The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

# Two Workers (a carpenter and a laborer) Electrocuted in South Carolina

FACE 87-48

## 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 5, 1987, two workers (a carpenter and a laborer) were electrocuted and five other workers seriously burned when scaffolding they were moving contacted a 13,750 volt overhead powerline.

## Contacts/Activities:

Officials of the Occupational Safety and Health Program for the State of South Carolina notified DSR concerning this fatality and requested technical assistance. This case has been included in the FACE Project. On June 23, 1987, a safety specialist met with the owner of the company, county coroner, and local police officers. Photographs were taken of the accident site, comparison workers, and a surrogate for one of the victims were also interviewed.

## Overview of Employer's Safety Program:

The victims were employed by a general contracting company that performs various types of construction and employed nine full-time workers. The company has no written safety policy or established safety program. Training for employees is provided on the job by experienced workers and/or the owner. Safety concerning work-related tasks is viewed as requiring common sense.

## Synopsis of Events:

A crew of seven workers (carpenters and laborers) were performing various tasks at a construction site located in a small shopping mall. One task, the erection of two single stage tubular welded frame scaffolds, had been completed by several workers. Each section of the scaffolding was four feet wide and seven feet long. The scaffolding consisted of seven tiers, six tiers being 54 inches high and one tier 48 inches high for a total height of 31 feet. The scaffolds were then positioned on one side of a 33 foot high sign that was to be painted. The sign had been partially painted when the crew was instructed to

move the scaffolds away from the sign, so that concrete could be poured for an access road into the mall. Both scaffolds remained assembled while they were moved approximately 30 feet away from the sign. (The ground area where the scaffolds were moved to was uneven and would later become saturated with rain water.) A 13,750 volt overhead power line was located approximately ten feet from one of the scaffolds and 27 feet from ground level.

After the concrete for the access road had cured the crew was instructed to move the scaffolds back to the sign to finish painting. The seven workers positioned themselves around the scaffold and attempted to lift the scaffold onto the newly constructed concrete access road, which was approximately 4-6 inches higher than ground level. As the workers lifted the scaffold onto the roadway, the top section of scaffolding uplifted from the adjoining section of scaffolding, (still remaining in contact with the other sections) toppled over, and came into contact with the 13,750 volt powerline.

All seven workers were knocked away from the scaffolding by the electrical shock. A carpenter and a laborer received fatal electrical burns while the remaining five workers were hospitalized with electrical burns.

## Cause of Death:

The cause of death for both workers was electrocution.

## Recommendations/Discussion:

**Recommendation #1: Scaffold should not be moved unless all safety hazards have been identified and abated.**

**Discussion:** Prior to moving or relocating an assembled scaffold consideration should be given to such factors as: (1) height, (2) weight, (3) obstacles, (4) wheels, and (5) ground/floor condition. Consideration of these factors may require that the scaffold be dismantled. In this particular case a dismantled scaffold would have been much more maneuverable and would have eliminated the potential hazard presented by the power line.

**Recommendation #2: Locking pins should be used to secure scaffolding panels (tiers) to one another.**

**Discussion:** Scaffolding panels (tiers) should be secured together through the use of pins or other equivalent suitable means (Occupational Safety and Health Administration regulation 1926.45(d)(6)).

**Recommendation #3: The employer should develop and implement a written safety program. This program should include safe work procedures and recognition of hazards.**

**Discussion:** The employer has no written safety program or policy. Safety is currently dependent upon the common sense of the employees. A safety program should include training of employees to recognize hazards in the workplace (i.e., hazards associated with working in the vicinity of electrical powerlines).

**Recommendation #4: Employers should allocate sufficient time to safely accomplish job assignments.**

**Discussion:** As the scaffold was not equipped with wheels and a number of locking pins were missing, sufficient time to dismantle, move, and re-assemble the scaffold should have been provided.

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