The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Township Maintenance Worker Electrocuted in Ohio

FACE 86-30

Introduction:

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) is currently conducting the Fatal Accident Circumstances and Epidemiology (FACE) Project, which is focusing primarily upon selected electrical-related and confined space-related fatalities. The purpose of the FACE program is to identify and rank factors that influence the risk of fatal injuries for selected employees.

On June 2, 1986, a township maintenance worker was electrocuted when an aluminum pruning pole he was using during a tree trimming operation contacted an overhead 7200 volt power line.

Contacts/Activities:

Officials of the Industrial Commission of Ohio notified DSR concerning this fatality and requested technical assistance. This case has been included in the FACE Project. On June 18, 1986, the DSR research team (consisting of a safety specialist) conducted a site visit, met with employer representatives, interviewed a comparison worker, conducted a next-of-kin interview, and photographed the accident site.

Overview of Employer's Safety Program:

The victim was one of two workers employed by the township's maintenance department. Duties of the workers included tree trimming, snow removal during winter months, and various maintenance tasks throughout the township.

No written safety policy or safety program exists for the township's maintenance department. No safety training is provided by the township.

Synopsis of Events:

Prior to the day of the accident the township maintenance foreman had received a request from a township resident to cut down a dead tree located between the sidewalk and the street curb in the resident's front yard. Upon their arrival at the scene, the foreman asked the area residents to move their vehicles from the work area while the victim fueled the chain saws. The two men then climbed the tree without safety harnesses and began removing the branches from the tree prior to

cutting the tree down. A 7200 volt power line ran perpendicularly through the top of the tree, approximately 29 feet above ground level. Three service drop lines ran through the upper portion of the tree to private residences along the street. Both men utilized a wooden broom handle to push the service drop lines away from themselves while cutting the limbs. The victim was approximately 20 feet above ground in the tree, directly above the foreman. When the victim reached this height he began to use a 12 foot aluminum pruning pole with a saw on one end to remove the limbs. The victim was in the process of sawing off one of the larger limbs above him in two foot sections and allowing them to fall to the ground, when one of the sections fell toward him. In an attempt to knock the section of limb away from himself the victim swung the pruning pole at the falling section of limb. The pruning pole contacted the 7200 volt power line. The foreman heard the contact, looked up, and noticed that the victim's legs were smoking.

The foreman began swatting at the pruning pole with his broom handle in an attempt to knock the pruning pole away from the power line. He was unable to break the contact with the power line because his position below the victim did not allow him to strike the pruning pole solidly with the broom handle. The foreman then climbed down the tree. He obtained an aluminum extension ladder from two roofers across the street but, as he attempted to position it on the tree near the victim, he received an electrical shock. The rescue squad and the local utility company were summoned. No further attempts to rescue the victim were made until the utility company de-energized the power line. By this time the victim had been in contact with the power line for 20 to 30 minutes. The victim was removed from the tree and pronounced dead at the scene.

Cause of Death:

The coroner's office listed electrocution as the official cause of death.

Recommendations/Discussion:

Recommendation #1: The employer should initiate a safety policy that addresses specific tasks performed by the employees, identifies safety hazards, and stresses safety training.

Discussion: The township did not have a safety policy that addressed safety training and procedures specific to tree trimming and other high risk tasks performed by township personnel. Written procedures should detail the tasks to be performed and should identify the safety hazards associated with these tasks. Training should be developed and implemented that addresses these proper work procedures. (Work practices such as working in trees without safety harnesses, men working directly above each other in trees while removing limbs, or maneuvering service drop lines with a broom handle are poor safety practices that greatly increase the risk of serious injury on the job.) The employer should assure that safety policies are enforced. Prior to the performance of a given task the crew foreman should perform a job site survey, which would identify any safety hazards present at a given job site (i.e., overhead power lines), then plan the methods to be used to accomplish the task. (Careful planning in this instance may have led to a safer method of removing the limbs from the tree.) Workers should then be made aware of the hazards they might encounter at a given job site.

Recommendation #2: Employers should provide proper equipment to perform job-related tasks.

Discussion: The township should consider using a non-conductive material such as fiberglass for tool handles when working in the presence of electrical hazards. A non-conductive material would greatly minimize the risk of injury due to contact with electrical power lines.

Recommendation #3: Local government organizations (i.e., municipal authorities, townships, etc.) should assure that personnel are qualified to perform assigned tasks.

Discussion: The workers in this instance were not qualified to perform this task, were not fully aware of the hazards associated with cutting trees down in the vicinity of power lines, and were not aware of procedures to minimize these hazards. The fact that the foreman placed the conductive aluminum ladder on the tree near the victim in a rescue attempt shows that he was not fully aware of the hazards associated with the power line. In this instance the local electric authority should have been contacted to remove the limbs from the tree to a safe point below the power line and the service drop

lines. Electric authority personnel are qualified to work in the vicinity of power lines and would be better equipped to remove the tree limbs from around the power lines or the service drop lines. Once these limbs were removed to a safe point below the power lines, the maintenance crew would be able to safely cut down the tree.

Return to In-house FACE reports

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