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Subject: Blue Alert- Shock from routine maintenance of lighting inverter

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Title: Blue Alert- Shock from routine maintenance of lighting inverter

Lessons Learned- Loose connections on capacitors can prevent discharging the stored electrical energy. After discharging a bank of parallel capacitors, an individual capacitor that may be touched should also be discharged individually.

Discussion of Activities- An Exide Centaurus-3 emergency lighting inverter displayed a malfunction indicating a problem with the inverter capacitor bank. This common failure mode is routinely maintained and repaired by facilities electricians. A wire had visibly burned clear of the first capacitor in a string of 8 parallel capacitors. The heat generated from the loose Sta-Con slip on connector caused a poor connection at the second connector of the dual terminal. When the capacitor bank was discharged, the poor connection did not allow discharge of the capacitor. Nor did a voltage measurement show that one capacitor was still charged because of the poor connection. When the electrician reached in to remove the capacitor with the burned terminal, he was shocked by the charged capacitor.

Analysis- The electrician was following approved procedures on a job he had performed many times. The string of 18 microfarad capacitors had been operating at a maximum of 500 volts. Each capacitor terminal consisted of a dual Sta-Con terminal. Connections to this one dual terminal became so bad that one burned completely off and the other wouldn't conduct the voltage on the capacitor.

Recommended Actions- After discharging a bank of parallel capacitors, an individual capacitor that may be touched should also be discharged individually.

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