

# STRATIGRAPHIC AND STRUCTURAL CONTROLS OF THE OCCURRENCE OF THERMAL FLUID AT THE SODA LAKES GEOTHERMAL FIELD. NEVADA

James R. McNitt

GeothermEx Inc., 5221 Central Avenue, Suite 201, Richmond, California, 94804 USA

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## **ABSTRACT**

Ten exploration wells, ranging in depth from 1,286 to 8,498 feet, have been drilled in the Soda Lakes geothermal field. Since December 1987, two of these wells have been used by Ormat Energy Systems, Inc. for their 3.5 MW binary plant; well 84-33 for production and well 1-29 for injection. Based on geophysical and lithologic logs, it is concluded that the only significant permeability found in the field occurs in a zone of coarse pumice tuff located in the Truckee Formation. Due to fault displacement and tilting of strata between faults, depth to the reservoir ranges from 800 feet in well 1-29 to 3,370 feet in well 83-33. The horizontal extent of the field, as defined by temperature contours at a depth of 3,500 feet, coincides with a gravity high. It is inferred that the gravity high corresponds to a structural high and thermal fluid, contained within the Truckee Formation, migrates up dip into the structural high from deep within the Carson basin. The fault, which offsets the reservoir rock, acts both as a barrier to lateral migration of thermal fluid and as a conduit for vertical migration of fluid between segments of the reservoir offset by the fault.

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