

Date: Thu, 15 Jun 2000 14:08:45 -0600  
From: Meredith Brown <racer@lanl.gov>  
Subject: Blue Alert: Shock From Defective Tool

**Title: Blue Alert- Employee Receives Shock From Defective Tool Protected By GFCI**

Date: June 15, 2000 Identifier: 2000-ALO-WID-0005

**Lessons Learned Statement:** Should an electric power tool become defective remove it from service. If the tool is protected by a Ground Fault Circuit Interrupter (GFCI) and it trips, do not reset it more than one time.

**Discussion of Activities:** On April 24, 2000, a subcontractor working at the Waste Isolation Pilot Plant received a minor shock from an electric drill he was using. No injuries occurred as the result of the shock. The subcontractor had obtained the drill and an extension cord equipped with a GFCI from the site tool crib. The drill and extension cord had passed the current assured grounding program inspection. The employee began using the drill for approximately 15 minutes when the GFCI tripped. The employee reset the GFCI and continued to use the drill for another 10 minutes when the GFCI tripped again. The subcontractor notified his supervisor and the GFCI was reset again. The tool was used for another 10 to 15 minutes when the GFCI tripped again. The shock occurred when the subcontractor checked the integrity of the cord by twisting it where the cord entered the drill body.

**Analysis:** An investigation of the event was conducted to determine the cause of the shock. It was determined that the GFCI was functioning properly. Tripping of the GFCI is an indication that the tool may be defective. The investigation revealed that the ground and hot wires had made contact with each other inside the protective cord boot at the handle of the drill. The damage was not visible without disassembling the handle, and removing the boot.

**Recommended Actions:**

\*Tools that trip a GFCI more than one time should be removed from service until they have been properly inspected and repaired.

Priority Descriptor: Blue/Informational

Work/Function(s): Conduct of Operations - General

User-Defined Category: GFCI

Hazards: Power tools

ISM Core Functions(s): Analyze Hazards

Originator: Westinghouse Electric Corporation, Waste Isolation Division, Carlsbad, New Mexico

Contact: Merl Rosenthal 505-234-8902, [rosentm@wipp.carlsbad.nm.us](mailto:rosentm@wipp.carlsbad.nm.us)

Authorized Derivative Classifier: Not applicable

Reviewing Official: J. R. Galle

Keywords: Shock, GFCI, power tools

References: WIPP Lessons Learned Bulletin #LL00-55, Employee Receives Electrical Shock From Hammer Drill

