TO: Director, National Institute for Occupational Safety and Health

FROM: California Fatality Assessment and Control Evaluation (FACE) Program

SUBJECT: Laborer/forklift operator dies when crushed by a forklift driven by a co-worker in California

SUMMARY
California FACE Report #99CA005

A 47-year old male laborer/forklift operator (decedent) died when he was crushed between a flatbed trailer and the rear of a forklift. He and his co-worker were moving recycling materials inside a congested storage yard. The decedent parked the forklift and proceeded to a flatbed trailer that was stored in the yard. Approximately 20 seconds later, his co-worker got into the forklift and proceeded to operate it by driving backwards. He did not look to the rear and crushed the decedent between the flatbed trailer and the rear of the forklift. The decedent fell underneath the trailer as the co-worker pulled forward. The forklift did not have a working backup alarm. The driver of the forklift had not been trained by the employer in its operation, but was hired as an experienced recycling worker which includes forklift operation. No documentation of safety training or safety meetings was produced. The employer did not have a complete, written Injury and Illness Program (IIPP). The company general manager indicated he was responsible for safety, but was unsure how to fully carry out those obligations. The CA/FACE investigator determined that, in order to prevent future occurrences, employers should develop a complete Injury and Illness Program**.** As part of their Injury and Illness Prevention Program (IIPP) employers should:

- ensure drivers look in the direction of travel when operating forklifts.
- develop a system of notification when one forklift operatortakes over for another.
- ensure employees are formally trained or tested in the use of forklifts prior to being allowed to operate them.
- purchase forklifts with backup alarms or have backup alarms installed on forklifts not equipped with a backup alarm.
- ensure forklifts and other equipment have ample room to operate safely in the yard.

INTRODUCTION

On April 9, 1999 at 4:10 p.m. a 47-year-old male laborer/forklift operator was fatally crushed between a flatbed trailer and a forklift. The decedent had just gotten off the forklift and walked over to the trailer. A co-worker got onto the same forklift and backed into the decedent. The CA/FACE investigator learned of this incident on April 23, 1999 from the local legal office of the California Department of Industrial Relations, Division of Occupational Safety & Health (Cal/OSHA). On April 29, 1999 the CA/FACE investigator traveled to the incident site where he interviewed the company vice president. The CA/FACE investigator took photographs of the site and the forklift involved in the incident. The CA/FACE investigator viewed a videotape of the incident that was filmed by a closed-circuit television camera.

The employer, a recycling company, had been in business for 5 years and 6 months at the time of the incident. The number of employees in the company was 13 with 7 employees working on site at the time of the incident. The decedent had worked for the company for 2 years and 4 months at the time of the incident. The decedent, according to the vice president, had worked in the recycling industry for an unknown number of years prior to his employment. The forklift driver, a co-worker, was transferred to work at the facility two weeks prior to the incident. He had previously worked for the same employer at another location. His total length of employment is unknown.

The company had some written safety documents and training documents for a variety of common safety practices, but did not have a complete Injury and Illness Prevention Program. The vice president, who stated that he was in charge of safety, was unsure if the safety procedures contained in the documents had been implemented. The co-worker had not been trained or tested in forklift operation or operating rules by the employer. According to the vice president, both the decedent and the co-worker were experienced in the recycling industry and forklift operation due to their previous history of employment. Regularly scheduled safety meetings were not held.

INVESTIGATION

The site of the incident is a recycling facility. Open spaces were limited by the bales of recycled materials, sorting bins and pallets. A flatbed trailer is stored on the east side of the property. The working surface is asphalt and, in some areas, dirt. A warehouse building/office is situated on the front of the property. The products the company recycles are mainly metals, but they also recycle some paper and plastics.

Recycled materials are cut and baled. A shear, if necessary is used to cut materials, and then they are baled and tied. Stacks of baled materials are then placed in certain areas so they can be loaded onto trailers and transported to another destination.

On the day of the incident, the decedent was operating a 10,000-pound capacity forklift for normal operations (**exhibit 1**). The vice president stated that he thought the decedent was cleaning up the yard. The videotape revealed that the decedent parked the forklift between stacks of baled material and pallets, and a flatbed trailer (**exhibit 2**). There was a roadway between the stacked bales and pallets, and the flatbed trailer (**exhibit 3**).

The decedent got off the forklift and walked approximately ten feet to the flatbed trailer for an unknown reason. Approximately twenty seconds later, the co-worker was seen on the videotape getting onto the forklift. It was unknown if the forklift was running at the time, but it

most likely was because it was driven away immediately.

The co-worker pulled forward a few feet to clear the stacked bales on his right and then proceeded to back up. He backed without looking and crushed the decedent between the bed of the trailer and the rear of the forklift. The decedent fell under the trailer as the co-worker pulled the forklift forward.

The co-worker ran to the decedent and then ran toward the office to report the incident. Office personnel called 911.

Paramedics were dispatched at 4:40 p.m. and arrived at 4:43 p.m. They found the decedent alert and he was transported to a local hospital where he went into cardiopulmonary arrest and was pronounced dead at 7:16 p.m.

