



Site Description

Pine Valley

(updated 2010)

Geologic setting:

Geothermal features: Five or six hot spring systems are located along the Sulphur Spring Range in southeastern Eureka county: Bruffeys Hot Springs, Shipley Hot Springs, Carlotti Ranch Springs, Siri Ranch Spring, Flynn Ranch Springs, and possibly Sulfur Springs. A prominent fault bounds the Sulphur Springs Range in western Diamond Valley and cuts through the range near Bruffey Canyon, coincident with Bruffeys Hot Springs and Carlotti Ranch Springs in eastern Pine Valley.

Bruffeys Hot Springs: Bruffeys Hot Springs (formerly Mineral Hill Hot Springs), located in Sec. 14, T27N, R52E, have the highest temperatures of those along the trace of the fault. Temperatures are up to 66.7°C (Stearns and others, 1937), with a flow rate of 189 L/min (Reed and others, 1982, p. 40), and travertine occurs as prominent terraces. Six springs occur along a north-south fault of large displacement. The old travertine deposits here contain barite and fluorite, although the travertine presently being deposited is devoid of barite and fluorite (White, 1955a). Oil and gas seeps are reported from the hot springs and vicinity (Garside and others, 1988, p. 30). At the Blackburn Oil Field, about 6 km to the northwest, the reservoir temperature is about 120°C at 1,260 m, in agreement with chemical geothermometer calculations (Goff and others, 1994).

Carlotti Ranch Springs: Two springs approximately 400 m apart have temperatures of 35 and 39°C (Stearns and others, 1937). The springs are used for irrigation. They are along the east side of Pine Valley 8 km north of Bruffeys Hot Springs and are probably along the same fault reported there.

Hot Creek Springs ([Map](#)): Six springs flow from alluvium just adjacent to limestone bedrock. The main spring orifice is reportedly in bedrock. The springs are located along the west side of the Sulphur Springs Range, in Sec. 12, T28N, R52E (Mifflin, 1968). The reported temperatures range from 26°-29°C (Reed and others, 1982, p. 104). These springs have reported discharges of 6,800-8,500 L/min (Eakin, 1961) and 22,000 L/min (Mifflin, 1968). This flow often largely maintains Pine Creek, which flows north down the center of Pine Valley. The Na-K-Ca thermal reservoir estimate is near the spring temperature (Mariner and others, 1974).

Raine Ranch Springs: Springs in Sec. 6, T31N, R52E are reportedly warm and flow 379 L/min (Bradberry and Associates, 1964). About 10 km south, at the Tomera Ranch Oil Field, the fresh



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water drive for oil production is 48.9°C water in production wells (Nollkamper, 2002) located in NE¼ NE¼ Sec. 5, T30N, R52E. The production zone is at about 300- to 600-m-depth.

Leasing information: