Project Hanford Lessons Learned

Title: Partially Inserted Plug Prong Leads to Electrical Shock

Date: October 14, 2005

Identifier: 2005-RL-HNF-0039

Lessons Learned Summary:
Personnel must always be diligent and ensure that the appropriate attention to detail results in checking of the work that is performed, even on tasks as simple as plugging in a power cord.

Discussion of Activities:
An Operations Engineer picked up a level probe's metallic cable that was laying on a wooden scaffolding platform and received an electrical shock when the cable contacted a prong of a portable Area Radiation Monitor (ARM) plug that was not fully inserted into a 120 volt AC power strip. When the Engineer picked up the cable it apparently dragged past the plug, contacted the exposed prong, and caused a short. The engineer felt a shock and immediately dropped the cable, which broke the cable's contact with the plug.

Analysis:
Examination of the power strip did not show any unusual wear patterns which would indicate that it apparently had not been stepped on, ran over with other equipment, or used in a manner it was not designed for. When the receptacles on the power strip were tested, (a cord plugged into them), nothing unusual was noted. Normal pushing force was required to fully seat a plug into the receptacle. When fully inserted the plug fit properly. Light tugs on the plug would not unseat it from the receptacle. It appeared that it would not come partially unplugged unless a person intended to intentionally pull the plug out of the receptacle.

It was concluded that inattention to detail resulted in a less then adequate check to ensure that the plug was fully inserted in the receptacle when the ARM was placed in service. This less than adequate check allowed the plug prongs to be exposed and the level probes metallic cable to contact the plug prongs.

Recommended Actions:
None

Estimated Savings/Cost Avoidance: Not evaluated

Priority Descriptor: BLUE/Information

Work / Function: Conduct of Operations-General, Human Factors

Hanford Functional Categories: Associated Causal Factors - A3B1CO1, Human Performance Less Than Adequate (LTA), Skill Based Error, Check of work was LTA

Hazard: Electrical/NEC

ISM Core Function: Analyze the Hazards, Perform Work Within Controls

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Authorized Derivative Classifier: Not required

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Keywords: Electrical Shock, Receptacle, Metal Cable, Attention to Detail

References: Occurrence Report: RL--PHMC-FFTF-2005-0003