



**THE UNIVERSITY OF IOWA**  
Iowa City, Iowa 52242

**TO: Director, National Institute for Occupational Safety and Health**

**FROM: Iowa FACE Program**

**Date of Report** \_\_\_April 6, 1999\_\_\_

**SUBJECT: Paper mill employee killed as winder safety plate pins him against a beam.**

**SUMMARY**

On February 9, 1998, a 40-year-old male employee died while working at a paper mill. The employee was working at the winder station. The winder station consists of a spool-like machine on which the paper is wound. One complete roll of paper was processed. When inserting the paper for the next roll, the victim noticed that the paper was not winding properly, and entered the pit below the winder. Because of the large size of the equipment, components may be started up or turned off while machine tenders are out of sight of the operator. In this case, another employee, unaware that the victim entered the pit, assumed there was a problem and went to the back of the winder to turn off the lockout switch. When the lockout switch was turned off, a safety plate came down to prevent access, and the victim was pinned against the beam when the safety plate came down. The employee then went around the other side of the winder to enter the pit and noticed the victim was in the pit. The employee called for help, and the victim was taken to a local hospital, where he was pronounced dead.

**RECOMMENDATIONS based on our investigation are as follows:**

- ◆ **1. Ensure that employees are trained in the lockout / ragout procedure.**
- ◆ **2. Ensure that pit areas are adequately marked. The grated floor grid of the pit area should be painted with yellow stripes, adequate lighting installed, and signage placed outside the pit area.**
- ◆ **3. Provide training and documentation on specific lockout procedures. A clear understanding of procedures should be provided in the training.**

**INTRODUCTION**

On February 9, 1998, a 40-year-old male employee died while working at a paper mill. The plant manufactured corrugated cardboard. The Iowa FACE program was notified of the fatality on Feb 10, 1998. The company was not willing to allow a FACE on-site evaluation while the IOSHA compliance officers were on site. The employees were having a hard time dealing with the fatality. An on-site evaluation was conducted on August 14, 1998. The company has 230 employees and opened in March 1995. Prior to this incident, the company

did not have any serious accidents. They celebrated a safety milestone of 500,000 hours, about 11 months, without a lost work day. The incident occurred on the evening shift. The company had an established safety program with extensive employee involvement. The safety committee scheduled regular monthly safety meetings. The victim was a member of the safety committee and had worked for the company since October 1994.

All three employees were trained and qualified for winder work. The driver and roll handler (victim) had worked together for several years. The roll handler (victim) was filling in for an excused employee, and had not worked previously with the core cutter on the winder process.

## **INVESTIGATION**

The employee was caught between the safety beam and a plate while he was under a piece of equipment at a winder station. The winder procedure involves 3 employees; a driver, core cutter, and roll handler. The driver stays in the winder shack most of the time and observes equipment, panel indicators, and video monitors. The driver can perform process adjustments, and has a direct line of sight for the other two employees and the winder process. The core cutter usually works on one side of the winder, feeding the paper into the winder. The roll handler works on the other side of the winder.

On some occasions when the paper is not winding properly, an employee may enter the pit, stand on a stool and raise his arm to detect if there is air flowing between the two rollers. When air flows between the rollers, it indicates that the paper is properly aligned, and has adequate tension. The employee should then begin troubleshooting for other possible problems in the process.

Because of the large size of the equipment, components may be started up or turned off while machine tenders are out of sight of the operator. The employees were trained on the proper procedure for turning off the lockout switch. It was generally understood that when the lockout switch was turned off, the employee that turned off the switch is then assigned to enter the pit and check the process.

At the time of the incident, one roll of paper had been completed and the second roll was being fed into the winder. The roll handler (victim), on one side of the winder, was aware that the paper wasn't winding properly and went around to the other side of the winder. He passed by the core cutter but no verbal communication was exchanged, although the roll handler made a hand gesture. The roll handler (victim) entered the pit area below the winder. Assuming there was a problem, but unaware that the roll handler had entered the pit area, the core cutter went to the back of the winder and turned off the lockout switch. When the lockout switch was turned off a safety plate came down against the core cutter and caught the victim between the plate and the safety beam. After turning off the lockout switch, the core cutter came around near the pit area and noticed the roll handler in the pit area, standing on a stool with his arms up. This was unusual, since there was an understanding that whoever turns the lockout switch is the one that goes into the pit area, but he assumed the roll handler was checking something on the winder. The core cutter and driver checked other sections of the winder and returned to the pit

area, and were surprised to see the roll handler (victim) still in the pit. They entered the pit and saw that the safety plate had pinned the employee against the beam.

