

Blue Alert: Employee Receives Electrical Shock

Date: 6/7/04

Identifier: 2004-SSO-SNL-2000-0001

Lessons Learned Summary:

- 1) Non-standard test setups require additional evaluation for safety. Where a control area with permanently-installed equipment racks and cabling is available, it should be used. In this case, setting the power supply on a table and running temporary high-voltage cables with a barrel connector in the line was not good practice.
- 2) Use of checklists can help to prevent oversights. Operators are expected to follow approved procedures for all hazardous operations. In many cases, there are multiple procedures involved in conducting any one test; operators cannot remember each step. Checklists, especially for critical safety and data collection steps, can be an effective tool.

Discussion of Activities:

An employee received an electrical shock while setting up an explosive test. A high-voltage power supply, a fireset (which delivers energy to detonate an explosive device) and an explosives-rated firing chamber were being set up to detonate an explosive bridgewire detonator. There were no explosives present. The electrical shock occurred when the technologist, who was wearing safety glasses, was disconnecting the cables at the barrel connector after waiting about one minute after turning off the power supply. The technologist expected that one minute was sufficient time for the voltage output from the power supply to decay to zero. The technologist most likely was shocked from the discharge of capacitors in the high-voltage power supply. The checklist that is part of the approved procedure was not used and the interlock key switch was left in the "Enable" position. Because of this configuration, the decay time for the high voltage (after the power supply was turned off) was approximately seven minutes (versus 20 to 30 seconds) and the employee received an electrical shock while disconnecting the cables at the barrel connector. The setup for the high-voltage power supply was non-standard. Normally a rack-mounted power supply is used, which has permanent cables installed to route high voltage to the fireset. The non-standard configuration had two cables connected with a barrel connector to supply high voltage to the fireset. The electrical shock occurred when the employee was disconnecting the cables at the barrel connector.

Analysis:

Recommended Actions:

- 1) Evaluate test setups to ensure that temporary instrument and power cables do not pose a safety hazard.
- 2) Consider developing checklists as part of implementing procedures.

Priority Descriptor: Blue / Information

Work/Function: Conduct of Operations - Procedure Adherence

Hazard: Electrical / NEC

ISM Core Function: Define Work, Perform Work

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