

**TO:** Director, National Institute for Occupational Safety and Health

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

**SUBJECT:** Transportation Coordinator Dies After Being Crushed by a Large Wind Machine in California

### ***SUMMARY***

#### **California FACE Report #95CA004**

A 32-year-old male transportation coordinator (the victim) died after a large wind machine (fan) fell from a hydraulic lift gate of a stakebed truck and crushed him. The victim and a co-worker were transporting the fan from one film location to another for a movie production company. The co-worker was on the bed of the truck pushing a cart loaded with the 1,500 pound fan to the edge of the truck's lift gate. The victim was standing on the pavement at the back of the truck reaching up to steady the fan. When the fan reached the edge of the lift gate, the front wheels of the fan cart went over the edge of the lift gate, the victim slipped and fell, and the fan then fell on him. His co-worker called for help and he and several other workers lifted the fan from the victim. Paramedics were summoned to the scene and the victim was transported to a local hospital where he was later pronounced dead. The CA/FACE investigator concluded that in order to prevent future occurrences employers and employees should:

- develop and enforce a comprehensive written Illness and Injury Prevention Program (IIPP) which describes in detail the methods, procedures, and rules for materials handling, specifically loading and unloading materials and equipment at site locations.
- insure employees use appropriate equipment when moving materials and/or equipment.
- make certain that the work surface is safe when heavy loads are to be loaded, unloaded, or moved.
- verify that personal tools and equipment used on the job meet safety regulations and are suitable for the task.

### **INTRODUCTION**

On March 13, 1995, a 32-year-old male transportation coordinator died after a large fan fell from his stakebed truck and crushed him. The CA/FACE investigator was informed of this incident by a California Division of Occupational Safety and Health (Cal/OSHA) district office. A site investigation was conducted by the CA/FACE investigator on March 23, 1995.

Photographs of the fan were taken and copies of the Cal/OSHA Report, the Coroner's Autopsy Report, the Fire Department Report, and a Cal/OSHA Bureau of Investigations (BOI) Report were obtained by the CA/FACE investigator.

The employer in this incident was a movie production company which employed 70 employees. A pilot episode for a proposed one hour television program was being filmed at a city park. The victim had been hired on a weekly basis as a free lance employee for three weeks. A production company spokesperson stated that the victim had been regularly employed as a transportation coordinator by other production companies, and he was considered by the production company to be an experienced and competent coordinator.

Safety duties were handled jointly on the production site by the unit production manager and a first assistant director, with oversight being conducted by the in-house production coordinator. One of the company's full-time employees was assigned safety responsibilities on a half-time basis. He was not on-site at the time of the incident. There were several production crew members working near the site when the incident occurred, but only two employees were involved in moving the fan. The employer had an Illness and Injury Prevention Program (IIPP), but it did not contain written documentation relating to methods, procedures, or rules for loading and unloading materials such as fans used on set locations. According to his co-worker, the victim had worked in the film industry for approximately 10 years. Both the victim and his co-worker had performed this particular task on other occasions.

## **INVESTIGATION**

At approximately 5:30 p.m. on the day of the incident, the victim and a co-worker were attempting to unload a 1,500 pound fan (see Exhibit 1) from the back of the victim's stakebed truck. The fan was to be used as a wind machine during filming in a city park. A production spokesperson stated that it was common within the industry for transportation coordinators to rent their own vehicles to production companies as needed. In this situation, vehicle maintenance was the responsibility of the victim.

The fan was attached to a metal frame cart with pneumatic rubber tires. The fan's cart had a manually-powered hydraulic brake system which engaged disc brakes on the front wheels, those located closest to the fan's blades. The cart's wheelbase was 58", and the tread was 4' measured from the outside of the tires. The cage enclosing the fan blade was 6' in diameter. The co-worker was on the stakebed of the truck and the victim was on the ground at the rear of the truck adjacent to the lift gate. The lift gate had a rated capacity of 2,000 lbs., sufficient to support the fan's weight.

The co-worker was rolling the fan slowly to the edge of the lift gate by releasing the brakes and then applying them again quickly. He performed these motions several times until the fan was within reach of the victim. The victim then grabbed the fan screen to help the co-worker control its movement. The co-worker stated that he and the victim intended to place the two front tires of the fan cart on the outer edge of the lift gate, and then fully apply the brakes. The two rear (freewheeling) tires were to remain on the stakebed. The lift gate would then be lowered slowly to the point where the fan would slide or roll onto the lift gate, and eventually onto to the ground.

