High Voltage Oil Filled Cables - Optimization of the Time for Grounding

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Abstract The aim of this work is to study the discharging behavior of transmission class (88/138kV, 230kV and 345kV) Oil Filled AC Cables (OF Cables), after disconnection from power source, considering various circuit configurations, in order to assess the minimum period of time for grounding and connecting the live parts of the circuit to the substation grounding grid in safe conditions, for maintenance purposes. This research is being carried considering the electrical modeling of cable installations, and measurements at the field. For measuring the discharging time, considered as an almost high voltage direct current measurement, special measures were taken in order to not to change the circuit's time constant, by using a HV capacitive voltage divider adapted for DC measurements. Considering the results obtained until now, the measurements and the computer simulation using the program ATP - Alternative Transients Prograrn, the period of time for grounding the equipment, put into practice at present, would possibly be safely reduced, assuring in this way an increase in the safety for the maintenance crew and an improvement of the power quality indices.