NJ FACE INVESTIGATION REPORT

Fatality Assessment & Control Evaluation Project

FACE 99-NJ-024-01 **February 24, 2000**

Recycling Plant Laborer Engulfed by a Load of Plastics on a Conveyor

SUMMARY

On March 10, 1999, a 63 year-old recycling plant worker stood near the edge of a steel belt conveyor that was being loaded with loose bales of plastic materials being sent to a baling machine. He may have been cutting the strips holding the bales together when he slipped and fell onto the moving conveyor belt. He was swept along on the conveyor belt and buried under the piles of plastic bags. The emergency shut off switch for the conveyor was not functioning. The worker was asphyxiated under the large piles of materials.

FACE investigators concluded that in order to prevent similar incidents, the following safety guidelines should be followed:

- Emergency shut off devices should be functioning and easily accessible to workers on the conveyor belt and to bystanders.
- The production process should be modified to decrease the amount of loose material on and around the conveyors.
- A job hazard analysis should be conducted; a health and safety plan should be designed and implemented based on the findings of the hazard analysis.

INTRODUCTION

This work-related fatal injury occurred on March 10, 1999 and was reported to the NJDHSS FACE staff on March 15, 1999 by the OSHA compliance officer who was leading the investigation. A concurrent site visit was conducted with OSHA on March 26 and March 30. The company manager was interviewed, the incident site viewed, and

photographs were taken. Further information was received from the county medical examiner, police report, and federal OSHA.

The victim was employed by a plant that recycled paper, newspaper, cardboard, glass, plastic and textiles and had been in business for 12 years. The company was located in an urban area and consisted of a building with offices, a large open warehouse and exterior property. The company employed more than 100 men and women who worked 5 days per week in 8 or 10 hour shifts and processed 15 tons of materials each hour. Most of the production workers were union members; maintenance workers were not members. Many of the workers were bilingual or spoke Spanish. Supervisors were bilingual. The company had no prior serious injuries. Training was done on-the-job.

BACKGROUND

Trucks brought in loads of materials to be recycled, largely from curbside pickups, and dumped the loads on the ground outside of the building. In the building, materials were stored in large piles, separated by content. Some materials had been separated at curbside collection but others were mixed (commingled). The commingled materials were sent on an elevated conveyor to sorting stations where workers standing along the belt manually selected appropriate materials and put them into bins for processing. One side of the plant recycled and baled papers, newspapers, and cardboard. The other side processed glass, cans, plastics, and sometimes paper.

A skid steer loader transported the materials from the outdoor piles and dumped them near the bottom of the conveyor belts. The materials moved on the conveyors to the hoppers of the baling machines. Materials were compressed into bales of preset sizes, automatically tied, and ejected from the baling machine. They were removed from the area by fork lift trucks. Bales of similar sizes differed in weight because of their composition. The baling machines were operated only in the manual mode, bypassing the automatic feature of the machine. The company management thought that the machine was safer when in control of an operator.

The hinged steel belt conveyor belt that fed the baler was 70 inches wide, 63 feet long, and surrounded by a smooth, stainless steel perimeter with a 3^{o} grade at the beginning of the conveyor. Its speed was measured at approximately 2 feet 3 inches per 5 seconds (27 feet per minute). The flat section of the conveyor was 15 feet long. At 15 feet, the conveyor made its first angle upward and was protected by a steel skirt on each side.

Here an 18 inch circumference cross piece was welded across the skirt. A second cross piece was welded in place about 10 feet from the first. The first had been added to the conveyor system by the company to prevent materials from falling back as the conveyor inclined. The second cross piece was installed for workers to hold on to as they worked on the slowly moving conveyor.


Loading Area of Conveyor

The deceased worked as a sorter/porter and had been employed by the company for five months. He was hired after being laid off from his job with another recycling company. His duties were to open bags and bales of materials, inspect them, sweep the area around the conveyor, and do other jobs as directed. Born in South America, he was Spanish-speaking.

INVESTIGATION

Employees started work at 7 a.m. and worked through the morning. Around 12:30 p.m., workers were reprocessing 500 pound plastic bales into bales with sizes appropriate for overseas shipping. It was about 44° F. in the warehouse. The skid steer loader had dropped bales of plastics near the base of the conveyor. Workers were pushing the mounds of materials onto the conveyor belt. The victim stood near the conveyor, apparently on the smooth, steel perimeter. He may have been removing the strapping that was mixed with the plastics and may have slipped on the plastics. The victim fell onto the moving conveyor belt and was driven along feet first amidst the materials to the section of the belt where it began its elevation.

The victim was lying on the conveyor in a pile of several feet of heavy, compressed plastics and other materials, wedged between the conveyor and materials. His lower right leg and foot were tightly entangled in plastic materials.

Workers called for help. Although there was an emergency stop button on the conveyor, 10 feet from the floor, it was not functioning. The conveyor was stopped by the baler operator after workers ran to the operator's cab to tell him what happened. He was

unable to observe the incident from inside the operator's cab. The workers and the plant manager unsuccessfully tried to remove the victim from the compacted materials that were on top of him. They cut away the first of the cross pieces to release the load of plastics.

RECOMMENDATIONS/DISCUSSIONS

Recommendation # 1: Emergency shut off devices should be functioning and easily accessible to workers on the conveyor belt and to bystanders.

Discussion: The emergency shut off located on the side walls of the conveyor belt was not functioning. Workers had no way of stopping the movement of the belt when the emergency occurred. Only the baler operator, who could not see the workers on the belt, was able to shut down the operation.
The employer has repaired the shut off device. It is suggested that an emergency stop cord also be installed along the length of the top of the conveyor side frame. A worker on the moving conveyor would be able to pull the cord to stop the movement of the belt.

An additional safeguard to be considered is the installation of a video camera to survey the work being done on the conveyor. The video would make the operation visually accessible to the baler operator.

Recommendation #2: The production process should be changed to decrease the amount of loose material on and around the conveyors.

Discussion: The large amount and type of materials on and near the conveyor constituted a slipping or tripping hazard. Although the section of the conveyor near which the victim was working was level, he was surrounded by large amounts of loose slippery materials which probably contributed to his fall. Working on the inclined, moving surface (although moving slowly) with large amounts of potentially slippery materials is an additional hazard that could contribute to other injuries.

Recommendation #3: A job hazard analysis should be conducted; a health and safety plan should be designed and implemented based on the findings of the hazard analysis.

Discussion: A job safety analysis is a procedure used to review methods or steps for a task, identify potential hazards, and outline recommended actions and procedures to be used to eliminate or control hazards. An important part of the job safety analysis is input from workers performing the tasks. Through observation and experience, tasks can be broken down to a sequence of steps or actions, which are used to identify hazards connected to the task or produced by the environment. A comprehensive health and safety program should be designed and put into practice based on the findings of the evaluation. Employers, supervisors, and safety managers can review and modify current safety strategies used to safeguard workers and promote a safe work environment.

Immediately after this injury, company owners contracted with a safety consultant to inspect and evaluate the company and its work practices. The health and safety plan should include worker training conducted in the language which they understand.

ATTACHMENTS

U.S. Government Printing Office, U.S. Department of Labor, Occupational Safety and Health Administration, Job Hazard Analysis, 1998 (Revised) OSHA 3071.

REFERENCES

U.S. Government Printing Office, U.S. Department of Labor, Code of Federal Regulations

U.S. Government Printing Office, U.S. Department of Labor, Occupational Safety and Health Administration, Job Hazard Analysis, 1998 (Revised) OSHA 3071.

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FATALITY ASSESSMENT AND CONTROL EVALUATION (FACE) PROJECT
Investigation 99-NJ-024-01

Staff of the New Jersey Department of Health and Senior Services, Occupational Health Service, perform FACE investigations when there is a report of a specific type of work-related fatal injury. The goal of the FACE project is to prevent occupational injuries by studying and identifying the risk factors that contribute to workplace fatalities, by recommending intervention strategies, and by disseminating information to employers and employees. All New Jersey FACE data are reported to NIOSH for trend analysis. All identifiers are removed from the FACE reports and other data to protect the confidentiality of those who participate in the program.

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