Understanding Factory/Field Test Standards and Test Results for Liquid Filled Power Transformers

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Liquid filled power transformers are applied in cement plants and across many of the process industries. Although transformer manufactures maintain many standards for factory tests conducted prior to shipment based on industry standards, many of these test standards are not well understood in the field. One such industry standard IEEE C57.155 “IEEE Guide for Interpretation of Gases Generated in Natural Ester and Synthetic Ester-Immersed Transformers” offers a comprehensive overview of dissolved gas analysis for liquid filled transformers both prior to shipment from the factory and over the life of the transformer. Understanding the time interval and results from this testing is important in understanding the “life expectancy” of an installed transformer and what steps should be taken to assure reliable performance. This paper will discuss factory and field tests recommended for liquid-filled power transformers rated 20MVA and below, offer an overview of recommended tests prior to energizing a new liquid filled power transformer and outline tests that should be included in rotational outages to assure continuous performance and extended functional life.