Kittanut Taengko 2012: Weighted Score Risk Assessment for Power Transformers in PEA Substations. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Assistant Professor Parnjit Damrongkulkamjorn, Ph.D. 108 pages.

This thesis presents a risk assessment method for power transformers in central region substations of Provincial Electricity Authority. Risk analysis method presented in this thesis is the Weighted Score method. The maintenance data from 237 power transformers in central region during the year 2008 to the year 2011, of which there were 153 damages, are used to analyze the risk scores. The weights of the risk factors are assigned by experienced maintenance crews. The risk assessment factors and scores are categorized with equal weight into 2 parts: the history of the transformer; and the current condition of the transformer. The weighted scores from both parts are plotted on a risk assessment matrix. The results are assessed into 3 levels: risk; warning; and good. If the transformer is in risk level, the maintenance must be done immediately and checked up again in 3 months. If the transformer is in warning level, the maintenance should be done within 4 months and checked up again in 6 months. If the transformer is in good level, the regular maintenance can be carried on.

The risk assessment method proposed in this research can be used by the maintenance crews as an effective tool to create an efficient preventive maintenance plan for power transformers in central region of Provincial Electricity Authority.

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