

# TRANSMISSION & DISTRIBUTION WORLD

## SafetyTALK

# Properly Maintain Rubber Products

By **Randy Knight**, *American Electric Power*

**R**ubber goods are the last line of defense for the linemen of American Electric Power (AEP; Columbus, Ohio). The utility owns a 39,000-mile network, which includes 765-kV high-voltage transmission lines. To keep its field crews safe on the job, the utility equips each lineman with rubber gloves, sleeves and blankets.

Anytime the linemen are working energized lines, they wear rubber gloves. The type of glove they wear depends on the voltage on which they are working. The field crews also wrap rubber blankets around energized equipment when working live lines. The rubber goods help to prevent the high-voltage electrical current from getting through to the lineman's body and causing injury or death.

To ensure rubber goods perform at their maximum level, AEP follows five guidelines to protect linemen in the field.

1. *Conduct daily inspections.* Every morning, linemen are required to test for any air leaks in their rubber gloves. To do this, they place the glove over a special machine that blows air into the glove. Another technique is to close off the end of the glove, compress the air into the fingertips and roll it around on a hard surface to check for holes. Field crews also do a visual inspection for defects such as a pin hole or crack. To make it easier for linemen to spot one of these defects in the rubber gloves, the vendor has lined the gloves with yellow rubber. If any of the yellow rubber shines through the exterior of the glove, the linemen know they have a problem. Because the linemen work with knives out in the field, they can easily tell if they have nicked or sliced their rubber gloves.

2. *Clean them the right way.* In addition to checking their gloves for holes, the linemen also wash and clean their gloves regularly. Because the linemen wear rubber gloves all day long, they may get bacteria in them, so it's essential to keep them clean. The field crews use a mild dishwashing detergent and warm water to clean gloves. They then hang the wet gloves on a "Christmas tree," a rack with pegs, to air dry.

3. *Test rubber goods.* AEP used to operate its own testing labs for rubber goods. However, with the volume of work that the utility had to handle, it was more cost effective for the company to focus on maintaining its distribution system and outsource the testing of rubber goods. AEP partnered with Hi-Line Inc. (Elgin, Illinois) as the single-source provider of rubber goods.

This approach has helped in several ways. AEP was able to downsize its inventory of rubber goods. Now, if a lineman



A Hi-Line lab technician runs voltage through a rubber glove to ensure it meets ASTM testing standards.

needs a glove, sleeve or blanket, the vendor ships the products overnight. Hi-Line also tests AEP's rubber goods on a regular basis. Every six months, AEP sends its rubber gloves and sleeves to the vendor for visual and electric testing. Hi-Line injects high-voltage current into the gloves to ensure the rubber doesn't break down. If testing shows any products are defective, Hi-Line cuts them up and throws them away. Along with electrically testing the gloves, the company also thoroughly cleans them, so the gloves that AEP gets back look like new again.

Many of the rubber goods last for multiple cycles, but if they show any signs of wear and tear, they are disposed of immediately. In most cases, a pair of gloves lasts six or seven years, depending on what type of work the linemen are doing.

Hi-Line not only tests gloves and sleeves, but the company also performs an annual inspection of rubber blankets.

4. *Store rubber goods properly.* Linemen store rubber gloves and sleeves in canvas bags. The gloves are stored with the fingers facing up, so if a bolt or sharp tool falls into the bag, it won't slip inside the glove and tear it. The field crews also tuck the sleeves inside the canvas bags, which are placed in a storage bin or cab of a utility truck. The rubber blankets are rolled together and then stored in a separate compartment on the truck. Because the linemen are often out in the elements, they let these blankets dry out before they roll them up and put them away for storage.

5. *Have written safety guidelines for rubber goods.* AEP describes the proper usage and maintenance of rubber goods in its pocket-sized safety manual. The linemen are required to use a certain class of rubber goods — 0, 2 or 4 — depending on the voltage on which they are working, as instructed in the safety manual. The linemen keep the safety manual with them at all times and refer to it often.

Rubber goods play an essential part in the safety of the line crews. By working in an insulated bucket truck and wearing the proper personal protective equipment, AEP linemen can keep the power flowing for the customers without putting themselves in harm's way. **TDW**

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