

F.A.C.E. INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE #95-NJ-018-01
Maintenance Mechanic Killed After Being Caught
in a Conveyor Belt



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FROM: Fatality Assessment and Control Evaluation (FACE) Project
New Jersey Department of Health (NJDOH)

SUBJECT: Face Investigation #95-NJ-018-01
Maintenance Mechanic Killed After Being Caught in a Conveyor Belt

DATE: June 22, 1995

SUMMARY

On February 16, 1995, an 18 year-old male maintenance mechanic was killed when he became caught in a conveyor belt at a recycling plant. The incident occurred when the victim was on a steel beam under a conveyor belt that moved materials to a separating machine. As he was cleaning material under the conveyor, the victim's hood apparently became caught, dragging him into a roller and suffocating him. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, these safety guidelines should be followed:

- o Employers should develop, implement, and enforce a comprehensive safety program in the safe operation and maintenance of machinery.
- o Conveyor belts and other machines should be shut down, de-energized, and locked-out before performing maintenance.
- o Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

INTRODUCTION

On February 16, 1995, the county medical examiner informed NJDOH FACE personnel of a machine-related fatality that occurred earlier that day. A FACE investigator conducted a site visit the next day to interview the company representatives and examine the incident site. Additional information was obtained from the OSHA file, police report, and medical examiner's report.

The employer was a building materials recycling company that had been in business since 1988. The company operated two recycling plants and employed 32 workers at the incident site. The company did not have a written safety program for this plant. A written safety program had been recently completed by a consultant for the second plant, after which the consultant was to evaluate the incident site for a safety program.

The victim was a 18 year-old male maintenance mechanic who had worked for the company for nine months. He had started as a sorter, separating out materials as they passed by on a conveyor belt. He was promoted to maintenance mechanic, a job where he performed light maintenance on the machines. His duties included greasing and adjusting the conveyors, fueling the industrial trucks, and other chores. The employer described him as a good worker who wanted to return to school to improve himself.

INVESTIGATION

The site of the incident was the main building of a building materials recycling plant. Refuse from construction sites was trucked to the plant where the customer paid the company a tipping fee to dump the material. The refuse was made up of paper, concrete, glass, metal, and other building materials. After dumping, the refuse was loaded onto a inclined conveyor which carried it about 25 feet up before dropping it onto a second conveyor. The second conveyor moved the material into a drum separator, a huge rotating drum with various sized holes in it. As the refuse rolled in the drum, pieces of material fell through the holes, separating the refuse by size. The refuse was then conveyed past sorting stations, where workers (sorters) removed the recycleable materials by hand and dropped them into hoppers. The recycled materials were then collected with front end loaders for resale.

There were no witnesses to the incident. The victim arrived at his usual starting time of 6 a.m. and proceeded with his usual job duties, which were to walk around the plant and maintain the trucks and conveyors as needed. The employer stated that he was usually assisted by a helper when he greased the machines but the helper had called in sick that day. The morning passed uneventfully, and the victim was seen in the locker room at about 1 p.m. About a half hour later, a plant employee noticed that the conveyor belt leading to the drum separator was shaking. Thinking the machine was jammed, the employee walked under the belt and saw the victim being pulled under a large roller under the conveyor. The employee immediately pulled the emergency stop cord and called for help. Other employees responded and were loosening the roller when the police and EMS arrived. The victim was taken off the machine and resuscitation attempts were started. He was transported to the local hospital where he was pronounced dead at 2:09 p.m.

It is not known why the victim was in the area. To reach the conveyor, the victim needed to climb up a 20 foot permanent steel ladder to a narrow catwalk under the belt. This catwalk only stretched around the perimeter of the belt. To go directly under it, a worker had to climb onto a 10 inch wide steel I-beam that supported the conveyor. There was only about 2' 8" of space between the I-beam and the moving conveyor. The victim climbed out on this beam apparently to remove accumulated debris on the belt rollers. He became entangled on the conveyor, which caught the hood of his sweat shirt and pulled his arms into a large tensioner roller. The victim suffocated due to the force and angle of his head as it was pulled against the roller.

CAUSE OF DEATH

The county medical examiner attributed the cause of death to asphyxiation by strangulation by clothing caught in a conveyor belt.

RECOMMENDATIONS AND DISCUSSION

Recommendation #1: Employers should develop, implement, and enforce a comprehensive safety program in the safe operation and maintenance of machinery.

Discussion: By working on the I-beam near the conveyor belt, the victim demonstrated his lack of understanding and training necessary to safely maintain this machine. It is recommended that a written safety program be developed that includes training supervisors and workers in the safe operation of the machines before they are allowed to use or maintain the equipment. Training should include standard operating procedures and safety practices unique to each piece of equipment. Periodic retraining should also be required to ensure that the worker knows how to operate the machine and is knowledgeable in company safety procedures.

Recommendation #2: Conveyor belts and other machines should be shut down, de-energized, and locked-out before performing maintenance.

Discussion: The company did not have an effective lock-out, tag-out program at the plant at time of the incident. Such a program would require employees to shut down and lock out the power supplies to any machines before they are maintained. An effective program would include thorough employee training in lock-out tag-out procedures and strict enforcement of the program. A lock-out, tag-out program may be required under the Federal OSHA standard 29 CFR 1910.147.

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 that is 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 employee job description. If employers are unable to do a proper job hazard analysis, then they should hire a qualified safety consultant to complete it.

REFERENCES

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

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