

F.A.C.E. INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE#98-NJ-012-01
Machine Operator Crushed
While Servicing a Die Cutting Machine



New Jersey Department of Health and Senior Services
Occupational Disease and Injury Services
P.O. Box 360
Trenton, New Jersey 08625-0360
(609) 984-1863

TO: Division of Safety Research
National Institute for Occupational Safety and Health
Morgantown, West Virginia 26505

FROM: Fatality Assessment and Control Evaluation (FACE) Project
New Jersey Department of Health & Senior Services (NJDHSS)

SUBJECT: Face Investigation #98-NJ-012-01
Machine Operator Crushed While Servicing a Die Cutting Machine

DATE: October 5, 1998

SUMMARY

On February 7, 1998, a 29-year-old machine operator at a cardboard box factory was killed when he was crushed by a die cutting machine. The incident occurred when the victim noticed that the machine was not cutting the cardboard correctly. Climbing under the machine, the victim found a loose gear and apparently pressed a control button to jog the machine forward. His head was caught between the large moving die cutting table and a stationary machine part. NJ FACE investigators concluded that, to prevent similar incidents in the future, these safety guidelines should be followed:

- Employers should develop, implement, and enforce an effective lock-out/tag-out program.
- Employees should be trained to safely operate and maintain machinery.
- Employers should conduct a job hazard analysis of all work activities with the participation of the workers.
- Employers should be aware of educational and training resources for health and safety information.

INTRODUCTION

On February 9, 1998, NJ FACE personnel were informed by a county medical examiner of a machine-related fatality that occurred on February 7. A FACE investigator confirmed the report with the OSHA area office and contacted the employer to request an investigation. The employer agreed and a site visit was conducted on February 26, 1998. During the site visit, the FACE investigator met with the company owner, briefly interviewed a witness, and examined and photographed the incident site. Additional information on the incident was obtained from the OSHA investigation file, police report, and medical examiner's report.

The employer was a small, family owned cardboard box manufacturing company that specialized in producing small orders of corrugated cardboard boxes and packing inserts. The company had been in business for about 30 years and had operated at this location for about ten years before the incident. Eighteen workers were employed by the company, including twelve production and six office workers. A general business consultant was hired to assist the company management after the owner went into semi-retirement due to an illness. The company did not have a written job training or safety program. New workers received on-the-job training by more experienced employees. This training included verbal instruction to shut down the machines before working on them, but did not include a formal lockout-tagout program.

The victim was a 29-year-old machine operator who had worked for the company for ten years. He started as a laborer and moved up to machine operator about five years after being hired. Although he specialized in operating the die cutting machines, he was qualified on the other machines in the shop. One day before the incident he was told that he was being promoted to shop leadman with a raise in his pay. The deceased was married with one young child.

INVESTIGATION

The site of the incident was a small manufacturing plant located in an urban area. Production began with the delivery of large sheets of corrugated cardstock loaded on pallets. The sheets were hand fed through a roller which cut them to size and added creases for folding the box. Each sheet was then run through a printing and cutting machine that printed the box and cut the slots for the box flaps. If necessary, the cardboard was die cut before being sealed with tape or glue. The boxes were then loaded flat onto pallets for shipment.

The incident occurred as the crew was working overtime on a Saturday morning. Arriving at 7:00 a.m., the victim was scheduled to work until noon and went to work at the die cutting machines. He first started on a flatbed die cutter, a machine that pressed a single sheet of

cardboard against a die made of cutting blades set in plywood. About an hour later he went to work on the rotary die cutter. This machine was over 40 years old and had been bought from a bankruptcy sale a number of years before. Operating like a printing press, the machine had a large table that passed under a large roller. As the operator stood to the side of the machine, he fed in cardboard sheets that were pressed between the cutting die on the table and roller. The cut sheets were ejected out the rear of the machine. The operating controls consisted of two sets of on-off-jog buttons, one at the operator's station and one near the power supply at the rear of the machine. The jog button did not inch the machine forward but fully activated the machine as long as the button was pressed. Other controls included a speed regulator on the power supply and a brake pedal at the operator's station.

No one witnessed the incident. The victim and a co-worker operated the die cutter until about 11:20 a.m. when they noticed that the cardboard was not being cut correctly. The victim stopped the machine by pressing the stop button and told his helper to find other work while he fixed the machine. The co-worker went to work at a nearby baling machine and saw the victim crawling on the floor of the machine under where the cardboard was ejected. Here the victim found a loose gear which guided the machine's die cutting table. Wearing a latex glove to hold the greasy gear, the victim apparently reached around and activated the jog button to move the die cutting table. The table moved against him, crushing his head between the table and machine frame. The coworker again looked toward the victim and saw him injured under the machine and hit the jog button to release him. Other workers ran into the office yelling "call 911." The police arrived to find that the victim had been killed instantly. The county ME pronounced the victim dead at the scene.

The OSHA investigation found that the victim was holding a four inch diameter gear that guided the machine's traverse table. This gear was damaged and may have caused the die cutting table to wobble and mis-cut the cardboard. The victim crawled under the machine to fix or remove the gear and was killed when he hit the jog button to move the traverse table, possibly misjudging the distance the table traveled after the button was released.

CAUSE OF DEATH

The county ME attributed the cause of death to "blunt force crushing injury of the head."

RECOMMENDATIONS AND DISCUSSION

Recommendation #1: Employers should develop, implement, and enforce an effective lock-out/tag-out program.

