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Subject: Blue Alert: 480-Volt Near Miss

Title: Blue Alert- 480 Volt Near Miss

Date: 11/22/00 Identifier: 2001-RF-KH-0001

Summary: Energized work should only be performed when absolutely necessary. In addition, when circuits are checked for power, the check should be thorough, including several points to ensure all power sources are identified.

Discussion: On October 17, 2000, at the 776/777 Closure Project, an electrician cut into an electrical conduit containing energized 480 volt conductors. Though the potential for a severe injury or death existed, from either a shock or a fall from an involuntary recoil, there was fortunately no injury. The work that was being performed was to remove a conduit going to a hoist and disconnect. Although a pre-evolution briefing was conducted, an energized work permit was approved, and a walkdown occurred, the electrical panels could not be opened during the walkdown for inspection by the foreman or engineer because they had not scheduled a Radiation Control Technician (RCT). During the walkdown, it was noted that the hoist disconnect had a tag reading "leads lifted abandoned equipment" attached. The only energized work to take place was to remove the fuses and disconnect the hoist power feed wires at the power panel (Due to the age of the equipment, lock-out/tag-out was not possible and still be able to pull access to the compartment to disconnect the panel wires and fuses). The fuses were pulled and the wires disconnected at the power panel at the disconnect thought to feed the hoist. Field investigation showed what appeared to be a tap splice in an overfilled junction box feeding the hoist and compactor disconnects. A check verifying no voltage was made at the compactor disconnect that fed from the junction box, but not at the hoist disconnect. It was believed both disconnects were fed by the same circuit. What was not apparent was a second circuit feed from a different disconnect on the power panel, which went through the junction box and fed the hoist disconnect. This was not apparent due to the overfilled junction box -- these wires were located on the bottom of the junction box. Therefore, the circuit at the compactor disconnect, which was tested for no voltage, was actually a different circuit than the one that fed the hoist disconnect, where a no-voltage check was not performed.

While on a ladder, the electrician began to cut into the hoist power feed conduit with a sawzall. The electrician and a DOE Facility Representative who was observing the operation heard a pop. It was first thought that something was wrong with the sawzall, or that the GFCI feeding the sawzall had tripped. It was then discovered that the sawzall blade had burns, arc marks and several teeth melted off. The Configuration Control Authority was notified. All work activities were suspended. A short time later the fuses were pulled and wires disconnected on the circuit feeding the hoist, which had been cut, to place it into a safe configuration. This work was performed on the existing energized work permit, although it was outside the boundaries of the permit.

Resolution: Initially, all energized work on site was on hold until all electricians, supervisors and appropriate workers were briefed on this occurrence. Energized electrical work should be

performed when absolutely necessary, by a qualified electrician. When circuits are checked for power, the check should be thorough, including several points to ensure all power sources are identified.

Descriptor: Blue / Information

DOE Functional Category: Decontamination & Decommissioning, Maintenance -Electrical

Hazard: Electrical / NEC

ISM: Analyze Hazards, Develop / Implement Controls

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