

# **A NEW DISCOVERY WELL IN THE UPPER AGUA DE PAU GEOHERMAL SYSTEM, SAO MIGUEL ISLAND, AZORES: RESULTS OF DRILLING AND TESTING**

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## **ABSTRACT**

A successful exploration well, CL-1, was completed in February, 1989 in the upper Agua de Pau geothermal system on Sao Miguel. The 2022-meter-deep well encountered a high-temperature (>220°C) geothermal reservoir with permeable zones distributed between about 725 m and 1,800 m depth in fractured volcanic rocks. The reservoir penetrated by CL-1 is predominantly single-phase hot water, but temperature surveys and results of flow testing indicate that the top of a reservoir contains a steam cap, which underlies a cap rock of clay-rich altered pyroclastics. Three weeks of flow testing in 1989 yielded total mass flow rates of at least 125 tons/hr. The calculated transmissivity and productivity index of CL-1 are average for a deep, self-flowing geothermal well, and reservoir fluid chemistry is typical of volcanic-hosted meteoric hydrothermal systems. No evidence for calcite scaling, which has caused problems in earlier wells drilled in the lower Agua de Pau system, was found during testing.

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