

Indiana State Department of Health
Indiana FACE 93IN08001
Date: November 18, 1993

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FROM: Richard L. Warren, Indiana FACE Investigator

SUBJECT: Laborer Dies of Complications after receiving
severe electrical shock Installing a TV tower

SUMMARY:

A 51-year-old male (the decedent), a co-worker, and the employer were installing a TV tower at the side of a building housing the employer's business. A hole approximately one foot square was pre-dug to set the base of the TV tower. The hole was located about 34 inches away from the building and 20 feet horizontally from an overhead power line. The decedent and co-worker were on the ground positioning the tower, while the employer was on the roof of the building trying to guide and stabilize the movement of the tower. The movement and stabilization of the tower was being accomplished by using a 5/8 inch braided nylon rope secured about 3/4 of the way up the tower. As the workers were trying to stabilize the TV tower into the pre-dug hole, it fell and contacted one phase of a three phase 7200-volt overhead power line. The electrical current traveled from phase to ground and the decedent and co-worker received a severe electrical shock. The decedent died two weeks later from complications. State FACE investigators concluded to prevent similar occurrences, employers should:

1. Contact utility companies to have power line insulated or de-energized prior to the commencement of any work tasks.

2. Evaluate worksites, identify hazards, and instruct employees in the recognition and avoidance of unsafe working conditions in proximity to overhead power lines.
3. Develop and implement written safety programs designed to enable workers to recognize and avoid hazards, especially electrical hazards.

INTRODUCTION:

On September 22, 1993, a 51-year-old male laborer (the decedent) was severely shocked in his attempt to install a TV tower. The decedent died on October 3, 1993, as a direct result of complications from the incident. Officials from the Indiana Department of Labor notified the FACE investigator and an onsite investigation was arranged with the employer. A representative from the National Institute for Occupational Safety and Health (NIOSH) accompanied the FACE investigators to provide technical assistance. On November 18, 1993, the employer was interviewed, pictures were taken, and measurements logged.

The employer had been in the restaurant business for about nine months. He had 5 part-time employees working for him at the time of the incident. The employer did not have a written safety policy for his employees. The decedent worked for the employer about two hours before his fatal injury and was a general laborer. This is the employer's first fatality.

INVESTIGATION:

On the day of the incident, the employer, decedent and co-worker were installing a TV tower which was 35 feet and 8 inches in length. As stated by the employer, tower installation procedures were discussed prior to starting the job, but did not include safety procedures. At the time of the incident, about 9:30 a.m. on September 22, 1993, the decedent and co worker carried the TV tower to the pre-dug hole. The employer, located on the roof of the building, was trying to guide the movement and stabilize the tower by using a 5/8 inch nylon braided rope that was tied off about 3/4 of the way up the tower. The hole, approximately one foot square, was located thirty four inches away from the building and was 20 feet horizontally from a three phase 7,200-volt overhead power line. The power line was 33-feet above ground level according to the power company.

The sequence of events in the incident remains unclear. The employer saw the tower leaning and contacting one phase of the power line. The employer tried two times to break the point of contact between the tower and power line by pulling on the rope, but his attempts were unsuccessful. The employer descended the ladder and found both co-workers lying on the ground. The employer started cardiopulmonary resuscitation (CPR) on one co-worker while the decedent sat up and leaned against the building, gasping for air. A witness located about 150 feet away from the incident in a business heard a noise, looked out of the window and saw two men lying on the ground. He instructed a co-worker to call 911 for assistance. The witness proceeded to the incident site and helped the employer give CPR to the co-worker. Emergency medical service, fire department, and police department arrived in 2-3 minutes. EMS began CPR on the decedent who had stopped breathing. The decedent was transported to a nearby county hospital where he eventually died of complications October 3, 1993. The co-worker was also transported to the local hospital and was released the next day.

Utility company personal reported that over-current fuses on the power line were blown, and the power lines were properly grounded.

CAUSE OF DEATH:

The cause of death as listed on the certificate of death by the county coroner is brain death due to high voltage electrocution.

RECOMMENDATIONS AND DISCUSSION

RECOMMENDATION #1

Employers should contact utility companies to have power lines insulated or de-energized prior to the commencement of any work tasks.

DISCUSSION:

In this incident, recognizing the hazard regarding the power lines and contacting the electric company to insulate or de-energize the power lines prior to installing the TV tower would have provided workers protection as long as clear communication among the utility company, the employer, and the workers was

maintained. All parties involved must be aware of when the power lines will be de-energized, the period of time the power lines will be de-energized, and the exact time the power will be restored so that workers are not exposed to energized conductors.

RECOMMENDATION #2

Employers should evaluate worksites, identify hazards, and instruct employees in the recognition and avoidance of unsafe conditions working in proximity to overhead power lines.

DISCUSSION:

Prior to any work being undertaken, a jobsite evaluation should be performed by a competent person to identify potential hazards. A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authority to take prompt corrective measures to eliminate them.

In this situation uninsulated overhead power line, work being performed underneath and in proximity to an over head power line, and the manner of installation of the 36 foot TV tower put workers at risk. Once potential hazards are identified, appropriate control measures can be implemented and corresponding employee training provided.

RECOMMENDATION #3

Employers should develop and implement written safety programs designed to enabled workers to recognize and avoid hazards, especially electrical hazards.

DISCUSSION:

In this case the employer did not have a written safety program. The development, implementation, and enforcement of a comprehensive safety program should reduce and or eliminate worker exposures to hazardous situations. The safety program should include, but not be limited to, electrical safety training , hand tool safety and training in the identification and control of work related hazards.

According to the "General Duty Clause" of the Occupational Safety and Health Act (Section 5 (a) (1)), employers are required to provide a safe and healthy work place for employees. To do so, employers must regularly survey the work place to identify hazards. Employers should instruct each employee in the recognition and avoidance of unsafe conditions and to control or eliminate any hazards or other exposure to illness or injury. Employees must understand the hazard and how to properly use safety equipment to protect themselves.

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What is the FACE Program?

FACE is one of many prevention programs conducted by the Indiana State Department of Health (ISDH). FACE stands for "Fatality Assessment and Control Evaluation." The purpose of FACE is to identify factors that increase the risk of work-related fatal injury. Identification of risk factors will enable more effective interventions to be developed and implemented. The FACE Program does not just count fatalities. It uses information gained from each fatality investigation to develop programs and recommendations aimed at preventing future occupational fatalities.

Who can you contact for additional information?

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