OSHA

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Training and Education Material

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Developing Electrical Safety Training Materials for Water and Utility Operators and Construction Laborers

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Source:
FATALGRAM 11-08
Alaska Department of Labor & Workforce Development
Division of Labor & Safety Standards
Occupational Safety & Health
Location: Bethel, AK

Summary: On April 28, 2011, an employee was installing a Grunfos in-line circulating pump in the utility room of a Community Service Building. The victim improperly wired the pump with the ground wire connected to live terminal and the live wire connected to the ground terminal causing the pump housing to be energized. The employee touched pump and was electrocuted.

Description of Accident: The victim was a maintenance employee working with another maintenance employee to replace 2 shallow - well jet pumps in the utility room of a community service building. The two pumps were to be replaced with in-line circulating pumps to reticulate hot water back to an adjacent building. The new pumps were of different design than the old pumps. The victim and co-worker had installed one new pump and the co-worker soldered pipe to the pump while the victim was at lunch. When the victim returned to work, the co-worker left for lunch.

No one witnessed the accident. It appears that the victim finished soldering the pipe and then connected the wiring to the pump. The new pump had a different wiring configuration from the previous pump. The victim connected the ground wire to the live terminal and the live wire to the ground terminal causing the pump's casing to become energized. The employee made contact with the pump and was electrocuted.

Learning objectives:

a. By the time the trainee completes the training, he or she should be able to understand how unsafe working conditions might lead to electrical injuries or death similar to the FATALGRAM 11-08 incident.
"Each employer -- shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees" "KNOW YOUR RIGHTS"

b. The employer shall instruct each employee in the recognition and avoidance of unsafe work practices and "address procedures necessary to disable machinery or equipment, thereby preventing the release of hazardous energy while employees perform servicing and maintenance activities. The standard

outlines measures for controlling hazardous energies—electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources "Control of hazardous energy (lockout/tagout)"

Questions:

1. What unsafe actions caused this fatality to occur?
   Choose all that apply:

   a. The authorized employee left behind an unqualified person to finish the task of installation unsupervised.
   b. Energy control isolation procedures were not followed.
   c. The employee failed to follow proper instructions for the installation of the grunfos pump.
   d. The hazard were not communicated to affected employees.

2. What actions could be taken in order to avoid the electrocution incident?
   Choose all that apply:

   a. Breaker should be in the off position as to avoid any hazards while working on the equipment
   b. The authorized employee should have remained on site and continued the work after the breaker was turned in the off position.
   c. Conduct a site safety brief, inform and WARN all affected employees of energy isolation procedures taking place in their work environment.
   d. Ensure lock-out tag-out procedures are followed before conducting any maintenance on equipment.