

## Public Abstract

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Graduation Term: Fall

Graduation Year: 2006

Title: Fuse Holder Damage Investigation.

The explosion of fuse holders at a certain 161 kV: 34.5 kV Ameren UE substation in the Potosi area was investigated. The Alternative Transients Program -Electromagnetic Transients Program (ATP-EMTP) was used to model and simulate the electrical behavior of transient overcurrents and overvoltages created by switching events in an effort to identify the cause of damage to a certain fuse holder used to protect the 4.5 MVAR capacitor bank on the 34.5 kV side of the transformer. Simulation results indicated that switching can increase the peak of the transient overcurrent from the normal current operation by up to 9.33 p.u. Thus, the switching phenomenon may play a role in fuse holder damage.