

Program for Discussion Group F11D

Partial Discharges from Cable Accessories.

October 27, 2008, 9.15 to 10.15 am in Bowie A

Scope:

The mandate of this discussion group is to look at partial discharge data from cable accessories, not the methodologies used to detect and locate these discharges.

Program

9.15 am Introductions, Harry Orton and Steve Boggs, Co-chairs

9.20 am **“Statistical Analysis of PD Diagnostic Data”**
Presentation by Dr. Ed Gulski, P. Cicheki,
Delft University of Technology, Delft, The Netherlands

This presentation describes the application of statistical analysis to several diagnostic parameters obtained during on-site measurements on MV cables. The goal of this analysis was to estimate statistical border values for different cable accessories like joints and terminations. To clearly distinguish between cable components (joints, terminations and insulation parts) categories of different cable accessories were created. For proper interpretation of the collected data, categorization was based upon diagnostic parameters such as PDIV (Partial Discharge Inception Voltage), PD occurrence as well as PD mapping. In this way it was possible to relate the collected data to the condition of the cable and/or its accessory. Overall condition indexing based on calculated statistical norms was employed to determine whether the components were in very good, good or moderate condition.

9.35 am **“Failure Reduction of Service Aged and New Installed Medium Voltage Cable Circuits Using Preventative On-site Diagnostics”**
Presentation by Frank de Vries,
Nuon Tecno, Alkmaar, The Netherlands

Performing on-site inspections by applying non-destructive diagnosis can provide valuable information about the presence of insulation weak spots, e.g. cable accessories, and can be used to plan efficient maintenance by repair or replacement of the high risk cable sections.

This contribution will present the use of advanced and systematic on-site diagnosis by the Dutch utility Nuon. Moreover, knowledge rules were generated for asset management that were based on the information obtained on a large population of cable circuits

9.50 am “PD Detection and Evaluation in Accessories of MV Cables”

Frank Petzold, SEBAKMT, Germany
Henning Oetjen, HDW Electronics US

Experiences from field measurements are described. PD occurrences with different patterns, magnitude and inception voltages are evaluated and correlated with a visual inspection of the joints and terminations. In all cases the pd defects and failures were workmanship related.

To determine the severity of partial discharge occurrence in accessories the possible constellation of mounting mistake failure has to be considered. So the history and failure investigation from the past must be taken into account.

In some cases, mounting failures can cause thousands of pC that are less destructive than other constellations that show low pd activity, but cause short-term breakdowns. This contribution gives hints on how to assess the on-site pd measurement results, as failures are material and construction dependent

10.05 am “Accessory Defects Detected Using PD Test Criteria”

Presentation by Ben Lanz, IMCORP, USA

The presentation will cover defects detected using acceptance criteria based upon IEEE Standards.