

**SIMULATING A CHALLENGING WATER DOMINATED
GEOTHERMAL SYSTEM:
THE CERRO PRIETO FIELD, BAJA CALIFORNIA, MEXICO**

E. U. Antunez, A. J. Menzies and S. K. Sanyal

GeothermEx, Inc. 5221 Central Ave. Suite 201 Richmond, CA 94804

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ABSTRACT

A three dimensional, multiphase, numerical simulation model, of the Cerro Prieto field was developed and used to verify that the present installed capacity (620 MW) can be sustained for 30 years and to evaluate the impact of an 80 MW addition to the installed capacity in the NE-E of the field on the present production areas.

Cerro Prieto is the largest known water-dominated geothermal reservoir in the world, with more than 175 wells drilled to date and 17 years of production history. Wells here produce fluids of varying enthalpy, from moderate-temperature water to dry steam. The varying enthalpy and a complex interaction between the reservoir and the surrounding aquifer posed a real simulation challenge. The simulation approach used to reproduce the major features of the initial-state and the production history of the field is discussed in this paper.

From this study it was concluded that the field is capable of sustaining its present 620 MW total installed capacity for 30 years and the addition of the proposed 80 MW should have a negligible effect on the present production area.

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