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## The National Institute for Occupational Safety and Health (NIOSH)

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# Child Laborer Electrocuted While Working At Sawmill in Missouri

MO FACE Investigation #00MO063

Date: July 30, 2001

## SUMMARY

On June 22, 2000, a 16-year-old male laborer was electrocuted while working at a sawmill. The victim was working alone using a compressed air hose and nozzle to blow sawdust from a 440-volt electric re-saw machine. Apparently the victim knelt down under the machine and contacted the machine's metal framework. The ground was wet where he was kneeling and the machine's metal frame was energized. Co-workers at the mill saw the victim collapsed under the machine and immediately came to his aid. Local emergency services were contacted. The victim was taken by helicopter ambulance to a trauma center. He could not be revived and was pronounced dead approximately four hours later.

The MO FACE investigator concluded that in order to prevent similar occurrences all employers should:

- ensure electrical machinery be installed and grounded properly. And that machinery is routinely inspected for mechanical and electrical defects;
- know and comply with state and federal child labor laws that include prohibitions against certain types of work for employees less than 18 years of age.
- develop, implement, and enforce a comprehensive written safety program which includes but is not limited to hazard recognition, avoidance and abatement.

## INTRODUCTION

The MO FACE investigator was notified of an occupational fatality at a sawmill on Thursday, June 22, 2000, approximately five hours after the incident. The MO FACE investigator traveled to incident site Monday, June 26, 2000. On-site at the time of arrival was the county coroner and the company owner. While on-site the investigator for the U.S. Department of Labor, Wage and Hour Division arrived.

The employer was a sawmill operator who had been in business for approximately 20 years. At the time of the incident, he had 15 employees. The victim was the only employee less than 18 years of age and the owner had employed him for one month and eleven days. The company did not have written safety rules and procedures in place for the tasks performed by the workers and did not have a safety officer. According to the employer, the victim had not received training that specifically addressed the hazards associated with the fatality.

The victim was employed at the sawmill to do odd jobs and clean up work. He also worked for the employer hauling hay

and doing other odd jobs on the owner's farm. Another employee was supervising him at the time of the incident.

## INVESTIGATION

The sawmill employees directly involved in this incident were in the process of filling an order for oak slats to be used to make pallets. The machine the workers were operating was a re-saw machine that carries a prepared piece of wood through a series of band saws, each sawing a one-inch slab from the wood piece. This machine was located outside on the sawmill lot and was not protected from weather elements. The machine was powered by a 440-volt, two-phase power source. The electrical supply wires to the machine were run underground from the source through various conduits and PVC plumbing pipe. In some places these wires were exposed to wet earth and wet sawdust below and above ground. Additionally the machine was not grounded continuously.

The site had been exposed to heavy rain and thunderstorms the day prior to the incident. The ground and the sawdust around the machine was wet. The workers had been complaining to the company owner about the equipment and that they were receiving shocks from it. He apparently ignored their warnings and instructed them to continue working. The victim had not been actively working on this machine and had busied himself around the sawmill yard. While the machine operators were taking a break and the machine had been powered down but not de-energized, the victim decided to clean some of the sawdust away from it. He equipped a nearby air hose with a blower nozzle and proceeded to blow the dust off and away from the machine. At some point he knelt down putting one knee into damp sawdust and contacted the frame of the machine. He apparently received an electric shock and could not remove himself from the machine. He was found shortly by another co-worker and first aid was immediately given. Emergency services were summoned to the scene and the boy was taken by helicopter to a trauma center. The boy could not be revived and was pronounced dead a later that day at local trauma center.

## Cause of Death: Electrocution

## Recommendations/Discussion

**Recommendation #1: Ensure electrical machinery be installed and grounded properly. And that machinery is routinely inspected for mechanical and electrical defects.**

Discussion: The machine involved in this instance was a series of three electric re-saw machines. Each machine was powered by 440-volt two-phase electric motor. The machines were placed outside on the sawmill lot and not protected from the weather elements. Wet saw dust had accumulated around the machines even though workers routinely remove it. Electrical wires supplying electricity to the machines were run underground from the source through conduit and PVC plumbing pipe. Around and underneath the machine the PVC pipe had become brittle and broken exposing the wiring to the ground and wet sawdust. Also, the machines were not all grounded appropriately.

Employers should ensure that all electrical machinery should be installed and properly wired by a certified electrician and that the machines be properly grounded to ensure that workers are not exposed to an electrical hazard.

**Recommendation #2: Know and comply with state and federal child labor laws that include prohibitions against certain types of work for employees less than 18 years of age.**

Discussion: The Fair Labor Standards Act provides a minimum age of 18 years for nonagricultural occupations which the Secretary of Labor "shall find and by order declare" to be particularly hazardous to 16- and 17-years old persons or detrimental to their health and well being. The Secretary has issued 17 Hazardous Occupations Orders. Hazardous Occupation Order 4 prohibits 16- and 17-year-olds from working in logging occupations and occupations in the operation of any sawmill, lath mill, shingle mill, or cooperage stock mill.

**Recommendation #3: Develop, implement, and enforce a comprehensive written safety program, which includes but is not limited to, electrical hazard recognition, avoidance and abatement.**

Employees working with this re-saw machine had repeatedly complained about the shocks they were receiving in process of doing their jobs. But they were instructed to continue working. According to a county sheriff's report that on March 24, 1998, an employee of this company collapsed while working on this re-saw machine and possibly received an electrical shock and was transported by helicopter to a trauma center. All the signs were there to alert the owner and workers that there were serious electrical hazards associated with the machine. Apparently nothing was done to correct the problem.

Employers should develop a comprehensive written safety program that identifies hazards, ensures corrective action when hazards are recognized and enforces safe work procedures.

The Missouri Department of Health, in co-operation with the National Institute for Occupational Safety and Health (NIOSH), is conducting a research project on work-related fatalities in Missouri. The goal of this project, known as the Missouri Occupational Fatality Assessment and Control Evaluation Program (MO FACE) is to show a measurable reduction in traumatic occupational fatalities in the state of Missouri. This goal is being met by identifying causal and risk factors that contribute to work-related fatalities. Identifying these factors will enable more effective intervention strategies to be developed and implemented by employers and employees. This project does not determine fault or legal liability associated with a fatal incident or with current regulations. All MO FACE data will be reported to NIOSH for trend analysis on a national basis. This will help NIOSH provide employers with effective recommendations for injury prevention. All personal and company identifiers are removed from all reports sent to NIOSH to protect the confidentiality of those who voluntarily participate with the program.

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