



"Guide for Diagnostic Testing of Fluid-Filled Power Transformers"

-- Technical Presentation --
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1. Abstract

The presentation will cover four topics:

- History of IEEE 62 and the path forward with the migration / update to IEEE PC57.152; Draft Guide for Diagnostic Field Testing Power Transformers
- Overview of test purposes, recommended, as-needed and optional maintenance tests
- Brief summary of tests and test techniques from Section 7 of the Guide
- A review of new topics, additions, and changes to the Annex section of the newly updated IEEE PC57.152 Field Test Guide.

In the first part, Mr. Yule will present a brief review of the history of IEEE 62 and the plan for timely updating of IEEE PC57.152; Draft Guide for Diagnostic Field Testing of Fluid-Filled Power Transformers, Regulators, and Reactor. The upcoming revision will incorporate new technologies, reflect the latest requirements of parent C57 standards, and harmonize with IEC practices where practical, to provide a single guide for use by the field test technicians with today's more modern practices and diagnostic instruments.

Mr. Binder will provide a better understanding of how field testing evolved and the relationship to other post-factory IEEE guides for transportation, installation, failure analysis, and reconditioning of liquid filled transformers.

Mr. Locarno will present a brief overview of tests and test techniques from Section 7 of the Guide, such as insulation tests, excitation and leakage reactance tests. He will also highlight some of the changes to this latest revision concerning field testing.

Mr. Sweetser will provide participants with a review of the Annex contents. Several changes have occurred compared to IEEE 62, including new topics. These new annex topics will include Frequency Response Analysis (FRA), Dielectric Frequency Response (DFR), and the relocation of Particle Count to Annex I.

2. Learning Objectives

This presentation will help personnel associated with field testing techniques, methodology, and selection tests with regard to recommended, as-needed, and optional maintenance tests. It will also provide an overview of IEEE field test & diagnostic guides available after factory shipment.

3. Learning Outcomes

As a result of attending this tutorial session, members will gain an understanding of the following:

- The history, evolution, and path forward of Transformer Field Test Guides
- Overview of IEEE field test & diagnostic guides available after factory shipment
- Tools available that can improve RCM Programs
- Tools that can assist in the analysis of field failures
- Content and application of the Field Test Guide

4. Presenters' Biographies

Wallace Binder is Principal at WBBinder Consultant where he assists a variety of clients in analyzing system operation and maintenance practices, perform failure analysis, and assist with other transformers and substation apparatus application, specification, installation, and maintenance activities. Currently chair of the C57.125 Failure Analysis and Reporting working group, and member of various other working groups. Prior to starting his own consultancy in 2002, Mr. Binder spent 32 years in various electric utility positions in maintenance, engineering, and project management at First Energy and its predecessor companies.

Mario Locarno is a Senior Analyst with the Doble Engineering Company. He has over 25 years in the power industry, combining current experience with his time at the General Electric Company. He is a member of the IEEE Power & Energy Society and a subject matter expert (SME) on power transformers for the US National Council (ANSI), representing the United States on the International Electrotechnical Committee (IEC). He is currently involved in the development of numerous international standards. A native New Englander, he received a Bachelor of Science in Electrical Engineering from Northeastern University in Boston, MA. He is also involved in the next generation of engineers, teaching robotics classes after hours to middle school students.

Charles Sweetser received a B.S. Electrical Engineering in 1992 and a M.S. Electrical Engineering in 1996 from the University of Maine. He joined OMICRON electronics Corp USA, in 2009, where he presently holds the position of Technical Services Manager for North America. Prior to joining OMICRON, he worked 13 years in the electrical apparatus diagnostic and consulting business. He has published several technical papers for IEEE and other industry forums. As a member of IEEE Power & Energy Society for 14 years, he actively participates in the IEEE Transformers Committee. He is also a member of several working groups and subcommittees. Additional interests include condition assessment of power apparatus and partial discharge.

Kipp Yule has 33 plus years of electrical engineering experience with Bechtel Power Corporation, on fossil and nuclear power generation projects. He has been an assistant chief electrical engineer for the past 14 years, with over 10 years in project engineering supervisory roles and nearly 8 years directly involved with site construction and start-up. Kipp is active in various working groups of the IEEE Transformers Committee and serves in leadership roles on some subcommittees. He has a BSEE degree from University of Wisconsin and is a registered PE.