



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



Laborer Electrocuted in Tennessee

FACE 87-13

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. By scientifically collecting data from a sample of fatal accidents, it will be possible to identify and rank factors that influence the risk of fatal injuries for selected employees.

On October 23, 1986, a laborer was helping unload sewer pipe from a flatbed truck. He was electrocuted when the boom cable of a truck-mounted crane contacted an overhead high voltage line.

Contacts/Activities:

Officials of the Occupational Safety and Health Administration for the State of Tennessee notified the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) of this fatality and requested technical assistance. This case will be included in the Fatal Accident Circumstances and Epidemiology (FACE) Project. On December 2, 1986, a member of the DSR research team met with the company's safety officer and job superintendent. The accident site was visited and photographed. Interviews were conducted with co-workers and the victim's supervisor.

Background/Overview of Employer's Safety Program:

The victim was a laborer for a large construction company involved in sewer construction. Safety meetings are held weekly on the job site. The company safety officer spends approximately ninety per cent of his time on health and safety and visits each job site every two weeks. Training is provided "on the job."

Synopsis of Events:

A flatbed truck loaded with sewer pipe (24 inches in diameter and 20 feet long) was parked along a two-lane road. A second truck, equipped with an extensible, hydraulic, boomed crane, was backed up to the rear of the truck loaded with sewer pipe. The victim's job was to help position the sewer pipes on the ground and unhook the wire rope choker from the pipes after the crane operator lowered them to the ground. Two co-workers remained on the truck to connect the choker to each end of the pipes being unloaded by the crane. The pipes were being placed end to end along the roadside as they were unloaded. Two pipes had already been unloaded and a third was being unloaded when the accident occurred.

After the third sewer pipe was lowered to the ground, the victim was positioning the pipe by grasping the pipe and wire rope choker and pulling. At the same time, the boom cable contacted an overhead power line and a blue flame was seen arcing between the pipe the victim was holding and pipes previously unloaded. The victim slumped over the end of the pipe and collapsed.

Two co-workers began cardiopulmonary resuscitation (CPR) and a third ran to call for help. The Emergency Medical Service (EMS) personnel arrived approximately eight to ten minutes after the accident and began advanced cardiac life support. However, the victim could not be resuscitated.

Cause of Death:

The medical examiner listed the cause of death as accidental electrocution. No autopsy was performed.

Recommendations/Discussion:

Recommendation #1: Employers should enforce existing regulations concerning crane operations in the vicinity of overhead power lines.

Discussion: OSHA standard 1926.550(a)(15)(i) requires that a minimum clearance of ten feet be maintained between parts of truck cranes or loads and energized electrical power lines rated 50 kV or less, unless the lines were deenergized and visibly grounded or insulating barriers are erected.

Recommendation #2: While working near a high voltage line, if visibility could be obstructed, an observer should be used to help the operator maintain the required clearance, as required by OSHA Standard 1926.550(a)(15)(iv).

Discussion: Tree branches may have obstructed the operator's view of the overhead power lines. An independent observer might have aided in maintaining the required separation.

Recommendation #3: Hydraulic, extensible booms may require special care when operating near high voltage lines.

Discussion: Prior to the accident, the operator extended the hydraulic boom in order to unload the pipes furthest from him. Since the boom was lengthened, the maximum vertical reach of the boom was greater than in previous lifts, a change the operator may have failed to consider.

Recommendation #4: Engineers who plan construction projects and establish contract requirements should incorporate safety into their planning.

Discussion: The construction company was required by the city to leave at least one lane of the two lane road open to traffic. This necessitated modifying their work practices to use a truck crane to unload the sewer pipe, instead of using a forklift. When safety and convenience conflict, safety should receive priority.

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