STUDY OF DIFFERENT TYPES OF EARTHING IN ELECTRICAL INSTALLATIONS

A dissertation submitted to the
Department of Electrical Engineering, University of Moratuwa
in partial fulfilment of the requirements for the
Degree of Master of Science

by

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January 2010

DECLARATION

The work submitted in this dissertation is the result of my own investigation, except where otherwise stated.

It has not already been accepted for any degree, and is also not being concurrently submitted for any other degree.

UOM Verified Signature

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Contents

Abstract

Earthing of electrical installations is a complicated task upto some extent. It requires to follow necessary guide lines to achieve the most correct results. But in Sri Lanka, we don't have particular standards to follow when earthing circuit is designed. According to the assets to be protective from the required earthing circuit, it is designed and implemented. Large assets like power plants, substations and large factories etc. are protected by a well designed earthing network. Most probably this design includes, a reputed contractor who is using necessary software makes calculations etc. and a design is submitted. This submission is then reviewed by a consultant. When the implementation stage it is well supervised and finally it is tested at the commissioning of the said asset.

When it comes to the domestic earthing, the engineer or technician uses his own experience to make the electrical system earthed. At this level most probably no calculations are done, no commissioning tests are done but the system is earthed to achieve a some earth resistance. This achievement is somewhat acceptable when the assets to be protected is considered.

But when we take medium scale assets like distribution substations, auto re-closures etc., there are no common accepted standards for designing and implementation of earthing systems. Even in the Ceylon Electricity Board and LECO, there is no proper set of guide lines to be followed when it is going to design and implementation an earthing circuit for the same. Therefore the technology being used for implementation of earthing circuit is not related with the assets to be protective when these medium scale assets are considered. The purpose of this project is to develop a protocol which can be acceptable in making these earthing of medium scale assets.

Acknowledgement

My heartfelt thanks are due first to my supervisors, Dr. J. P. Karunadasa, Head of the Department, Department of Electrical Engineering, University of Moratuwa and to Dr. Narendra de Silva, Head of Engineering, Lanka Electricity Company (Pvt) Ltd., for their great insights, perspectives, guidance and sense of humor extended to me during this period of making this important task a success. Further my sincere thanks go to the other academic staff of the Department of Electrical Engineering, University of Moratuwa including Prof. J .R. Lucas who gave numerous support in succeeding my MSc course..

My sincere gratitude is very much extended to all the officers (including the minor staff) in Department of Electrical Engineering office including Mrs. Nayanie, for their kindful cooperation rendered to us throughout the our MSc Course period.

Also I would like to thank my wife and daughter who always encouraged me to carryout this task while bearing my absence for their activities.

Lastly, I should thank many individuals, friends and colleagues who have not been mentioned here personally in making this educational process a success. May be I could not have made it without your supports.

List of Figures

List of Tables