

Laboratory investigation of a service aged HV cable termination

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It is generally accepted that the cable accessories, joints and terminations, are the weakest points of a cable line from the point of view its reliability [1, 2]. The condition of cable lines can be examined by partial discharge measurement, which can help to locate the faults since partial discharges are appeared at the most degraded points of the cable line.

After three decades of operation, partial discharge diagnostic test carried out on a high voltage cable line by damped ac technique. The test result showed that the general condition of cable line was acceptable, but if the test voltage was elevated above the nominal one, high intensity partial discharges were observed in the termination. Due to the results of diagnostic test, the operator repaired the cable line by the replacement of the faulty termination. After the reparation the repeated diagnostic measurement proved that the cable line become partial discharge free.

Numerous terminations of this kind are still in operation therefore the operator had the faulty termination examined in the laboratory. The complex laboratory investigation of a given accessory can help to find the possible reasons of high PD activity and reveal the weaknesses of the construction [2].

In this paper, the steps of laboratory examination of the cable termination is introduced, the results and experiences of the investigation is discussed.

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[2] Z.A. Tamus, B. Nemeth, I. Kiss, R. Cselko, I. Berta, "Complex Examination of a Cable Terminal Failure," *Electrical Insulation*, 2008. ISEI 2008. Conference Record of the 2008 IEEE International Symposium on, pp.47-49, 9-12 June 2008