

**MARYLAND DIVISION OF LABOR AND INDUSTRY  
CASE: 98MD01301**

**TO: Project Officer, State FACE Project, Division of Safety Research**

**FROM: Maryland FACE Program, Division of Labor and Industry**

**SUBJECT: Warehouseman dies when crushed by one of several earthmoving equipment tires he was loading onto a truck.**

**SUMMARY**

On Thursday, April 16, 1998, a 46-year-old male warehouseman (the victim) was fatally injured when a tire he had lined up in preparation for loading onto a flatbed trailer fell on him.

The victim was showing the new operations manager (witness) the procedure for loading heavy equipment (off-the-road) tires for shipment. Before the supervisor arrived to view the process, the victim had placed one tire forward on the flatbed truck. Two other tires were temporarily stored on the dock plate, immediately to the rear of a flatbed truck, which was backed up against the dock. The tires are 106-inches in diameter, 27-inches wide, with rounded bottom tread and weigh 2,813 pounds. To steady the two tires standing upright on their tread, the victim placed a forklift with the forks raised against the sidewall of the second tire from the flatbed truck. Using a pendant controlled electric hoist, the victim placed a special tire handling hook in the first tire and began to move it onto the flatbed. When he stepped from the dock plate onto the flatbed, the second tire fell and pinned the victim and the hoist's pendant controller under the tire. The weight of the tire was too heavy for the witness to remove, so he phoned for help and flagged another warehouseman with a forklift to lift the tire.

Three emergency crews arrived within eight minutes. Using a forklift, the other warehouseman raised the tire high enough for rescuers to pull the flatbed truck and the victim to a point where emergency medical crews could attend to the victim. The victim was pronounced dead at the scene of the accident.

The MD/FACE Field Investigator concluded that to prevent similar future occurrences, employers should:

- *Assure storage of materials is stable and does not create a hazard by sliding, rolling or falling over.*
- *Proper material handling procedures should be established for handling odd sized materials.*

**INTRODUCTION**

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On Thursday, April 16, 1998, a 46-year-old male warehouseman (the victim) was fatally injured while loading heavy earthmoving equipment tires onto a flatbed tractor trailer. A MOSH Preliminary report notified the MD/FACE Field Investigator of the accident. Information regarding the incident was gathered from an on-site visit, discussions with the facility operations manager, the victim's supervisor, corporate legal counsel and co-workers. Additional information was obtained from the rescue team report, the Medical Examiner's Post Mortem Report and the MOSH inspector's report.

The employer is an international manufacturer of tires and the facility is a distribution center for North America. Tires are shipped into the facility from overseas manufacturing plants, warehoused, then distributed to fill required orders. Twenty-four full time employees are employed at this site; seventeen are classified as warehousemen, as was the victim. Their duties include unloading trucks, storage, picking orders and loading trucks. Although the company has been in business for many years, the distribution center was established in 1978 and enlarged to its current size of 475,000-square-feet in 1982.

Safety responsibility is assigned to the operations manager, who follows the corporate directives. Training is provided through OJT, some classroom and job site talks. However, some procedures reviewed did not reflect actual practice. This is the first fatality for the site. The victim had worked as a warehouseman for nine years.

## **INVESTIGATION**

On Thursday, April 16, 1998, the victim was loading tires designed for heavy industrial machinery, such as mining equipment and earthmoving vehicles. Each tire weighed 2,813 pounds, is 106-inches in diameter and has a 27-inches wide rounded tread. He had staged nine tires for the order he was preparing for shipment and he was attempting to show a new manager, recently transferred to the facility, how to move the large tires.

Before the new manager came to the inside loading dock at bay #31, the victim had placed one tire forward on the flatbed truck. Two other tires were standing, balanced on their tread, on a metal dock plate (approximately 6-foot square) directly behind the flatbed. The dock plate was not positioned as a ramp to the flatbed because the victim was using a 2½-ton electric hoist to move the tires onto the flatbed.

When the manager arrived, the victim had attached to the electric hoist, a specially designed hook used to lift large tires by the bead. He placed the hook on the tire closest to the flatbed. As he tried to lift it, he found that the weight of the tires caused the dock plate to incline approximately ½-inch downwards. The tire closest to the flatbed was held by the weight of the second tire against the rear frame of the flatbed. The tires were unstable and could fall backwards, away from the truck. He then positioned his forklift (Hyster model E60XL33, 6,000 lbs. rating) behind the second tire and raised the forks, placing them against the second tire's sidewalls, to keep it from falling backward.

When he lifted the tire closest to the flatbed truck and began to walk it onto the flatbed, the second tire became unstable and fell forward (away from the forklift) toward the victim. The tire pinned the victim and the hoist controller to the floor of the flatbed. The tire almost struck the manager, who immediately went for help.

Emergency crews arrived within eight minutes. With the assistance of a forklift operator, they raised the tire high enough to pull the flatbed truck, with the victim on it, to a point where emergency crews could attend to the victim. The victim was pronounced dead at the scene of the accident.

### **CAUSE OF DEATH**

Compression asphyxia was stated as the cause of death in the autopsy report.

### **RECOMMENDATIONS / DISCUSSION**

*Recommendation #1: Assure storage of materials is stable and does not create a hazard by sliding, rolling or falling over.*

Employers should examine the work environment, the need for specific training, and the proper material-engineering needs. Occupational Safety and Health Standards for General Industry, 29 CFR 1910.176, (b) - Secure Storage states, "Storage of material shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse." Here, tires were not placed on a level surface, since the weight of the two tires caused the dock plate to incline approximately 1/2-inch, making them unstable, while standing on an edge. Accessories for temporary storage, such as racks or chocks, were not used. The victim apparently recognized that the tires were unstable, since he tried to brace the tires by using the forklift. However, this method was inadequate for the size and position of the tires.

*Recommendation #2: Proper material handling procedures should be established for odd sized materials.*

Employers should develop and train workers in the proper methods to move and store material. Existing written procedures were not being followed and did not anticipate the hazard of temporarily storing large tires in an unright position. Employers, with the involvement of employees, should restudy the handling of large tires, break each job into its separate tasks, and examine each task for ways to prevent injuries. Changes in tire handling, as a result of the job/task analysis should be reflected in the written procedure. They should teach proper material handling procedures to employees. Management must enforce safe handling and storage of materials.

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Additional information regarding this report or the Maryland FACE Program is available from:

### **FATALITY ASSESSMENT AND CONTROL EVALUATION**

The Maryland Division of Labor and Industry administers the Fatality Assessment and Control Evaluation (FACE) program under a cooperative agreement with the National Institute for Occupation Safety and Health, Division of Safety Research (NIOSH/DSR). The Maryland FACE program performs investigations of selected occupational fatalities, prepares summary reports and engages in prevention activities. The goal of our program is to prevent fatal work injuries in the future by studying the working environment, the worker, the task being performed, the tools employed, the energy exchange resulting in fatal injury and the role of management in controlling how these factors interact.

NIOSH/DSR developed the FACE research protocol in the early 1980's and continues to perform FACE investigations. To increase the research and prevention activities of NIOSH/DSR, states across the nation have been invited to participate in the State FACE Project. Maryland and seventeen other states currently participate in the State Based FACE Project. The other states are : Alaska, California, Colorado, Iowa, Indiana, Kentucky, Massachusetts, Minnesota, Missouri, New Jersey, Ohio, Oklahoma, Texas, Washington, Wisconsin and Wyoming.

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