Site Description

Winnemucca
(updated 2010)

Geologic setting: The Harmony mining district, 8 km southwest of Winnemucca, was mined for mercury, silver, gold, and copper-lead-zinc sulfide. Locally, the Valmy Formation has been overthrusted upon the Harmony Formation, with attendant complex faulting. Quartz latite dikes cut both formations, and contain the district’s mineable ores (Vanderburg, 1938; Willden, 1964; Bonham et al., 1985).

The East Range fault is believed to intersect a buried, northwest-trending fault from the Krum Hills (figure). The fault projection is based on geophysical evidence and the presence of thermal springs and wells. Alluvial units are altered in the vicinity of the faults, and spring deposits are present at several areas.

Tungsten-bearing manganese veins near the East Range fault (E½ SE¼ Sec. 5, T34N, R36E) are called the Victory Lode. The veins consist largely of calcite with films of manganese and iron oxides. Other gangue minerals are quartz, chalcedony, and gypsum. R.J. Roberts (quoted in White, 1955a), believes that these veins are the "roots" of spring deposits now removed by erosion. They are no doubt older than the travertine deposits to the north, but may be genetically related (White, 1955a).

Geothermal features: (Map)

Rose Creek Springs: Warm springs and wells are located at the northwestern corner of the East Range (Secs. 21, 27, 28, T35N, R36E) (Cohen, 1962c; 1964). Two gas-discharging springs (Little and Big Alkali Springs) have anomalously high temperatures, varying between 20°C and 28.3°C. These springs lie along a range-boundary fault extension, believed to cross U.S. Highway I-80 near the center of Sec. 28, according to geophysical evidence (Cartwright and others, 1964).

Spring deposits consist of both siliceous sinter and travertine (Cohen, 1962b). The deposit in Sec. 33 is at the approximate maximum level of Pleistocene Lake Lahontan, and may be related, in which case the deposit would be younger than 50,000 years. White (1955a) describes the travertine at one spring terrace (probably in NE¼ NW¼ Sec. 33, T35N, R36E) as being light brown and very porous. One sample contained 9% Mn and 0.3% WO₃. The present spring is not depositing travertine.
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Water wells down-gradient from the springs contain 2-15 ppm boron (Cohen, 1964). A warm water well (30.6°C) is also reported from NE¼ Sec. 25, T35N, R36E (Ron Deichman, written commun., 1990), >3 km east of the projected fault. In 1981, Phillips Petroleum Company drilled two temperature gradient holes (91 and 166m (116?) depths) in the southern portion of current leased area that yielded maximum recorded temperatures of 57.8°C and 34.5°C and temperature gradients of 220-269°C/km. (GeothermEx, 2004).

Leasing information: The 1544 acres Whitehorse property, located near Rose Creek Springs, has several surface manifestations indicating geothermal potential, including siliceous sinter, hematite/argillic alteration, and warm springs aligning on probably NNE-striking structures. Magma proposes magnetic, gravity, resistivity, and seismic surveys, and shallow temperature gradient drilling. No information is available on this project, which no longer appears on the Company website.

Bibliography:

