The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

Lineman Apprentice Electrocuted in Indiana

FACE 87-24

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 January 6, 1987, a lineman apprentice was electrocuted while attaching the wooden cross arm on a new utility pole. The new pole was being erected next to a shorter pole it was to replace. The electric power lines supported by the old pole were energized with 12 kV of electricity. The victim contacted an energized conductor on the pole being replaced and his body provided a path to ground.

Contacts/Activities:

Officials of the Occupational Safety and Health Program for the State of Indiana notified DSR concerning this fatality and requested technical assistance. This case has been included in the FACE Project. On February 4, 1987, a DSR research team conducted a field evaluation of this accident. The field investigation was preceded by telephone discussions of the accident with the safety director for the utility company. FACE survey instruments were completed for the victim and two comparison workers. The conditions (events leading up to the accident) were reviewed with the safety director. The old pole has been removed, but photographs taken of the site at the time of the accident were available and were reviewed.

Background/Overview of Employer's Safety Program:

This is an investor-owned electrical utility company that employs over 2,200 personnel.

Safety goals are established by written safety policy and safety programs. A full-time safety staff administers and evaluates the safety program . Safety committees, meeting monthly and comprised of supervisory personnel only, discuss and evaluate safety matters. Employees are trained on the job and in the classroom, depending on their duties, and employees receive written safety rules, as part of a new employee orientation.

Synopsis of Events:

At approximately 2:00 p.m., Tuesday, January 6, 1987, a lineman apprentice (the victim) was attaching a wooden cross arm on a new utility pole. The day was very windy with gusts up to 40 miles per hour (mph). The pole was being erected to provide additional electrical service to an industrial customer of the utility company. Uninterrupted electrical service to the customer was being provided at the time of the accident by lines on a shorter pole adjacent to the new pole. The victim had climbed the new pole and had completed making cross arm attachments on the side of the pole away from the energized lines.

An experienced lineman on the ground was supervising installation of the new pole. Before work continued on the side of the pole closest to the energized conductors, the lineman and the victim apparently discussed whether insulating devices (lineguards, rubber line hoses, etc.) should be placed on the energized lines; however, it was decided that the insulating devices would not be necessary and they were not used. Company regulations require the use of insulating devices when working less than four feet from uninsulated energized conductors. The victim moved around the pole to finish attaching the cross arm. His back contacted the energized lines and he was electrocuted.

Exit wounds were observed on the victim's feet. The distance between the face of the new pole and the existing power line was 42 inches.

Cause of Death:

The coroner's report indicates the cause of death as electrical burns.

Recommendations/Discussion:

Recommendation #1: Insulating devices (lineguards, rubber line hoses, etc.) should be used in accordance with company policy.

Discussion: The nearest energized power line was 42 inches away from the face of the new pole. The victim had to work on the crossarm which was even closer to this line. This did not provide an adequate work area. Company policy requires that insulating devices be installed when working less than four feet away from energized power lines. If insulating devices had been used the worker would have been protected.

Recommendation #2: All personnel should be held accountable for on-the-job safety.

Discussion: Safety concerns (i.e., placement of protective devices, etc.) should be a factor in the performance evaluations of all personnel. The use of insulating devices and other personal protective equipment can easily be seen during job site inspections and all personnel should be made aware they are being evaluated on these factors. Supervisory personnel should take the lead in assuring that work site safety is maintained.

Recommendation #3: Training provided to linemen concerning the use of insulating devices should be re-evaluated.

Discussion: The company's training concerning its required use of insulating devices and other personal protective equipment should be re-evaluated to assure that linemen understand the reasons for using insulating devices and when insulating devices and other personal protective equipment should be used. The wind appears to have been a factor in this incident. Training should address the adverse impact that inclement weather conditions may have on job performance and identify procedures that can be used to minimize hazards resulting from these conditions.

Recommendation #4: The use of insulated boots or dielectrically tested overshoes with insulator devices on the side supports should be evaluated and adopted, if appropriate, for linemen and other personnel working around energized conductors.

Discussion: The worker's body provided a path to ground through his feet. Several utilities require their employees to wear insulating boots or dielectrically tested overshoes with insulator devices on the side supports when working on energized conductors on a pole. The employer should evaluate use of this personal protective equipment to determine if they could provide adequate protection to personnel working around energized conductors.

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Last Reviewed: November 18, 2015