

**ADMINISTRATIVE REPORT
PUBLIC HEALTH SERVICE/CDC/NIOSH/DSR
FACE-96-19**

DATE: November 25, 1996

TO: Director, National Institute for Occupational Safety and Health

FROM: Division of Safety Research, NIOSH

**SUBJECT: Sixteen-year-old Electrical-Contractor Laborer
Electrocuted--Texas**

SUMMARY

A 16-year-old electrical-contractor laborer (the victim) was electrocuted when a de-energized powerline he was coiling on the ground contacted an energized overhead powerline. The victim, a 16-year-old co-worker, and a 25-year-old crew leader were salvaging a 3-phase, 440-volt powerline (no longer in use) from within an oil field. The crew leader, working from an aerial bucket, was releasing the powerline phases from the pole-mounted crossarms, approximately 350 feet away from the two workers, by cutting the tie wires. As the conductors fell to the ground, the two workers on the ground coiled them, then loaded them on a truck. An energized, single-phase 7,200-volt powerline was also present in the oil field. The pole from which the foreman was releasing the conductors was 22 feet from the energized powerline. A second pole, 150 feet from the foreman, and 500 feet from the workers, was much closer to the energized line: 3 feet away, and 3 feet above it. As one of the conductors was released, the tension on the remaining conductors caused the second pole to lean into the energized powerline, energizing the salvage powerline. The victim, holding one of the conductors in his hand, electrocuted. The coworker, standing next to the victim, received flash burns to his face. NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- o perform a hazard evaluation at each worksite before any work is initiated*
- o train employees in the recognition of hazards, and methods to control such hazards*
- o develop, implement, and enforce a comprehensive written safety program*
- o know and comply with child labor laws which include prohibitions against work by youth less than 18 years of age in occupations which are declared by the Secretary of Labor to be particularly hazardous for 16 and 17-year-olds (Hazardous Orders).*

INTRODUCTION

On June 18, 1996, a 16-year-old electrical-contractor laborer (the victim) was electrocuted when a de-energized powerline he was coiling on the ground contacted an energized overhead powerline. On June 25, 1996, officials of the Wage and Hour Division of the Department of Labor notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On July 2, 1995, A DSR safety specialist, safety engineer, and epidemiologist conducted an investigation of the incident. The incident was reviewed with the employer, the deputy sheriff, the utility company, and Wage and Hour and OSHA personnel.

The employer in this incident was an electrical construction and maintenance company that had been in operation for 18 years and employed 17 permanent workers and 3 summer hires (the crew involved in the incident). The employer had no written safety program. Full-time workers received training in hazard communication, cardiopulmonary resuscitation (CPR), and lockout/tagout procedures. The three workers involved in the incident had not received training for the task they were performing at the time of the incident. The victim had worked as a summer hire for the company for two summers, washing company trucks and mowing grass. This was the first fatality experienced by the company.

INVESTIGATION

The employer had been contracted to salvage the conductors and other electrical equipment from a de-energized 3-phase, 440-volt powerline that ran through an inactive oil field. A three-man crew consisting of a 25-year-old crew leader and two 16-year-old laborers, all summer hires, were performing the work. The crew had been at the site for 2 days. The crew leader worked from an aerial bucket cutting the tie wires holding the conductors to the crossarm-mounted insulators. As the conductors fell to the ground, the workers would coil them up. The workers were approximately 350 feet away from the crew leader.

A single-phase, energized 7,200-volt powerline that powered the oil field's metering station was also present in the field. The pole on which the crew leader was working was 22 feet away from the energized line. The de-energized conductors on a second pole, located approximately 150 feet behind the crew leader, were closer to the energized line (3 feet away from and 3 feet above the powerline).

As the crew leader released the conductors from the insulators, the tension on the remaining conductors caused the pole behind him to lean into the energized powerline. As the salvage conductors contacted the 7,200-volt powerline, they became energized. The victim, holding one of the conductors in his

hands, was electrocuted. The co-worker, standing nearby, received flash burns to his face. A company electrician arrived at the site at that moment and called for the emergency medical service (EMS). The crew leader took a hot stick from the electrician's truck and pulled the conductor away from the victim. The men initiated CPR until the EMS arrived. The victim was transported by medevac helicopter to the hospital where he was pronounced dead.

CAUSE OF DEATH

The attending physician listed the cause of death as accidental electrocution.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should perform a hazard evaluation at each worksite before any work is initiated.

Discussion: Employers should identify all potential hazards at a worksite and attempt to develop procedures or other control measures which effectively eliminate or reduce the hazards. In this instance, a hazard evaluation would have determined that the de-energized conductors were dangerously close to the 7,200-volt powerline. Once this hazard was identified, the employer could have contacted the local electric utility company to determine the safest way to salvage the conductors.

Recommendation #2: Employers should train employees in the recognition of hazards, and methods to control such hazards.

Discussion: Employers are required by 29 CFR 1926.21(b)(2) to instruct each employee in the recognition and avoidance of unsafe conditions, and to control or eliminate any hazards or other exposures to illness or injury. Employers need to provide training that ensures that employees understand existing hazards and how to protect themselves from these hazards.

Recommendation #3: Employers should develop, implement, and enforce a comprehensive written safety program.

Discussion: The development, implementation, and enforcement of a comprehensive safety program should identify, and reduce or eliminate, worker exposures to hazardous situations. The safety program should include worksite hazard assessments to enable the recognition, control, and avoidance of potential hazards.

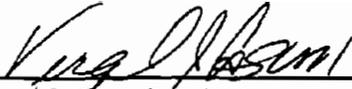
Recommendation #4: Employers should know and comply with child labor laws which include prohibitions against work by youth less than 18 years of age in occupations which are declared by the Secretary of Labor to be particularly hazardous for 16 and 17-year-olds (Hazardous Orders).

Discussion: The Fair Labor Standards Act provides a minimum age of 18 years for work which the Secretary of Labor declares to be particularly hazardous (Hazardous Orders). One of the 17 Hazardous Orders prohibits minors from work in wrecking, demolition, and shipbreaking operations (Hazardous Order No. 15). This is defined as "all work, including cleanup and salvage work, performed at the site of the total or partial razing, demolishing, or dismantling of a building, bridge, steeple, tower, chimney, other structure, ship or other vessel."

REFERENCES

29 CFR 1926.21 (b)(2) Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

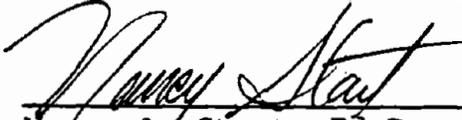
DOL [1990b]. Child labor requirements in nonagricultural occupations under the Fair Labor Standards Act. Washington, DC: U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division, WH 1330.


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Fatality Assessment and Control Evaluation (FACE) Project

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (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.

States participating in this study: North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

Additional information regarding this report is available from:

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