

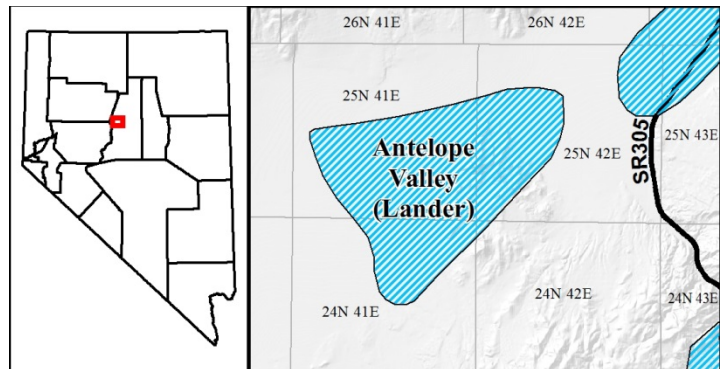
Site Description

Antelope Valley (Lander)

(updated 2014)

Geologic setting:

The New Pass District, located at 7200' in the New Pass Range, bounds southwestern Antelope Valley. Minor gold (35,000 tons at ~1 oz/ton) and manganese (5,000 tons at 30% grade) were mined intermittently from 1864 to 1964. From Stewart et al. (1977), "The New Pass Range is made up of chert and quartzite of the Ordovician Valmy Formation overlain by conglomerate of the Battle Mountain Formation, overthrust by chert, siltstone, and shale of the Havallah sequence." The gold and manganese deposits are associated with faults that cut the Havallah sequence.



Mercury has been mined north of the New Pass District, in the Augusta Mountains McCoy Prospect. Mercury is associated with silicified limestone of the lower Augusta Formation (Stewart et al., 1977). The Augusta Mountains are a sedimentary range, with sandstone, shale, conglomerate, and limestone overlain by Tertiary volcanics. Exploration drilling identified a thermal anomaly within the New Pass and Augusta ranges, centered on the McCoy Mercury Mine. There is little heat transfer into the wells and springs of Antelope Valley: groundwater surveys measure cold temperatures 3 – 6 km east of the range.

Geothermal features:

Three warm wells were measured in NE Antelope Valley near Red Butte: (1) a 20.5°C well in T25N R42E 16SW (NWIS database), (2) a 23.8°C well in T25N R42E 20NE (Great Basin Groundwater Geochemical Database) and (3) a 22.0°C well in T24N R41E 10SW (Great Basin Groundwater Geochemical Database). The latter two wells were identified through NBMG sampling surveys in July 2008. No other thermal features were found. Nine wells and springs between T22-25N and R40-41E measured only 12 to 18°C. Southwest of Antelope Valley however, is McCoy Mining Prospect, a known, leased geothermal area (Richards and Blackwell, 2002).

McCoy: The McCoy Mining Prospect (Olson et al., 1979) is a blind geothermal system discovered by favorable hydrogeochemical analyses of well waters, and anomalous thermal gradients. The anomaly covers 5 x 20 km within the New Pass and Augusta Ranges in T22-24N, R39-40E. A fossil mound of travertine 10 m thick and 2 km² sits in unsurveyed NW¼ T23N, R40E just west of the McCoy Mercury Mine (Olson et al., 1979). The water chemistry from a warm well at the McCoy Mine suggests a minimum equilibration temperature of 186°C with an 85% cold-water fraction (Olson et al., 1979).

In the late 1970's, AMAX performed geophysical, geochemical, and geological surveys in the McCoy Mine area, and drilled 52 shallow temperature gradient holes. Well temperatures reached 102°C and temperature gradients ranged up to 522°C per kilometer. AMAX estimated the area within the 200°C isotherm to cover 30,000+ acres (GeothermEx, 2004).

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Leasing information:

Magma Energy Corp. holds 19,311 acres of geothermal leases within the McCoy Property. Magma intends to run 3D seismic, gravity, magnetics, and electrical field surveys in order to select locations for two to four intermediate depth (1,000 to 2,000 meters) slim holes. Magma is the recipient of a \$5m DOE grant at McCoy to include geophysics, soil gas, and angled TG holes (Shevenell et al., 2010).

In 2011, Magma Energy Corp. and Plutonic Power Corp. merged to create Alterra Power Corp (Alterra, 2011). Alterra still holds the leases at the McCoy property as of March 2014 and considers McCoy an early stage asset, but no immediate development is apparent (Alterra, 2014).

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