CAUSE OF DEATH

The death certificate stated the cause of death to be blunt force chest injuries.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should develop and implement a complete Injury and Illness Prevention Program.

Discussion: The employer in this incident did not have a formal, organized Injury and Illness Prevention Program (IIPP). Some parts of the employer's program were available as separate documents. To ensure that all employees receive the same safety information and training, it is important to have the IIPP organized into one document. Once a complete, written IIPP has been established, it must be implemented properly to be effective. All employees must be trained to know and understand its applicable parts. Important in this case is ensuring that employees comply with the safe work practices, particularly equipment operation. Recognition of safe workers and progressive discipline for safety violations are two methods to ensure compliance. Training for specific tasks, especially if an employee is assigned new responsibilities, is of paramount importance. A complete, written training program detailing the tasks and the hazards of that job is essential to ensuring all employees get the same safety training.

Recommendation #2: Employers should ensure drivers look in the direction of travel when operating forklifts.

Discussion: In this incident the co-worker who was operating the forklift did not look to the rear as he was backing. In order to see what is in the line of travel of a forklift, operators need to look in the direction of its travel, and then avoid driving toward anyone who could be caught between the forklift and a fixed object. If the operator had been looking to the rear of his forklift, he would have noticed the decedent and the flatbed trailer and this incident may not have happened.

Recommendation #3: Employers should develop a system of notification when one forklift operator takes over for another.

Discussion: In this incident the co-worker got onto the forklift approximately 20 seconds after the decedent parked it. The co-worker did not notify the decedent that he was assuming the role of forklift operator. A system of communication needs to be established by employers so

that employees in nearby areas are aware that a forklift, or other machinery, is going to be operated. This is especially important if there is a driver change so that both the former and the new driver understand the situation. If the co-worker had informed the decedent that he was going to operate the forklift, this incident may not have happened.

Recommendation #4: Employers should ensure employees are formally trained and tested in the use of forklifts prior to being allowed to operate them.

Discussion: Prior to allowing an employee to operate a forklift, the employee must be trained and tested so the employer can discern whether or not the employee knows how to operate a particular forklift. Testing also allows the employer to be assured that the employee knows and understands forklift operation rules. During this time the employer can emphasize that forklift operation rules must be followed at all times. If the co-worker had gone through a formal training and testing session, it is unlikely that this incident would have happened.

Recommendation#5: Employers should purchase forklifts with backup alarms or have backup alarms installed on forklifts not equipped with a backup alarm. Manufacturers should only produce forklifts equipped with backup alarms.

Discussion: The forklift involved in this incident was, according to the manufacturer, shipped on December 5, 1995 without a backup alarm. The dealer who sold the forklift to the employer involved in this incident indicated that backup alarms are not required, but that they strongly recommend them. The forklift involved in this incident did not have a backup alarm. The employer did not add a backup alarm after purchasing the forklift. It was operated in close quarters when other workers and pedestrians were walking in the yard. When backing, this forklift presented a danger to those walking or working in the yard because they would not be made aware of the approaching forklift. If the forklift involved in this incident had been equipped with a backup alarm by the manufacturer or the employer, the decedent may have noticed its approach and had time to move out of the way before being struck.

Recommendation #6: Employers should ensure forklifts and other equipment have ample room to operate safely in the yard.

Discussion: The yard in which this incident occurred had limited open space because of the numerous bales of recycled materials, pallets, sorting bins and equipment. This situation increased the likelihood of a collision either between pieces of equipment, a piece of equipment and a pedestrian, or a piece of equipment and a stationary object. There was an approximately twelve foot-wide roadway between the flatbed trailer on the east and stacks of materials on the west where the incident happened. This is the area in which the forklift backed up to turn around. This is a small space for such a maneuver and requires a skilled forklift operator. The flatbed trailer has since been moved to make more room for day to day operations. If a larger area had been available for the forklift to turn around, this incident may not have happened.

References

Barclays Official California Code of Regulations, Vol. 9, Title 8, Industrial Relations, South San Francisco, 1998

Essentials of Material Handling, U.S. Department of Labor, Occupational Safety and Health Administration, 1978

Forklift Safety Training, *Professional Safety,* American Society of Safety Engineers, January 1993

The New Professionals, Rules for Safe Industrial Truck Operation, Clark Equipment Company, Battle Creek, MI, 1983

For general information regarding forklift operation refer to: http.www.dir.ca.gov./title8/3650.html; /3664.html. These safety orders may not specifically apply to this incident, but may be helpful in preventing future incidents.

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FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The California Department of Health Services, in cooperation with the California Public Health Institute, and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations on work-related fatalities. The goal of this program, known as the California Fatality Assessment and Control Evaluation (CA/FACE), is to prevent fatal work injuries in the future. CA/FACE aims to achieve this goal by studying the work environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

NIOSH funded state-based FACE programs include: Alaska, California, Iowa, Kentucky, Maryland, Massachusetts, Maryland, Minnesota, Missouri, Nebraska, New Jersey, Ohio, Oklahoma, Texas, Washington, West Virginia, and Wisconsin.

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Additional information regarding the CA/FACE program is available from:

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