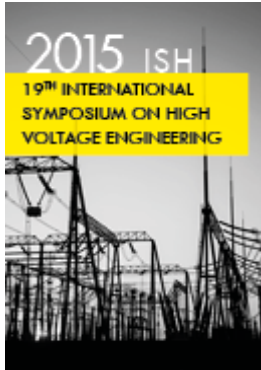

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AN INVESTIGATION OF NON CONVENTIONAL GROUNDING INSTALLATIONS

Abstracts

This paper aims to present the simulated models and results of non conventional grounding installations with electrodes embedded in conductive backfill and buried in either homogeneous or two-layered soil. Conventional installations, without the use of backfills, were also simulated with a view to comparing the results and determining the extent to which a backfill may influence the earth surface potential distribution and the grounding resistance. The requirement of a precise design of the soil model is pinpointed, as the existence of multiple layers affects the potential distribution around the electrode. All simulations were conducted in Opera-3d, a software package that calculates electromagnetic fields using the Finite Element Method. Another issue that was examined refers to the calculation of the volume (defined by the critical radius) where the ground enhancing compounds should be placed, so that they provide both the desirable improvement and an economically viable solution. Finally, in order to verify the validity of the simulation results, several additional simulations were conducted so as to compare their results with those obtained from field test measurements.

More Informations :

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