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Fracture characteristics and their relationships to producing zones in deep wells, Raft River geothermal area
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Fracture characteristics in the sedimentary and metamorphic rocks in the Raft River KGRA of Idaho are analyzed using geological, lithological and borehole geophysical data from five deep geothermal production wells. Particular emphasis is placed on fracture identification using borehole televiwer logs. Seven fracture orientation sets are recognized in the sedimentary and metamorphic rock units. Although the conventional geophysical logs showed good lithological correlation among the five deep geothermal wells, individual fractures observed using the borehole televiwer logs can not be traced from well to well. Interpretation of temperature logs, drilling rates and fracture intensity and characteristics indicates that most of the geothermal inflow occurs from three producing zones in each deep geothermal production well. The producing zones are associated mainly with steeply dipping fractures.

Single-well pumping tests performed in the site indicate that plots of drawdown per log cycle of time versus discharge rate are nonlinear for each well. This suggests that the calculated values of transmissivity using the single-well pump test data may not represent the actual transmissivity of the reservoir. The multiple-well pumping tests indicate that the geothermal reservoir is anisotropic with transmissivity ranging from 11,200 gpd/ft to 23,900 gpd/ft. The major axis of hydraulic conductivity is in the northeast-southwest direction, which coincides with the orientation of two steeply dipping fracture sets.