



The National Institute for Occupational Safety and Health (NIOSH)

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34-Year-Old Machine Operator Electrocuted in Ohio

FACE 87-07

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 November 1, 1986, a machine operator was electrocuted when he inadvertently contacted an energized conductor located in a motor control panel box that had the cover plate removed.

Contacts/Activities:

Officials of the Industrial Commission of Ohio notified DSR concerning this fatality and requested technical assistance. This case has been included in the FACE Project. On November 5, 1986, a DSR research safety specialist conducted a site visit, met with employer representatives, interviewed comparison workers, photographed the accident site, and discussed the incident with a representative of the Industrial Commission of Ohio.

Overview of Employer's Safety Program:

The employer is a small division of a manufacturing company that has been in operation for 50 years and employs over 20,000 workers. The division itself employs 34 personnel and is responsible for packaging and shipment of fiberglass products. A safety program has been developed and implemented. Safety committees, comprised of management and hourly employees, meet quarterly to review safety items. Safety rules are also posted and distributed to all employees.

Synopsis of Events:

On November 1, 1986, the victim and a co-worker were instructed to cut bulk rolls of fiberglass into narrower widths, a job they had performed on previous occasions. The workers were to use a fiberglass cutting machine (a gang slitter) powered by a 1/2 horsepower, 220 volt, three-phase electric motor. The control box for the motor was attached to a corner leg of the slitter machine, approximately two feet above the floor, facing away from the machine. A reset button, part of the control

box, was used to reset the breaker for the gang splitter motor. The equipment had not operated properly on the previous shift. The motor had tripped the breaker several times and, for reasons unknown at this time, the cover plate enclosing the control box had been removed and never replaced, thus exposing the energized conductors in the control box.

At approximately 9:15 a.m. the two workers were monitoring the operation of the gang splitter. The co-worker was located at the corner of the machine where the bulk roll of fiberglass was mounted. The other worker (the victim) was standing diagonally across from the co-worker at the corner where the smaller widths of fiberglass were being re-rolled. The victim was holding onto the frame of the gang splitter when his upper right leg contacted an energized conductor in the control box. The victim's body provided a path to ground for the electrical current. After approximately 30-40 seconds of being in contact with the energized conductor, the victim fell back away from the machine breaking contact with the conductor.

The co-worker ran to the foreman's office and summoned help. Paramedics were on the scene providing advanced cardiac life support approximately six minutes after being notified. The victim was pronounced dead on arrival at the hospital emergency room, 46 minutes after the event occurred.

Cause of Death:

The deputy coroner established the cause of death as electrocution.

Recommendations/Discussion:

Recommendation #1: The employer should review operating procedures involving electrical panel boxes to assure that these procedures are safe and being followed.

Discussion: Cover plates on panel boxes are provided to prevent accidental contact with energized conductors. The removal and replacement of cover plates should be done by authorized personnel only. Safe job procedures should address the maintenance and repair of electrical panel boxes and management should enforce strict adherence to these procedures. These procedures should minimally include rules governing lockout/tagging of electrical equipment or circuits. Equipment or circuits that are de-energized should be rendered inoperative and be locked out and tagged at all points where such equipment or circuits can be energized. Controls that are to remain deactivated during the course of work on equipment or circuits should also be locked and tagged. Equipment or circuits being maintained or repaired should be clearly identified and employees should be trained not to use any equipment until it has been tested and placed back in service.

Recommendation #2: The motor control panel box should be relocated. Adequate work areas should be maintained during repair and maintenance of electrical equipment.

Discussion: When normally enclosed live parts are exposed for inspection or servicing an adequate work area should be maintained. Control panel boxes should be located where they are easily accessible for maintenance and for operation by the machine operator. Motor control panel boxes should not be located in congested areas such as an aisle or a work area.

[Return to In-house FACE reports](#)

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