

*Deep Electrical-Resistivity Investigations Coupled  
with "Dry" Geothermal Experiments in New  
Mexico*

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A deep electrical-resistivity survey was conducted in the Jemez Mountains of New Mexico in conjunction with the hot dry-rock geothermal test well drilled by Los Alamos Scientific Laboratory. The 1935.5-m well penetrated a sequence of volcanic and sedimentary rocks overlying Precambrian basement which was encountered at 733 m. Bottom-hole temperature was approximately 140°C. Resistivity reconnaissance in the vicinity was accomplished by use of the bipole-dipole technique with a source located 5 km from

the drill site. Dipole-dipole surveys were also carried out along two traverse lines which intersected the drill site and extended 3 km on either side of it. Shallow Schlumberger soundings were centered at transmitter and receiver electrode locations 500 m apart along these lines. Deep-resistivity soundings were modeled from the shallow measurements and borehole resistivity logs obtained from the drillhole. Final interpretation of the field results was achieved by use of generalized inversion techniques. The sedimentary section of over 650 m thickness is characterized by resistivity averaging less than 20 ohm-m, whereas the Precambrian section is highly resistive, with average values of about 1000 ohm-m. Repetitions of the deep-resistivity measurements were used in an attempt to detect the subsequent formation of water-filled, hydraulically produced fractures in the Precambrian section.