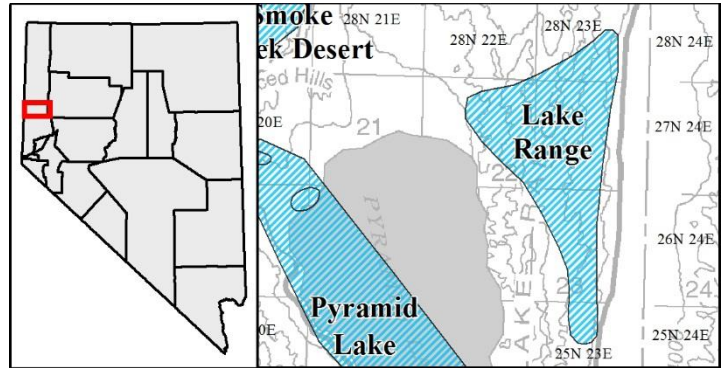


Site Description

Lake Range (updated 2013)

Geologic setting:

Lake Range is located in central Washoe County along Pyramid Lake and is approximately 60 kilometers to the northeast of Reno. The Nightingale Mountains are located to the east and Pyramid Lake is directly to the west. The



geology is characterized by rocks of Triassic and Jurassic metasedimentary and metavolcanic rocks. Other rock outcrops have been identified and mapped throughout the area as granodiorite to diorite, locally migmatitic, and gabbroic rock that are of Mesozoic age. North of Honey Lake Valley, several types of volcanic rocks such as andesite's, basalts, and flow breccia's are found along with northwest trending faults (Tingley 1999). Quaternary alluvium, lacustrine deposits, and spring deposits are also observed in this area (Anderson and Faulds, 2013).

The western flank of the Lake Range is bounded by north to north-northeast striking west dipping normal faults which have taken up several kilometers of slip and eastward fault-block tilting. Up to 30° of eastern tilting has been observed in this area. Faulting began between 9 and 3.5 Ma and has been responsible for approximately 20 to 30 kilometers of offset (Anderson and Faulds, 2013).

Geothermal features:

The geothermal system in the Lake Range is characterized by Tufa mounds, altered Miocene volcanic rock, travertine mounds, and calcite and silica veins (Anderson and Faulds, 2013). The springs in this geothermal system range from 18°C to 24.8°C. Geothermometer data were recorded for Jackass Spring, Potato Patch Spring, Sevenmile Springs, and Threemile Springs (Great Basin Groundwater Geochemical Database).

Jackass Spring: NBMG staff visited this spring in 2009 and noted cow trails and semi-fresh signs of deer nearby and a temperature of 19.6°C. This spring was reported to have a Na-K-Ca geothermometer of 85.8°C (Fournier, 1981), a quartz geothermometer of 109.03°C (Fournier, 1977), and a chalcedony geothermometer of 79.7°C (Fournier, 1981). Charge balance information for this spring was reported to be a good analysis (Great Basin Groundwater Geochemical Database).

Potato Patch Spring: NBMG conducted a site visit to this spring in 2009 and noted that samples were taken from the collection well and could not see the bottom of the well to determine depth. Temperature for this spring was 23.2°C. This spring was reported to have a Na-K-Ca geothermometer of 78.5°C (Fournier, 1981), a quartz geothermometer of 105.35°C (Fournier, 1977), and a chalcedony geothermometer of 75.7°C (Fournier, 1981). Charge balance information for this spring was reported to be good (Great Basin Groundwater Geochemical Database).

Site Description

Sevenmile Springs: A site visit was conducted by NBMG staff in 2009 that noted a temperature of 24.8°C. NBMG field notes state that samples were collected from a trough with the well flowing into the bottom portion and tubing was placed down the well pipe to siphon sample. Signs of cattle were observed at this location and plants were noted to be growing in the trough water. NBMG staff also noted that 2 or 3 gas bubbles rose from the pipe every 45 seconds. This spring was reported to have a Na-K-Ca geothermometer of 33.5°C (Fournier, 1981), and quartz geothermometer of 78.99°C (Fournier, 1977), and a chalcedony geothermometer of 47.7°C (Fournier, 1981). Charge balance information for this site was reported to be poor (Great Basin Groundwater Geochemical Database).

Threemile Springs: The 2009 site visit by NBMG staff observed a spring temperature of 23.8°C and grasses growing in the spring. The spring was reported to have a Na-K-Ca geothermometer of 89.7°C (Fournier, 1981), a quartz geothermometer of 108.7°C (Fournier, 1977), and a chalcedony geothermometer of 79.3°C (Fournier, 1981). Charge balance information was reported to be of fair quality (Great Basin Groundwater Geochemical Database).

Boiling Spring: Waring (1965, spring no. 50) reported a warm spring in T27N, R23E on the northwest shore of Winnemucca Lake, listing Russell (1885) as the reference. Russell (1885, p. 50) reported that "A number of small springs, some of which are warm, occur on the west side of Winnemucca Lake." Garside and Schilling (1979) assumed the warm spring was Boiling Spring in Sec. 34, T28N, R23E. However, Boiling Spring is cold (about 17°C) as are a group of springs about 1 km to the north in Sec. 27 (L. Garside, unpub. data, 1983). Hose and Taylor (1974, Table 1) reported an 86°C spring in Sec. 26, T28N, R23E (40 16'N, 119 22'W). The longitude-latitude location places the spring immediately adjacent to the highway about 1 km east of the Sec. 27 cold springs. NBMG presently (2003) assumes the Hose and Taylor (1974) location is in error.

Leasing information:

N/A

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Site Description

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