

# Site Description

## Pilot Creek Valley

(Updated 2014)

### Geologic setting:

The Pilot Creek Valley is located near the border of Nevada and Utah approximately 30 kilometers northwest of West Wendover, Nevada. Pilot Creek Valley also lies between the Toano Range towards the west and the Pilot Range towards the east. The Pilot Range is composed of slate, argillite, phyllite, metasiltstone, quartzite, and conglomerate and is exposed throughout the range (Woodward, 1967).



The Pilot Range is a north trending mountain range located west of the Nevada-Utah border. The range is composed of metamorphosed Cambrian and Proterozoic strata with Mesozoic igneous rocks that are overlain by Quaternary sedimentary rocks and other unconsolidated material. Multiple faults and folds are prominent throughout the range including bedding plane faults, low angle faults, and high angle Tertiary strike-slip and normal faults. These normal faults are range bounding faults parallel to the range fronts (Miller and Lush, 1981).

The southern Toano range is composed primarily of Cambrian and Ordovician carbonate and shale units that have been deformed into northeast plunging folds. Metamorphism has occurred in this region resulting in bleached and marbleized limestone with shale units being converted to slate and phyllite with some minor muscovite schist. These units make up the Silver Zone terrane which was intruded by the Middle Jurassic Silver Zone Pass pluton (Ketner et al, 1998).

### Geothermal features:

A warm spring on the western side of Pilot Creek Valley (T36N, R68E, Sec. 34?) was sampled by NBMG in 2008. The spring had been converted into a tractor tire cattle trough. Samplers reported “Water flows upward through a pipe, with algae and white salt deposits visible inside the tube. Unscented bubbles (not H<sub>2</sub>S) periodically rise through pipe.” and the water temperature was 23.7°C. Na-K-Ca geothermometer readings were recorded at 26.7°C (Fournier, 1981) and quartz and chalcedony geothermometer readings were found to be 82.5°C (Fournier 1977) and 51.3°C (Fournier, 1981) respectively (Great Basin Groundwater Geochemical Database).

Several other wells in Pilot Creek Valley were cool and were not sampled during NBMG site visits. However, a hand pump well at the Pilot Motel in Montello was sampled after 5 minutes running time and was 18°C. A pivot water well for irrigation on the east side of the valley was tested and also found to be cool, at 18.1°C (Great Basin Groundwater Geochemical Database).

### Leasing information:

N/A

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## Bibliography:

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Woodward, L.A., 1967, Stratigraphy and correlation of late Precambrian rocks of Pilot Range, Elko County, Nevada, and Box Elder County, Utah: *Am. Assoc. Petroleum Geologists Bulletin*, Vol. 51, No. 2, p. 235-243.