Discussion: The company had an informal practice of deenergizing the machines by shutting down the circuit breakers. However, this did not provide all the safety precautions included in a formal lockout/tagout program. A lock-out/tag-out program requires a written procedure for shutting off and locking out the power at the main breaker box and locking the box to prevent the machine from being inadvertently turned on. All employees must also be trained in lock-out tag-out procedures. Further information on lockout/tagout is included in the attached OSHA publication, *Control of Hazardous Energy (Lockout/Tagout)*. It should be noted that lockout tagout is required under the federal OSHA standard 29 CFR 1910.147(c).

Recommendation #2: Employees should be trained to safely operate and maintain the machines.

Discussion: The victim showed a lack of understanding and training by attempting to service this machine while it was energized. This may have been compounded by the company not having the operator's manual or other records for the 40-year-old die cutting machine. FACE recommends that the company should contact the manufacturer to obtain copies of the operator's manuals and ask about any updates or retrofits to the machines. If the manuals are unavailable, the company should carefully develop a written procedure for operating and maintaining the machine based on their own experience. These procedures should include information from conducting a Job Hazard Evaluation with the machine (see Recommendation #3). All machine operators should then be trained in the correct procedures for operating and maintaining the machines, as explained in the manuals or the written procedures. Since many employees spoke Spanish, training should also be given in the primary language of the employees.

Recommendation #3: Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

Discussion: To prevent incidents such as this, we recommend that employers conduct a job hazard analysis of all work areas and job tasks with the employees. A job hazard analysis should

begin by reviewing the work activities that the employee is responsible for and the equipment needed. Each task is further examined for fall, electrical, chemical, or any other hazard the worker may encounter. The results of the analysis can be used to design or modify a written safety program. If employers are unable to do a proper job hazard analysis, they should consider hiring a qualified safety consultant to complete it.

Recommendation #4: Employers should be aware of educational and training resources for health and safety information.

Discussion: It is extremely important that employers obtain accurate information on working safely and following all OSHA standards. The following sources of information may be helpful:

U.S. Department of Labor, OSHA

On request, OSHA will provide information on safety and health standards. OSHA has several offices in New Jersey that cover the following areas:

- Hunterdon, Middlesex, Somerset, Union, and Warren counties.....(732) 750-4737
- Essex, Hudson, Morris, and Sussex counties.....(973) 263-1003
- Bergen and Passaic counties.....(201) 288-1700
- Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester,
Mercer, Monmouth, Ocean, and Salem counties.....(609) 757-5181

NJ Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH act covers all NJ state, county, and municipal employees. The act is administered by two departments; the NJ Department of Labor (NJDOL) which investigates safety hazards, and the NJ Department of Health and Senior Services (NJDHSS) which investigates health hazards. Their telephone numbers are:

- NJDOL, Office of Public Employees Safety(609) 633-3896
- NJDHSS, PEOSH Program..... (609) 984-1863

NJDOL Occupational Safety and Health On-Site Consultative Program

Located in the NJ Department of Labor, this program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards. For information regarding a safety consultation, call (609) 292-0404, for a health consultation call (609) 984-0785. Requests may also be faxed to (609) 292-4409.

New Jersey State Safety Council

The NJ Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars. Their address and telephone number is: NJ State Safety Council, 6 Commerce Drive, Cranford, NJ 07016. Telephone (908) 272-7712

Internet Resources

Information and publications on safety and health standards can be easily obtained over the internet. Some useful sites include:

www.osha.gov -The US Department of Labor OSHA website.

www.state.nj.us/health/eoh/peoshweb/peoshome.htm -The NJDHSS PEOSH website.

www.dol.gov/elaws -USDOL Employment Laws Assistance for Workers and Small Businesses.

REFERENCES

Code of Federal Regulations 29 CFR 1910, 1992 edition. U.S. Government Printing Office, Office of the Federal Register, Washington DC.

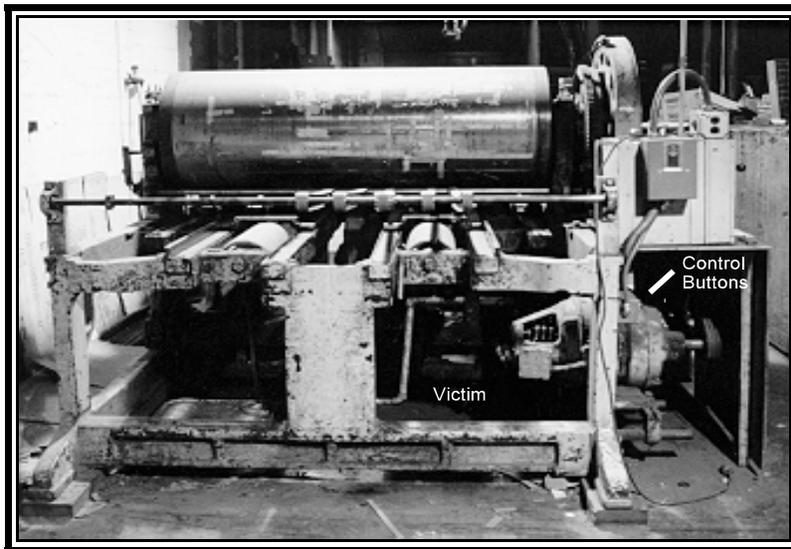


Photo 1
Die Cutting Machine

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NJDHSS Census of Fatal Occupational Injuries (CFOI) Project

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USDOL-OSHA New Jersey Area Offices (4)

NJDOL Office of Public Employees Safety

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NJDOL OSHA Consultative Service

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