

# **Development of Injection Capacity for the Expansion of the Ribeira Grande Geothermal Project, São Miguel, Açores, Portugal**

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## ***Key Words:***

*Portugal, Azores, Ribeira Grande, injection test, tracer test, scaling, plant expansion*

## **ABSTRACT**

This is a case history of injection capacity development for a 6.6 MW plant expansion at the Ribeira Grande geothermal field, where a 5 MW plant has operated since 1994. Of the four production wells available for the expanded power plant, one (CL-4) was unneeded and not used because of low productivity, so a 55-day injection and tracer test was conducted at this well. Injectivity of the well CL-4 increased steadily during the test, reaching 2.5 times the injectivity estimated at the start. The well can easily accept all of the wastewater from the expanded plant without pumping. Flowing temperature and pressure profiles and pressure fall-off behavior were recorded to further define well characteristics and hydrologic properties of the reservoir. A fluorescent dye tracer test at CL-4 showed no returns at the production wells, providing reassurance that injection into CL-4 would not adversely affect them. Silica saturation ratios under expected operating conditions indicate that the use of well CL-4 as an injector is unlikely to cause significant scaling in injection lines or in the well. Therefore, CL-4 has been dedicated as the injector for the plant expansion.

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