



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces  
through safety and health research



# 28-Year-Old Truck Driver Electrocuted in Georgia

FACE 86-17

## 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 February 5, 1986, a truck driver was electrocuted while unloading concrete manhole assemblies from the trailer of a tractor trailer truck. The boom of the crane mounted on the trailer contacted a 7200 volt overhead powerline. This accident was unwitnessed.

## Contacts/Activities:

Officials of the Georgia Department of Human Resources notified the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) of this fatality and requested technical assistance. This case has been included in the FACE Project. On February 20, 1986, a member of the DSR research team met with representatives of the company. The site of this fatality was visited and photographed. An interview was conducted with a co-worker, who operates the same equipment as the victim. The next-of-kin interview was precluded, because researchers were unable to contact any potential surrogates. The medical examiner's report was obtained. On February 21, 1986, a meeting was held with the Atlanta Area Occupational Safety and Health Program compliance officer responsible for investigating this fatality.

## Overview of Employer's Safety Program:

The victim worked for a company that manufactures precast concrete products (i.e., manholes and concrete pipes). These products are reinforced with steel. The company employs 18 to 20 people on a full-time basis and has been in existence for 18 years and under present ownership for approximately 2 years. Safety training is done on the job; the plant manager is responsible for training.

The victim worked as a truck driver delivering precast concrete products. This job involves driving a truck to delivery sites and unloading the concrete products. Unloading is done using a hydraulic crane that is mounted on the rear of the trailer. The boom of this crane can extend approximately 28 feet vertically. The precast concrete is unloaded using a chain hooked to a metal bolt on the concrete manhole assemblies and to the cable of the crane boom. The crane is operated using the controls as shown in [Figure 1](#) . The operator usually stands on the bed of the truck to operate the controls. The victim

had approximately 5 years of experience in this job and had worked for the present management on an intermittent basis over the past 2 years. The owner of the company stated that the victim was well aware and had been frequently warned about the danger of overhead powerlines.

## Synopsis of Events:

On the morning of the accident, the victim was to make two deliveries. The victim had completed the first delivery and was to deliver precast concrete manhole assemblies to the second location, a construction site. The victim felt that the original site selected to unload the delivery at the construction site was too muddy. He called the business office and was told to use an alternate site which was on level ground, easily accessible, and away from overhead powerlines. However, the victim did not use this site for the delivery, instead he chose to unload the precast concrete at a site approximately 200 yards away from the site he was told to use. This area was not on level ground and was close to overhead powerlines. The entire area was extremely wet.

At approximately 9:30 a.m. the victim unloaded two concrete manhole assemblies and was in the process of unloading the third when the accident occurred. The third manhole assembly was between the two that had already been unloaded. The first two assemblies were farther away from the truck and farther under the powerline than the third one. The third assembly was on the ground with the chains used to unload the product disconnected, but “welded” to the metal bolt used to connect the chain to the manhole assembly. The victim was found lying between the manhole assemblies and the truck and was in contact with one of the concrete manhole assemblies. The police report states that his elbow was burned into the concrete. The crane cable (approximately ten inches below the tip of the boom) was in contact with a 7200 volt powerline, located twenty-five feet ten inches above the ground. The powerline had to be de-energized and grounded by the local electric service utility before emergency care could be administered to the victim, who was pronounced dead at the accident site.

Since the accident was unwitnessed, the exact circumstances are unknown. Reviewing the known facts of this accident raises the question of why the victim had not made contact with the overhead powerline while unloading the first two manhole assemblies, since they were farther under the powerline and there did not appear to be enough room between the truck and the powerline to have unloaded the manhole assemblies. It appears likely that the truck was moved between the unloading of the first two assemblies and the third one. After moving the truck to unload the third assembly, the victim lowered the assembly to the ground. With the weight of the load removed, the boom may have drifted into the overhead powerline. If this occurred while the victim was holding onto the chain, the victim would have provided a path to ground and he could have been thrown onto the ground between the manhole assemblies and the truck. Electrical energy continued to flow through his body from his contact with the manhole assembly, since the chain attached to the boom was in contact with the manhole assembly.

## Cause of Death:

An autopsy was performed. The cause of death was stated as electrocution. The coroner felt that the majority of the victim's burns occurred after he fell to the ground.

## Recommendations/Discussion:

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

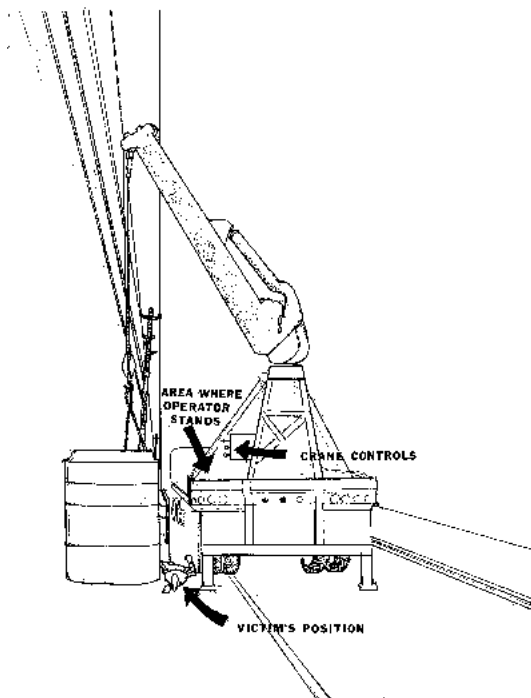
**Discussion:** OSHA standard 1926.550(a)(15) requires that the minimum clearance between electrical lines rated 50 kV or below and any part of the crane or load shall be ten feet, unless the electrical lines, have been “de-energized and visibly grounded” or physical contact between the lines, equipment, or machines is “prevented” by the erection of insulating barriers.

**Recommendation #2: Hazard awareness regarding overhead powerlines should be stressed and routinely reviewed so that all employees using cranes are cognizant of these energized sources.**

**Discussion:** The danger of overhead powerlines appears to be obvious; however, contact with powerlines and the subsequent occupational-related fatalities continue. Employers must stress and routinely review the hazards associated with overhead powerlines. The fact that the victim in this case was “well aware of these hazards” emphasizes that employers must demonstrate that they are truly concerned about this aspect of job site safety and will not tolerate even one instance of unsafe conduct.

**Recommendation #3: Loading, unloading, and storage sites should be chosen to avoid possible contact with overhead powerlines.**

**Discussion:** Loading, unloading, and storage sites away from overhead powerlines decreases the chance of inadvertent contact between crane booms and these lines. The need for safe storage sites is particularly true at construction sites and at areas used for permanent storage areas. The owner of the company instructed the victim to unload at an area away from the overhead lines. Had the victim followed these instructions, this fatality would not have occurred.



**Figure 1.** Accident Scene

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Not helpful

Very helpful