Masonry Laborer Killed When Run Over by A Rough Terrain Forklift Truck

DATE: February 26, 1997

SUMMARY

On August 19, 1996, a 57-year-old masonry laborer was killed when a rough terrain forklift truck ran over him at a construction site. The incident occurred at a construction site where the victim's company was building the masonry walls of a building. The victim was on break and was walking across the site to a coffee truck when a rough terrain forklift truck backed over him. To prevent similar incidents in the future, NJ FACE recommends the following safety guidelines:

- **Employers should frequently inspect forklifts to ensure that all operational controls and safety devices are in good working order.**

INTRODUCTION

On August 20, 1996, NJ FACE investigators received a newspaper article of a work-related fatality involving a forklift truck that occurred the previous day. FACE investigators contacted the area OSHA office and arranged to do a concurrent investigation with the OSHA compliance officer the next day. During the site visit, FACE investigators interviewed the employer, the forklift operator, and the foreman in the presence of the employer's safety consultant. Investigators also examined and photographed the forklift and incident scene. Additional information on the incident was gathered from the OSHA compliance officer, the police report, and the medical examiner's report.

The employer was a masonry construction contractor who has been in business since 1955. The company employed 45 workers at the time of the incident, most of whom were hired from the local union hall. The employer assumed that the union employees were previously trained and supplemented their training with safety videos and weekly toolbox meetings. The company did not provide training for forklift operators. Forklift operators hired from the union hall were briefed on the machines by a company mechanic who determined that the employee could operate the machine. The victim was a masonry laborer who had been hired from the union hall three weeks prior to the incident. The company had hired the victim on one other occasion five years before the incident.

INVESTIGATION

The masonry contractor was working at the construction site of a large prison being built in a rural area. Work on the prison started on March 13, 1995 and was expected to take three years to complete. A general contractor controlled the site, bidding out the construction jobs and coordinating the 25 various

subcontractors at the site. The general contractor had a job site safety program that included general safety rules, hazard communication, and auditing the subcontractor's toolbox talks. The victim's employer, a masonry contractor, had been at the site for eight weeks and planned to be there for six more months. The victim had been working at the site as a laborer, tending to and stocking the masons who were erecting the building walls.

The incident occurred at the intersection of two dirt construction lanes near two buildings. One building was a large, three-story building being constructed by the masonry contractor. This building was made of concrete masonry blocks and was surrounded by a four-level scaffold. The steel framework for a second building was being erected nearby, creating a wide dirt construction lane between the two buildings. This lane intersected a second dirt lane running along the side of the buildings, which was partly bordered on the opposite side by pallets of concrete blocks. A rough terrain forklift truck was used to transport building materials on the lanes to the mason's scaffolds. The diesel powered machine weighed more than 22,000 pounds and was equipped with large rubber pneumatic tires for moving on unpaved roads. The operator sat in a semi-enclosed cab on the left side of the machine (see photograph). Directly to the operator's right were the center-mounted forklift mast and hydraulic mechanisms. A small parabolic mirror mounted on the right side of the machine gave the operator visibility when the forklift mast blocked the view to the right. The forklift was equipped with a backup alarm and had a rated capacity of 8,000 pounds, a lift of 34.5 feet, and a reach of seven feet.

On the day of the incident, the masonry workers arrived at 6:30 a.m. and went to work on constructing the walls to the three-story building. Near the intersection, a flatbed block truck was unloading concrete blocks onto wooden pallets. A forklift operator was using the rough terrain forklift to bring empty wooden pallets over to the block truck for loading. At about 9:00 a.m., a coffee truck arrived on site and parked near the intersection about 30 feet from the block truck. The victim, who was on break, spent a few moments talking to his foreman before going to the coffee truck. While the two men were talking near the building, the forklift operator had picked up a load of empty pallets at the end of the dirt lane between the buildings. The forklift's backup alarm was reported to be working as the lift backed down the lane toward the intersection where the block truck was parked. As the forklift approached the intersection, the victim walked across the intersection toward the coffee truck. The foreman told the police that he saw the machine strike and knock over the victim, with the right rear tire running over him. The foreman then yelled to the lift operator to move forward. The forklift operator stated that he did not know he had struck the victim until he heard the foreman yell. The workers went to help the victim and called 911. A nurse who was assigned to the construction site also came to the victim's aid. Cardio-pulmonary resusitation (CPR) was started when the victim went into cardiac arrest and maintained as the victim was transported to the local hospital. He was pronounced dead at 9:50 a.m., shortly after his arrival in the emergency room.

CAUSE OF DEATH

The county medical examiner determined the cause of death to be from internal hemorrhage and shock due to crush injury of lower abdomen, pelvis, and lower extremities due to blunt trauma.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Employers should frequently inspect forklifts to ensure that all operational controls and safety devices are in good working order.

Discussion: The OSHA investigation of this incident found that the sound levels emitted by the forklift backup alarm were between 86.3 to 88.3 decibels (dBA), as measured with the engine running at high idle. Although FACE did not determine if the alarm loudness was a factor in this incident, it is recognized that a loud, clear backup alarm provides the best warning to pedestrians and other vehicles. This is evident in the Society for Automotive Engineers standard J994, *Criteria for Backup Alarms*, which recommends a sound level of 107 (+/-5) dBA for backup alarms on outdoor construction machinery. [1] Because sound is measured on a logarithmic scale, even small changes in sound levels can be significant. An increase of 10 dB can be perceived as almost doubling the loudness, while an increase of 20 dB is a four-fold change in loudness. [2]

To ensure that all safety and operational devices are operating properly, FACE recommends that all forklifts and industrial trucks are periodically inspected by a qualified maintenance person. Most equipment manufacturers can provide an inspection checklist and maintenance schedule to help in this. Following this incident, the employer reportedly replaced the backup alarm and installed a rear strobe light on the forklift.

REFERENCES

1. SAE Recommended Practice: *Criteria for Backup Alarm Devices*. SAE J994, Society of Automotive Engineers, Warrendale PA.
2. Thumann, Albert and Miller, Richard; *Fundamentals of Noise Control Engineering*. The Fairmont Press, Atlanta GE, 1986.

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