Thematic Area 4: Physics and Geophysics

Evaluation of Reservoir Sub Surface Structures from Pressure Transient Tests in Olkaria Domes Geothermal Field, Kenya

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Abstract

The Olkaria Domes Geothermal field is situated in the south of Lake Naivasha, in southern sector of the Kenya Rift system, approximately 120 km northwest of Nairobi city. Geothermal reservoir evaluation involves various kinds of tests, data interpretation and modelling. In this paper multistage pressure transient data from ten deep wells obtained at well completion stage were analyzed for the purpose of obtaining permeability structures. From the results, Injectivity Index ranged from 0.35 lps/bar to 5.56 lps/bar while Transmissivity values ranged from $7.82\times10^{9}m^{3}$/pa.s to 5.12×10^{-8} m^{3} /pa.s. Injectivity-Index and Transmisivity contours indicate higher values in the eastern regions of the reservoir indicating good permeability and decreases southwest wards. It is recommended that more production wells be drilled in the eastern region of the geothermal field.

Key Words: Geothermal Reservoir, Well Testing, Step Rate Injection