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ABSTRACT FORMAT

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Paper Title: The Roosevelt Hot Springs, Utah Geothermal Resource - An Integrated Case Study

Submitted for ___ Poster Session X Oral Presentation

I think most appropriate for session: EMD - Geothermal Exploration
(use title from list on facing page)

Abstract: *(Typewritten, double spaced, 250 words or less) (One key illustration, if desired)*

The Roosevelt Hot Springs geothermal resource is located along the western margin of the Mineral Mountains, approximately 19 km northeast of Milford, in southwestern Utah. To date seven producing wells have been drilled by Phillips Petroleum Company and Thermal Power Company, and construction will soon begin on the first stage of a planned 120 megawatt powerplant. This paper presents much of the geoscience data base, its detailed interpretation, and our integrated understanding of this high-temperature geothermal reservoir.

Detailed geologic mapping, and the study of well logs and drill cuttings indicate that the geothermal reservoir is a fracture controlled liquid-dominated system. The host rocks for the reservoir are Precambrian metamorphic rocks and a variety of Tertiary intrusives. The reservoir is mainly localized between the range front and an alluvial covered horst block along which fluids have migrated to the surface, forming an elongate

north trending dome of siliceous sinter. The reservoir is well expressed as an area of high heat flow, over 1000 mW/m^2, and low (less than 10 ohm-m) near surface electrical resistivity. Aeromagnetic, gravity, and reflection seismic data help define the geologic structure within and around the alluvial covered reservoir. Trace element geochemistry shows that As, Li and Hg are enriched along fluid pathways of the geothermal system. Mercury concentrations greater than 20 ppb occur only at temperatures less than $225^{o}C$ and reflect the present thermal configuration of the field.

The system was most efficiently explored using detailed geologic mapping in combination with thermal gradient studies and dipole-dipole resistivity.