Site Description

Carlin

(updated 2010)

Geologic setting: Carlin Trend etc.

Geothermal features: Hot springs near Carlin lie within the southern Carlin Trend structural zone (Zimmerman and others, 1991, p. 56). Thermal waters (24 to 60ºC) are found along 40 km of the trend in deep mine workings and drill holes. The higher temperatures were observed in drill holes and water wells along major structural zones in the Blue Star (~Sect. 4, T35N, R50E) and Bootstrap (~ Sec. 3, T36N, R49E) districts, at depths of 244 to 762 m. Thermal waters undergo vertical fracture flow at the Post-Betze, Purple Vein, and Bootstrap gold deposits northwest of Carlin. Isothermal conditions occur below producing fracture zones at depths from 335 to 457.2 m below the original, pre-mining surface (Zimmerman and others, 1991, p. 56).

Carlin Hot Spring, Long John Warm Spring: Two hot-spring areas are located 2-4 km southwest of Carlin in SE¼ Sec. 33, T33N, R52E and SE¼ SW¼ Sec. 5, T32N, R52E. The respective spring temperatures were reported as 78.8°C (Mariner and others, 1974; Bradberry and Associates, 1964) and warm (Bradberry and Associates, 1964). Trexler et al. (1982) reported a temperature of 82°C for the Sec. 33 spring, termed Carlin Hot Spring, and 24-35°C for the Sec. 5 spring, Long John Warm Spring. Hot water was encountered in two wells 0.5 km from the hot springs. The estimated reservoir temperature (Na-K-4/3Ca) of Carlin Hot Spring is close to the measured temperature (Mariner and others, 1974).

From 1986 to 1992, Carlin High School (NW¼ SE¼ Sec. 27, T33N, R52E) used 31°C geothermal fluid in a closed-loop space heating system. The well was reportedly abandoned because of scaling problems with iron and manganese. Gravity data suggest the geothermal springs and wells are associated with a concealed northeast-striking fault.

Hot Sulfur Springs nr Carlin / Dry Susie Hot Springs: A series of springs and seeps in NW¼ Sec. 8, T33N, R53E have temperatures as high as 65°C, according to Trexler et al. (1982) who called them Dry Susie Hot Springs. The springs issue from a contact between gravel and lacustrine silt units; the total flow of the springs is estimated at nearly 300 L/min (Kirk Laird, written commun., 1999). The spring alignment, a 500-m lineation, may trace a northerly striking normal fault (Trexler and others, 1982).

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Leasing information:

N/A