



## Site Description

### Truckee Range

(updated 2010)

**Geologic setting:** The northern Truckee Range, including North Valley and Black Warrior Peak, is comprised of Triassic-Jurassic shales and limestones intruded by Cretaceous granodiorite. Tungsten is found along granodiorite – carbonate contacts (Johnson, 1977), and base metals are found within sulfide-bearing quartz veins (Nightingale district). Black Warrior Peak veins contain small amounts of pyrite, galena, stibnite, and sphalerite (Bonham et al., 1985).

#### Geothermal features:

**Fireball Ridge:** Temperature-gradient drill holes drilled by Phillips Petroleum Co. (10 holes across 9 sections in/around Fireball Ridge) have anomalous gradients and temperatures up to 30°C at depths of 91 m (SMU; Sass and others, 1999; GeothermEx, 2004). Gradients of 100-150°C/km were reported at the north end of Fireball Ridge (GeothermEx, 2004). Location: 39.92°N, 119.07°W.

The groundwater near Fireball Ridge may be underflow from Bradys Hot Springs (Harrill, 1970). A capped Ormat well is located on the crest of Fireball Ridge - no water is in the vicinity (July 2007).

**North Valley:** In the late 1970s and early 1980s, Phillips Petroleum Co. drilled about 36 shallow temperature-gradient drill holes and two deeper slim holes in an area north and west of North Valley. These drill holes identified a subsurface geothermal anomaly over about 75 km<sup>2</sup> that is centered on an area about 3 km southwest of Black Warrior Peak. One 300 m drill hole had a temperature of 51°C, and a maximum temperature of 129.4°C was reported at a depth of 552 m (GeothermEx, 2004). Location: 39.90°N, 119.22°W.

North Valley is a dry borate-crust play; UNR samplers found no evidence of water flow, mud, or water-associated plants (July 2007).

**Leasing information:** Formerly called the Black Warrior property, North Valley is located in T23N, R25E, Section 8 (BLM) plus seven square miles of private land. Previous drilling indicated a high geothermal gradient and a 128°C temperature at 552 m depth. A heat in place estimate by Geothermex indicates a 126MW/55MW P50/P90 resource. Nevada Geothermal Power received a



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\$1.6M DOE Grant to undertake subsoil and down hole gas-geochemical surveys at Black Warrior. No known work completed recently on the property.

### Bibliography:

Bonham, H.F., Jr., Garside, L.J., Jones, R.B., Papke, K.G., Quade, J., and Tingley, J.V., 1985, A mineral inventory of the Paradise-Denio and Sonoma-Gerlach Resource Areas, Winnemucca District, Nevada, Nevada Bureau of Mines and Geology Open File Report 85-3, 473 p.

Johnson, M.G., 1977, Geology and Mineral Deposits of Pershing County, Nevada, Nevada Bureau of Mines and Geology Bulletin 89.