



Site Description

Ruby Valley

(updated 2010)

Geologic setting: A major basin-and-range normal fault forms the contact between consolidated rocks and unconsolidated deposits at the Ruby Mountain range front ([figure](#)). Another fault cuts the alluvial units halfway between the range front and Sulphur Hot Springs.

Geothermal features:

Smith Ranch Hot Springs ([Map](#)): The springs near Ruby Marsh have a long history and were first described by Bidwell (1842) as "boiling hot"; Bidwell's party reportedly used them to cook meat. Audiomagnetotelluric data for southern Ruby Valley were reported by Long and Batzle (1976b) and Batzle and others (1976b). Mariner and others report a spring temperature of 65°C with estimated reservoir temperatures of 72°C and 71°C using the silica and Na-K-Ca geothermometers, respectively (1983, p. 98, 105).

Sulphur Hot Springs: The highest spring temperatures in Elko County (up to 96°C) are reported for Sulphur Hot Springs in northern Ruby Valley (Sec. 11, T31N, R59E). The springs are so-named for their odor of hydrogen sulfide. The springs flow into Stonier Lake from a circular sinter mound ~457 m in diameter (Olmsted and others, 1975). Eakin and others (1951) suggested the thermal waters probably rise along a fault.

The siliceous spring sinter consists of white- to light-gray, earthy, amorphous silica (probably opal) deposited by present-day and ancestral hot springs (Olmsted and others, 1975). This extensive sinter zone suggests a high geothermal reservoir temperature. Mariner and others (1974) analyzed water from a hot, overflowing pool and estimated the reservoir temperature at 183-190°C using the silica-quartz geothermometer; White and others (1983) estimated a temperature of 178°C. The area of subsurface hot water at Sulphur Hot Springs is roughly circular and covers approximately 5 km² ([figure](#)).

Waring (1965) reported Miller's Hot Springs in T30N, R69E at the northeast end of Franklin Lake. This description probably refers to the Sulphur Hot Springs area. Batzle and others (1976b) reported on telluric profiles of the Ruby Valley Known Geothermal Resource Area, which includes Sulphur Hot Springs. In 1979, Union Oil Company drilled Union Oil Co. Stonier No. 2, a 960 m deep well located in SE ¼ SW¼ Sec 11 T31N R59E (Barton and Purkey, 1993, p. 12).



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Leasing information:

