

➤ Dominion Uses G&W Electric's Current-Limiting Fuses to Solve Safety Concerns

Almost every utility with older downtown networks faces the risk of a potentially hazardous failure of network transformers. This was the case at Dominion Virginia Power (Richmond, Virginia, U.S.).

In the traditional design of distribution networks used since the 1920s, the typical network transformer has no high-side fuses or primary protection other than the substation breaker. A fault in the primary termination compartment, primary switch compartment or transformer tank can result in a potentially hazardous failure of the transformer. Dominion never had an injury from one of these failures, but thought the growing potential risk to public and worker safety was so great that a solution had to be found.

Dominion knew it had to drastically reduce the energy delivered to a transformer fault. Numerous methods were researched, including individual transformer fusing, faster breaker settings and phase reactors. The solution of choice was to install G&W CLiP fuses at the feeder source on the load side of the substation breaker.

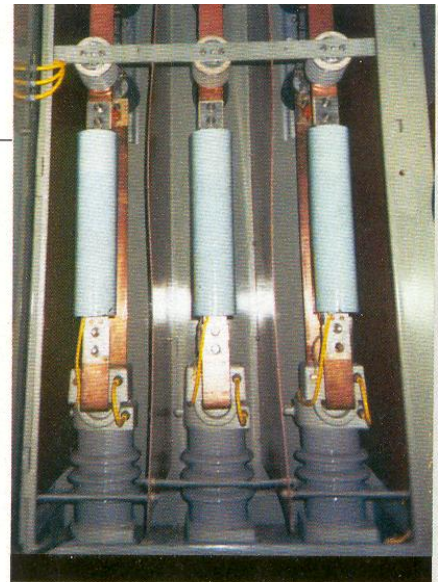
The G&W electronically triggered, high-capacity current-limiting fuse reduces the fault-current level and extinguishes the arc within a half-cycle, making it ideal for this application. The CLiP fuses have performed as predicted and have

been very effective in preventing high-risk events in the urban networks.

In addition to preventing transformer failure, Dominion has seen other benefits, including: no manhole covers have

flown off due to primary faults on feeders protected by CLiPs; damage caused by faults has been greatly reduced; joints and splices have not blown apart; no cascading faults have been seen on any CLiP protected circuits; and the utility has reduced duty on substation breakers and transformers.

The timing of the project has been fortunate. A great deal of attention has been given to arc flash because of the growing realization of its hazard. An important benefit of the CLiP fuses is that they are very effective in reducing arc flash and protecting utility personnel. The majority of CLiP installations at Dominion will be completed by the end of 2008, just in time to meet the implementation date of the NESC new arc flash regulations on Jan. 1, 2009. TDW



The G&W CLiP protectors were mounted indoors within compact metal cabinets.