



eSafetyLine

Electrical Case Study #3

On 10 August 1993, a self-employed 45-year-old male electrician was electrocuted while using an electric hand drill. The victim had been contracted to install new electrical wiring in a residential new build. He had been working at the residence for several days when the incident occurred. On the morning of the incident the victim was working in the basement, using ½ inch electric drill to drill holes in the overhead joists. The drill was attached to a series of 3 extension cords. Two of the cords were missing grounding pins and one was missing outer insulation for about ½ inch from each end, exposing the wires. The cords extended out a doorway where the receptacle ends were lying in puddles of rain and mud from recent heavy rainfalls. The cords were plugged into a GFCI receptacle mounted on a previously certified temporary construction power pole.

That afternoon the contractor went to the worksite since he was unable to reach the victim by phone. The contractor found the victim lying in a puddle of water on the basement's cement floor. He called 911; police responded and found the victim face down with the electric drill underneath him. They disconnected the cord from the drill to be able to conduct a preliminary assessment of the victim. No pulse was found and rigor mortis was noted so the police notified EMS to slow down. The coroner arrived and pronounced the victim dead at the scene, the cause of death was determined to be electrocution.

An electrical investigator and local licensed electrician test the GFCI and found they couldn't get it to trip out. They found that the extension cord that had been plugged into the GFCI socket had the ground pin clipped off and there were 40-ampere fuses in the power pole fuse box where there should have been 15 or 20 ampere fuses.

Wisconsin OSHA felt this death could have been avoided had these recommendations been in place:

- Employers should ensure that electrical service supplied to a construction site complies with all OSHA standards, the National Electric Code and local regulations. The fuse box for the receptacle outlets on the power pole contained 2 40-ampere fuses and an inoperable GFCI.
- Employers should implement a preventive maintenance program to keep cords, plugs, receptacles and tools in good operating condition. Two of the extension cords were missing the ground pin; one was missing insulation at both receptacles with wire exposed for about ½ inch. The casing of the GFCI was chipped and soiled which may have indicated internal damage. Preventative maintenance programs could have kept these items in good operating order.
- Test GFCI on a daily basis. This incident may have been prevented if the GFCI had been test prior to starting that day's work.
- Evaluate work areas to identify hazardous work conditions. The work area, both inside and out, had standing water in areas where the extension cords would be placed, a dangerous idea.

Discussion Questions

Could something as simple as housekeeping kept this employee alive?

Did having 3 extension cords linked contribute to this incident?

MEETING / TRAINING ATTENDANCE ROSTER

COMPANY: _____

_____ SAFETY MEETING

JOB/DEPT: _____

_____ SAFETY TRAINING

DATE: ___/___/___

TIME: _____

TOPICS ADDRESSED: _____

EMPLOYEE'S SIGNATURES

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

EMPLOYEE SUGGESTIONS AND RECOMMENDATIONS: _____

ACTION TAKEN: _____

Supervisor's Signature

_____/_____/_____
Date

Safety Coordinator's Signature

_____/_____/_____
Date