

Potential Hazard - Polymer Deadend Insulators

Within the last few weeks two new 35 kV polymer deadend insulators manufactured in March 2007 failed shortly after being energized...one in APCo when the insulator was energized and another in SWEPCO after five days in service. While no one was injured as a result of these failures, the electrical arc produced when an insulator fails presents a safety hazard to workers who may be nearby.



Investigation of these failed insulators shows improper crimping of the end-fittings during their manufacture may have been a root cause of the failure. Improper crimping can cause a crack to develop in the internal fiberglass rod either at the time of manufacture or from subsequent mechanical stresses placed on the insulator. **Once an insulator rod is cracked, the electrical stresses within the insulator can change significantly and initiate electrical discharge activity leading to internal tracking and then electrical failure.**

For the time being, 35 kV polymer insulators manufactured during March 2007 are to be set aside and not used. Several hundreds of thousands of polymer deadend insulators are in service and these insulators have been used for many years with very good performance. A high priority is being given to determining the root cause of failure and putting in place appropriate measures to minimize the risk for future failures. For the latest information, contact your local Distribution Standards Field Representative.



Recommended course of action:

1. If cracking or popping is heard when installing a polymer deadend insulator, this could indicate the development or enlargement of a crack. **DO NOT USE THE INSULATOR.** Mark the insulator as defective, fill out an Equipment Failure and Damage Report and send the insulator to your local Distribution Standards Field Representative.
2. Take appropriate precautions to minimize hazards when working on or near insulators since there is a slight risk that insulators may fail at any time, even upon energization or shortly thereafter.
3. Reasonable care should be taken when handling polymer insulators and they should not be assumed to be unbreakable.