



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



Lineman Supervisor Dies Following Contact with Energized Conductor

FACE 89-11

Introduction:

The National Institute for Occupational safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (FACE) investigations when a participating state reports an occupational fatality and requests technical assistance. The goal of these evaluations is to prevent fatal work injuries in the future by studying the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

On October 25, 1988, a 40-year-old male lineman supervisor died when he contacted an energized conductor.

Contacts/Activities:

State officials notified DSR of this fatality and requested technical assistance. On January 5, 1989, a research safety specialist and an occupational health nurse met with company officials and obtained photographs of the incident site.

Overview of Employer's Safety Program:

The employer in this case is a small rural electric cooperative employing 72 individuals. The company has a written safety program and conducts weekly safety meetings with all employees. Company policies and procedures, prepared in association with a statewide electric cooperative association, address all phases of work performed by company employees. Daily tailgate safety meetings are held prior to the start of work on all jobs. The victim had been employed by the company for 18 years.

Synopsis of Events:

On the day of the incident the victim, who was the assistant foreman of the powerline construction crew, was in charge of the crew due to the foreman's illness.

The crew was rebuilding power lines. During these operations it is normal to create temporary switching points to minimize both the extent and number of power outages experienced by customers. At the job site on the day before the incident, the victim and the manager of operations had discussed the planned change in the direction of the electrical feed (supply). The

manager of operations cautioned the victim about the two-way electrical feed (electricity supplied from two different directions) and they developed a detailed plan to make the required changes.

This plan called for manually opening a pole-mounted circuit breaker (reclosure) and removing the existing power leads. The second step was to move to the next pole and remove a jumper wire connection from the lines de-energized in the first step. The third and final step was to go to a third location three poles away and install a fuse in an existing fuse holder, thereby reenergizing the involved circuits with electricity fed from the opposite direction.

The victim assigned the members of his crew to the work area (approximately 3 miles from the incident site) and then, accompanied by an inexperienced apprentice lineman, began following this procedure. The victim had completed the required work at the first two locations and, with the apprentice, drove to the third location.

At this time the victim climbed the pole to replace the fuse, rather than use the available fiberglass “hot stick” to install the fuse from the ground. The victim took both a fuse and an 8-foot-long fiberglass “hot stick” up the pole with him. The victim disconnected the de-energized (upper) lead with this “hot stick,” left the end of this lead in the “hot stick,” and lowered the stick to his belt. At this time he called down to his apprentice and told him to go back to the service truck and get another hotline clamp. The victim then grasped the metal brace supporting the fuse holder to pull himself further up the pole. As he did so he contacted the energized (lower line) 7200-volt lead of the fuse holder with his right forearm. A “path to ground” was established from the victim’s right arm through his body, out his feet, and down the pole which had recently been coated with creosote.

The apprentice heard the victim scream and observed the victim fall away from the line. The victim was held on the pole by his lineman’s belt and climbers. The apprentice promptly summoned help via two-way radio, and the remaining members of the crew, along with the rescue squad arrived on the scene approximately 10 minutes after the incident occurred. Two members of the crew lowered the victim to the ground where cardiopulmonary resuscitation (CPR) was begun by members of the rescue squad. The victim was transported to a nearby hospital where he was pronounced dead on arrival.

Examination of the body after the incident revealed an entry wound on the right forearm and exit wounds on the bottom of both feet.

Cause of Death:

The medical examiner’s office listed the cause of death as electric shock.

Recommendations/Discussion:

Recommendation #1: Personnel should be taught to avoid exposure to electrical hazards.

Discussion: The victim in this incident exposed himself to electrical hazards. The task to be performed, the installation of the fuse barrel in the bracket, could have been done from the ground using the telescopic fiberglass pole designed for this purpose. By climbing the pole (contrary to company standard operating procedures) to perform this task, the victim exposed himself to a known hazard with fatal results.

Recommendation #2: Personal protective equipment should be provided and utilized. Strict enforcement of company policies with regard to use of this equipment must be provided.

Discussion: The victim in this case was not wearing the protective gloves and sleeves provided by the company, even though the company procedures require that they be worn whenever workers climb on a pole with energized lines. The failure to use this personal protective equipment, by a person in a supervisory position, indicates a lack of understanding why this personal protective equipment is necessary.

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