

Site Description

South Reese River Valley

(updated 2014)

Geologic setting:

S Reese River Valley is located in central Nevada approximately 20 kilometers to the northwest of Austin, Nevada. The Toiyabe Range lies to the east and the Shoshone range lies to the northwest. The region is made up of north trending bedrock ranges and alluvial valleys. Pre-Tertiary rocks of varying lithology characterize the area. Paleozoic marine sediments are found to be present in the east and central area with marine sediments interbedded with metavolcanic rocks. Plutonic rocks are found to crop out throughout the area but are found in small numbers. They have been dated and have been found to be pre-Cenozoic and cretaceous in age with one outcrop being dated as Jurassic (Kleinhampl and Ziony, 1985).



The geologic setting is described in detail in Hinz et al. (2011). In this work, they name the prospect area the Manhattan basin, which is adjacent to the Sierra Geothermal Shoshone-Reese River geothermal prospect leases described below.

Geothermal features:

James Lister Well, Steiner Ranch Well: The James Lister well (Sec. 27, T24N, R43E), a non-flowing 5-m-deep well, was last measured at 38.9°C (Waring, 1919). Two kilometers south, a well at Steiner Ranch (SE¼ SE¼ Sec. 35, T24N, R43E) was also reported hot.

Shoshone-Reese River Prospect: Numerous drilling projects have encountered hot water within the Shoshone-Reese River Prospect two kilometers southwest of Steiner Ranch. For instance, uranium exploration holes hit 60°C water at 107-m depth (C E½ Sec. 5 and C W½ Sec. 4, T23N, R43E) (Basinski, 1978, p. 60). AMAX reported a maximum temperature of 68.3°C at 137 m in Phillips Petroleum gradient holes (GeothermEx, 2004, Fig. SHO00-1), and anomalous gradients were found throughout a 4.8 km x 1.6 km northeast-trending zone. This anomaly traces the southeast margin of a small graben, and the inferred fault there. Mercury soil gas and radiometric surveys have been applied in the area (Henkle and others, 2005a, b).

Sierra Geothermal Power, and RAM Power (as of 2010), undertook large-scale geothermal assessment of the Shoshone-Reese River prospect, including seismic, gravity, magnetotelluric and radiometric surveys, geological and structural mapping, and geochemical analyses. To date, 57 wells have been drilled, ranging in depth from 100 to 1524 meters with recorded temperatures up to 150°C. Temperature data indicates a large thermal anomaly ~10 km long by ~3 km wide, with temperature gradients reaching a maximum of 500°C/km. In November 2009, Sierra Geothermal Power completed a program of 10 shallow exploration holes totaling 2,140 meters, suggesting that the size of the thermal anomaly is greater than previously understood.

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Sierra Geothermal Power Corp. also drilled a 1,198-m exploration well (No. 56-4) in March 2007 with a maximum temperature of 124°C. Partial funding of \$580,000 was provided by the US Department of Energy's GRED III program.

Leasing information:

The 6,145 acre Shoshone-Reese River project, originally leased by Sierra Geothermal Power, reverted to RAM Power during SGP's acquisition by RAM in 2010. RAM Power has since curtailed its geothermal development activities in Nevada in favor of focusing on their San Jacinto, Nicaragua geothermal project. Leases were inactive as of 2013.

Bibliography:

Basinski, P., 1978, Mineralogy and uranium potential of bedded zeolites in the northern Reese River Valley, Lander County, Nevada [M.S. thesis]: University of Nevada, Reno, 98 p.

Kleinhampl, F. J., and Ziony, J., 1985, Geology of Northern Nye County, Nevada, Nevada Bureau of Mines and Geology Bulletin 99A.

GeothermEx, 2004, New geothermal site identification and qualification: Report prepared by GeothermEx, Inc., Richmond, CA, for the California Energy Commission under the Public Interest Energy Research (PIER) Program, Final Project Report 500-04-051.

[Henkle, W.R., Jr., Gundersen, W.C., Gundersen, T.D., 2005, Mercury Geochemical, Groundwater Geochemical, and Radiometric Geophysical Signatures at Three Geothermal Prospects in Northern Nevada: Geothermal Resources Council Transactions 29: 243–250.](#)

[Hinz, N.H., Faulds, J.E., and Stroup, C., 2011. Stratigraphic and structural framework of the Reese River geothermal area, Lander County, Nevada: A new conceptual structural model. Geothermal Resources Council Transactions 35: 827-832. \(also, NBMG Open File Preliminary Geologic Map of the Reese River Geothermal Area, Lander County, Nevada; OF 11-3\)](#)

[Waring, G.A., 1919, Ground Water in Reese River Basin and Adjacent Parts of Humboldt River Basin, Nevada: USGS Water Supply Paper 425-D, 161 p.](#)