Equipment Precautions for the Next Irene

Schneider Electric, a global specialist in energy management, is urging businesses to take every precaution with electrical equipment in the aftermath of Hurricane Irene, in case another event is to strike the East Coast in the near future.

The following precautions are recommended to ensure employee safety and avoid costly damage both to physical equipment and the financial losses of a prolonged shutdown:

Wet Electrical Equipment

Electrical equipment that has been submerged or come into contact with water must be replaced, though there are exceptions to this rule for larger equipment, which may be able to be reconditioned by trained factory service personnel. Equipment that may be reconditioned includes:

- Switchboard enclosures and certain bus structures;
- Switchgear;
- Low-voltage power circuit breakers;
- Medium-voltage circuit breakers;

- Low-voltage bolted-pressure switches;
- Medium-voltage switches;
- Motor control center enclosures and bus structure;
- Panelboard and load center enclosures;
- Liquid-filled power transformers;
- Cast-resin transformers; and
- Busway epoxy-coated bars.

Attempting to dry out the equipment (in many cases) leaves portions of the current-carrying parts with damp or wet surfaces. These surfaces may be in contact with insulators or other materials that prevent them from being properly dried out and cleaned of debris.

Residual debris or wet surfaces may result in a loss of dielectric spacing within the equipment and could present a hazard upon re-energization.

Equipment that must be replaced in its entirety is listed below:

- Miniature and molded case circuit breakers;
- Molded case switches;
- Multi-metering equipment;
- Safety switches (AC and DC);
- Load centers or panelboard interiors;
- Dry-type transformers;
- Busway Mylar-wrapped bars;
- Solid-state components;
- Programmable logic controllers;
- Fuses;
- Electromechanical relays, contactors, starters, push buttons, limit switches, and other input logic and output controls;

- Solid-state motor starters;
- Adjustable-speed drives; and
- Motor control center components.

Equipment with Field-Replaceable Interior Components

Generally, this type of replacement is limited to a load center or panelboard type of product in which the entire assembly can be removed and replaced as a unit. In this case, there is a possibility that enclosures can be reused if they have not been subjected to physical damage, and if they have been properly cleaned of all debris and foreign materials.

Cleaning Agents & Abrasives

Do not apply cleaning agents, particularly petroleum-based cleaners, to the current-carrying portions of electrical equipment to remove foreign debris, residues and other substances. Some cleaning and lubricating compounds can cause deterioration of the non-metallic insulating or structural portions of the equipment.

Furthermore, do not use abrasives, such as sandpaper or steel wool, to clean current-carrying parts of the equipment. These materials may remove plating or other conductive surfaces from the parts, which could result in a hazard when the equipment is re-energized.

Non-Submerged Equipment in Flooded Areas

Equipment in this situation should be inspected carefully by a qualified person to determine whether moisture has entered the enclosure. If any signs of moisture or damage exist, the equipment should be replaced or repaired.

Additional References

- Getting Back to Business at the Opry Mills Mall [1] (Schneider Electric Repair Project to the Severely Flood-Damaged Opry Mills Mall)
- NEMA Standard AB 4-2003, *Guidelines for Inspection and Preventive Maintenance of Molded Case Circuit Breakers Used in Commercial and Industrial Applications*
- NEMA Standard BU 1.1-2000, *General Instructions for Proper Handling, Installation, Operation, and Maintenance of Busway Rated 600 Volts or Less*
- NEMA Standard PB 1.1-2002, *General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less*

- NEMA Standard PB 2.1-2002, *General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less*

- NEMA Standard ICS 1.1-2003, *Industrial Control and Systems: Safety Guidelines for the Application, Installation, and Maintenance of Solid State Controls*

Schneider Electric can address questions about water-damaged equipment and offers a variety of services, including inspecting, testing and reconditioning of electrical equipment from any manufacturer. For more information, please call 888.778.2733 or visit www.schneider-electric.us *[2].*

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[1] http://www.mt-online.com/component/content/article/297-july2011/1845-getting-back-to-business-at-opry-mills-mall.html
[2] http://www.schneider-electric.us/