The lockout switch was located on the opposite side of the winder and the employee did not have direct line of sight to the pit area. At a safety meeting in Nov. 97 this situation was discussed and the company was contacted to obtain a lockout switch apparatus that could be installed on the same side of winder as the pit. Then, the employee would be able to see if another employee had entered the pit area before he turned off the lockout switch. The lockout switch apparatus was going to be shipped by the middle of February.

## **CAUSE OF DEATH**

The medical examiner's report stated the cause of death as asphyxia.

## **RECOMMENDATIONS / DISCUSSION**

The company implemented the following recommendations shortly after the incident.

**Recommendation #1: Employers should ensure that employees are trained in the lockout / tagout procedure. The lockout switch should be located so the employee has direct line of sight to the pit area.**

Discussion: Because of the large size of the equipment, components may be turned on/off while machine tenders are out of sight of the operator. When the lockout switch is activated a safety plate comes down to prevent access. Although there was an understanding that whoever turns the lockout switch is the one that enters the pit area, this was not understood by all employees on the day of the incident. It is essential to have a clear line of sight to determine whether the lockout switch can be activated safely, or there should be another means to prevent closing the lockout switch when an employee is in the pit. Since the employee did not have a direct line of sight to the pit area, he was unable to see if another employee was in the pit. Training in the lockout / tagout procedure is crucial, since communication is difficult, due to the noise level in the facility.

**Recommendation #2: Employers should ensure that pit areas are adequately marked. The grated floor grid of the pit area should be painted with yellow stripes, adequate lighting installed, and signage placed outside the pit area.**

Discussion: Safety marking and proper lighting can identify hazards to employees in the area. With adequate lighting in the pit area, the employee would be able to see if another employee was in the pit area.

**Recommendation #3: Employers should provide training and documentation on specific lockout procedures. A clear understanding of procedures should be provided in the training.**

Discussion: The specific procedural steps for lockout should be provided in the training session including specific details of when an employee can enter the pit area. Since normal production operations are not covered by the standard, training should identify if lockout is necessary every time an employee enters the pit area. There was an understanding that whoever turns the lockout switch is the one that enters the pit area, although this may not have been properly documented or understood.

Retraining should be provided whenever there is a change in job assignments. Training is essential when several employees work together on a process, and communication is necessary. All three employees were qualified for winder work, and the driver and roll handler had worked together for several years. The roll handler (victim) was filling in for an excused employee, and had not worked previously with the core cutter.

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## References

National Safety Council. Accident Prevention Manual for Business & Industry: Administration and Programs. Tenth Edition. Chicago, IL. 1992.

Office of the Federal Register: Code of Federal Regulations, Labor 29 Part 1910. Washington, DC: U.S. Government Printing Office, 1996.

# Fatality Assessment and Control Evaluation

# FACE

FACE is an occupational fatality investigation and surveillance program of the *National Institute for Occupational Safety and Health* (NIOSH). In the state of Iowa, *The University of Iowa*, in conjunction with the *Iowa Department of Public Health* carries out the FACE program. The NIOSH Division of Safety Research in Morgantown, West Virginia, implements FACE as an intramural program in cooperation with Alaska, California, Iowa, Kentucky, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, Ohio, Oklahoma, Texas, Wisconsin, Washington, and West Virginia.

The purpose of FACE is to identify all occupational fatalities in the participating states, conduct in-depth investigations on specific types of fatalities, and make recommendations regarding prevention. NIOSH collects this information nationally and publishes reports and Alerts, which are disseminated widely to the involved industries. NIOSH FACE publications are available from the NIOSH Distribution Center (1-800-35NIOSH).

Iowa FACE publishes case reports, one page Warnings, and articles in trade journals. Most of this information is posted on our web site listed below. Copies of the reports and Warnings are available by contacting our offices in Iowa City, IA.

The Iowa FACE team consists of the following: Craig Zwerling, MD, PhD, MPH, Principal Investigator; Wayne Johnson, MD, Chief Investigator; John Lundell, MA, Coordinator; Lois Etre, PhD, Co-Investigator; Risto Rautiainen, MS, Co-Investigator.

Additional information regarding this report or the Iowa Face Program is available from:

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