

AN INTEGRATED TEST PROGRAM FOR THE DEFINITION OF A HIGH TEMPERATURE GEOTHERMAL RESERVOIR: A CASE STUDY FROM THE ZUNIL GEOTHERMAL FIELD, GUATEMALA

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ABSTRACT

An extensive well test program was conducted at the Zunil geothermal field, Quetzaltenago, Guatemala during 1989 and involved all six (ZCQ-1 to -6) large diameter wells drilled in the field during 1980-1981. The results indicate that two of the existing wells (ZCQ-4 and -5) have unstable discharges and require further testing or workovers to reduce the instability. If ZCQ-4 and -5 can maintain their present power capacity, the four production wells (ZCQ-3 to -6) would be capable of supplying the required steam flow rate for the proposed 15 MW power plant. Measured flow rate declines from the 1989 long-term test and previous long-term tests show, however, that additional wells be required to maintain production. Three new wells (ZD-) are planned to be drilled during 1990-1991 to provide the necessary additional capacity. Analysis of pressure buildup and interference tests give a transmissivity of 1,600 to 8,500 md-m, typical for high temperature geothermal fields. The interference test also indicates that the central wells (ZCQ-1, -3 and -4) are in good communication.

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