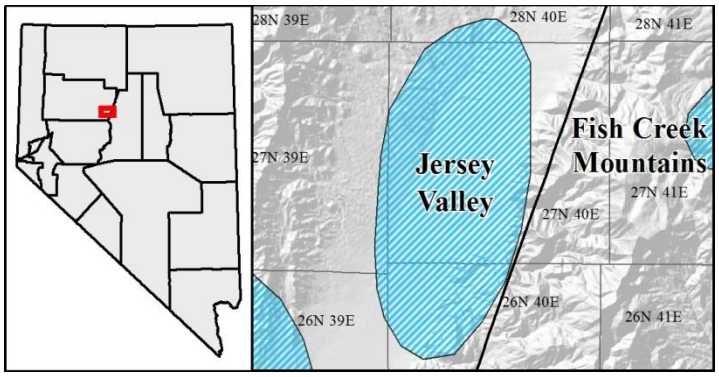
Site Description

Jersey Valley
(Updated 2014)



Geologic setting:

Jersey Hot Springs abuts the Fish Creek Mountains in southeastern Jersey Valley (T27N R40E S27 and 34). The Pumpernickel and Havallah Formations are exposed, with greenstone and chert predominating the former and quartzite and chert, the latter. The Jersey Valley mining district, has produced manganese, silver, lead, and minor gold, zinc, and copper. The manganese is thought to have formed syngenetically with the Pumpernickel cherts, based on red jasper occurrences and manganese stringers below the ore (Johnson, 1977).

Geothermal features:

Jersey Hot Springs: According to Blackwell et al. (2006), "Jersey Hot Spring (aka Jersey Valley Hot Spring) issues from a modified pool roughly 20 m in diameter in heavy brush […]. Measured discharge temperature and flow rate were 59°C and 200 l/min, respectively, in 1998." Springs have temperatures between 29 and 57°C along the eastern Jersey Valley margin (Sec. 28, 29, T27N, R40E) (Cohen and Everett, 1963; Mariner et al., 1974). There is no obvious structural control of Jersey Hot Springs, though springs may lie along a range-front fault projection mapped by Stewart and Carlson (1976b). Springs issue from a mixture of alluvial fan and loess deposits, with fragments of travertine in the alluvium. A 0.8 km-long hill of travertine and siliceous sinter is present in the spring area at SW¼ SW¼ Sec. 28 (Ferguson and others, 1951b), approximately 300-500 m east of the main road. A relatively minor cool spring (17°C) issues about 1 km east of the road toward the Augusta Mountains. No free gas issues from the source pool.

Geochemically, Jersey Hot Spring water contains relatively low to modest amounts of SiO_2, As, B, Br, and Li, and the Cl content is only 38 ppm. The waters do not resemble Dixie Valley Production Field fluids and they show no oxygen-18 isotope shift. The water contains 1.1 T.U. tritium, suggesting a minimum age of around 40 years (Goff et al., 2002; Shevenell and Goff, 1995), although they are probably much older.

Estimated thermal aquifer temperatures are 142°C and 182°C for silica and Na-K-Ca geothermometers, respectively (Mariner et al., 1974). Nosker (1981, p. 55-57, 67, 80-81) measured five springs within Jersey Valley, and found temperatures from 11-56ºC, silica geothermometers of 85-143ºC, and Na-K-Ca geothermometers of 34-178ºC. The geothermometers calculated using the data collected in May 1998 indicate a subsurface equilibration temperature only as high as 120°C (Goff et al., 2002).

Leasing information:

A 20-year power purchase agreement (PPA) between Ormat Technologies Inc. and NV Energy was established in 2007. Ormat proceeded to drill 3 observation wells in 2007, 2 production wells in 2008, 4

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production wells in 2009, one production well in 2010 and one injection well in 2011. One additional injection well was drilled in 2012, with another three injection wells permitted.

On February 1, 2011, Ormat Technologies announced the completion of the new power plant online at Jersey Valley. The 15 MW facility is operating under at 20 year power purchase agreement (PPA) with NV Energy (GRC Bulletin 40(2): 2011). Details of the exploration and development of the Jersey Valley property can be found in Drakos et al. (2010). As of 2013, the Jersey Valley plant had a nameplate capacity of 22.5MW and produced 46,001 MWhr in 2012 (Shevenell and McDonald, 2013).

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