emerged from a phyllite fissure beneath the deposit. The travertine, on the other hand, may have deposited from a parallel fissure in limestone, upslope from the tungsten deposit (White, 1955, p. 136). Travertine underlies the ore in some places, although the relative ages of travertine and tungsten are not completely clear. White (1955) believed they were deposited contemporaneously. Barium occurs within the manganiferous tungsten deposits, and barite nodules have been found locally in the travertine. Analyses of the ore indicate that it is anomalous in Co, Nb, Ni, As, Be, Ge, and Th (Ralph Erickson, personal commun., 1971).

The most likely explanation for Golconda tungsten is a hot-springs origin, deposited at or very near the present land surface. A 78.6-m-deep drill hole at the mine contained marcasite throughout its depth (D.I. Segerstrom, written commun., 1972), another indication of shallow deposition at low temperatures. The bedded deposit is underlain by scheelite-b-carrying skarn rocks; remobilization of tungsten and arsenic could account for all the metallization associated with the hot-spring water (Berger and others, 1974).

Placer gold, scheelite, and cinnabar have been mined near Golconda Butte, 24 km north of the Golconda Mine (Vanderburg, 1936; Willden and Hotz, 1955). There, Cambrian Harmony Formation (sandstone and shales) underwent contact metamorphism by a Tertiary granodiorite intrusive (Willden, 1964; Bonham et al., 1985).

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Geothermal features:

Golconda Hot Springs / Segerstroms Hot Springs: Hot springs are found in SW¼ SE¼ Sec. 29 and SE¼ NE¼ Sec. 32, T36N, R40E near the town of Golconda. Golconda Hot Springs has temperatures of 42.8-73.9°C, and cooler seeps are recorded nearby (to 29°C). The spring deposits at Golconda Hot Springs consist of travertine, and an estimate of the thermal reservoir temperature using the silica geothermometer is 115°C (Mariner and others, 1974). UNR staff collected samples from a 46.6 and 61°C spring, and calculated geothermometers of 86°C (Na-K-Ca) and 81°C (chalcedony). The Sec. 29 springs north of Golconda are referred to as Segerstrom's Hot Springs (Trexler et al., 1981).

Penrose (1893) reported that the Golconda Hot Springs deposits were highly charged with manganese oxides. Some areas around the hot spring vents are anomalously radioactive, up to 175 µR/hr (Wollenberg, 1974b), and thorium may be present in the water (D.I. Segerstrom, written commun., 1972). A few parts per million tungsten are reported.

In the early 1880s, farmers used Golconda Hot Springs for scalding swine (Adams and Bishop, 1884). An excavated hole was used for swimming, and outflow water irrigated radishes, lettuce, onions, etc. which grew unseasonably early due to the thermal waters. The area later became known as a health resort, with a large hotel and bathhouse (Miller and others, 1953). For many years the water from Golconda Mine Well (see below) was used for health baths at the Golconda Hot Springs Hotel.

Golconda Mine: Hot water was encountered in a Golconda tungsten mine drill hole in Sec. 36, T36N, R40E. From 1940 to 1945, the 53-m-deep well was used to treat tungsten-iron-manganese ores in the chemical plant 6.4 km east (D.I. Segerstrom, written commun., 1972).

A drill hole in the C SW¼ Sec. 36, T36N, R40E at the site of the Golconda Mine has a temperature of 61.7°C at 67 m. The temperature could be due to oxidation of sulfide minerals, as considerable marcasite was encountered in the hole (D.I. Segerstrom, written commun., 1972). A 20.5°C spring 183 m northeast of this well reportedly flows at 6.8 L/min.

Golconda Butte: A flowing artesian well is located ~5 km northwest of Golconda Butte (SW¼ SE¼ Sec. 3, T37N, R39E). The area was drilled at the site of a small spring, which reportedly ceased flowing after drilling (Loeltz, Phoenix, and Robinson, 1949). The spring is on a small tufa(?) mound. The well flows 4-9 L/min and has a temperature of 68°C (Trexler and others, 1981).

Site Description

Leasing information:

N/A

Bibliography:

Vanderburg, W.O., 1936, Placer mining in Nevada, Nevada Bureau of Mines and Geology Bulletin 27, 93 p.

Willden, R., 1964, Geology and mineral deposits of Humboldt County, Nevada, Nevada Bureau of Mines and Geology Bulletin 59, 154 p.

Willden, R. and Hotz, P.E., 1955, A gold-scheelite-cinnabar placer in Humboldt County, Nevada, Economic Geology, v. 50 (7), p. 661-668.