Soon after the victim grabbed the fan screen, the cart's front wheels rolled onto the beveled edge of the lift gate. The co-worker then applied the brakes; however, the weight of the fan on the downward slant of the bevel made it impossible for the co-worker to keep the fan from rolling off the edge of the gate. The coworker yelled to the victim that the fan was falling. The victim tried backing away but was unable to do so.

A witness stated that the victim fell face down, in a prone position, after his feet seemed to slip out from underneath him. An investigating police officer indicated that the concrete pad where the workers were unloading the fan was covered by a light coating of sand. The sand on the concrete would have made this surface slippery. Since it would be unusual for a person to fall in a prone position when being pushed back by a heavy piece of equipment, the victim may have slipped on the concrete, lost his footing, and fell forward. The rim of the fan cage then landed on the victim's head. The co-worker went to the rescue the victim, but he was unable to lift the fan by himself. He called for several other production company workers to help him. After lifting the fan from the victim, one of the production workers called 911 and waited for paramedic personnel to arrive at the park entrance.

Production workers did not move the victim after the incident because they were concerned that movement might worsen his injuries. One worker attempted to find the victim's carotid pulse but could not detect it. No one initiated cardiopulmonary resuscitation (CPR) or any other type of first aid. Paramedics were dispatched at 5:36 p.m. and arrived four minutes later. They found the victim without a pulse or respirations. The paramedics initiated CPR and transported the victim to the hospital where he was pronounced dead by a physician at 6:11 p.m.

The victim and his co-worker had transported this fan in a similar manner on other occasions. At other times, however, they rented a truck with a larger lift gate. An examination of the fan after the incident by a police technician indicated that the brake system of the fan cart was in good working order. The truck's lift gate was not found to be defective nor did it show any visible damage. There was also no indication that the hydraulic system had been leaking fluid or lubricant prior to or at the time of the incident.

## **CAUSE OF DEATH**

The Coroner's Autopsy Report stated the cause of death to be blunt force trauma to the head.

## **RECOMMENDATIONS/DISCUSSION**

**Recommendation #1: Employers should develop and enforce a comprehensive written Illness and Injury Prevention Program (IIPP) which describes in detail the methods, procedures, and rules for materials handling, specifically loading and unloading materials and equipment at site locations.**

Discussion: The employer in this incident had a written IIPP, but they did not have a written, implemented safety plan for transporting, loading, and unloading large, heavy pieces of equipment. Under Title 8 of the California Code of Regulations (CCRs), Section 3203 (a)(2), an employer's IIPP should: "Include a system for ensuring that employees comply with safe and healthy work practices. Substantial compliance with this provision includes recognition of

employees who follow safe and healthful work practices, training and retraining programs, disciplinary actions, or any other such means that ensures employee compliance with safe and healthful work practices."

**Recommendation #2: Employers should insure that employees use appropriate equipment when moving materials and/or equipment.**

Discussion: The liftgate on this truck had a rated capacity of 2,000 lbs, sufficient to support the fan's weight. However, the 48" deep liftgate was too small to allow safe movement of the fan on and off the truck, since the distance between the axles of the fan cart was 58 inches. This required the victim and his co-worker use "roll and slide" movements while unloading the fan. This method did not allow them to have complete control of the fan's movement.

Several safer alternatives could have been used to move the fan on and off the truck. Detachable ramps used in conjunction with a bed-mounted winch could have been used to roll the fan on or off the truck. Alternatively, a bed-mounted crane could have been used to lift the fan directly on or off the truck. Finally, a truck equipped with a sufficiently large lift gate could have been used. In fact, the company that owned the fan used a truck with a larger lift gate when they transported the fan themselves. Any one of these alternative methods would have allowed for safer and controlled loading and unloading of the fan.

**Recommendation #3: Make certain that the work surface is safe when heavy loads are to be loaded, unloaded, or moved.**

Discussion: Statements from a witness and an investigating police officer indicated that the victim slipped and fell forward on the sandy concrete surface from which he was working. Initially, the victim's safety was compromised by the inadequate lift gate, and then was further compromised by the slippery surface. A job hazard analysis would have identified the hazards associated with this working surface, and required it to be remedied. If the surface had been made safe before the job began, the victim may not have slipped and this fatality may have been avoided.

**Recommendation #4: Verify that personal tools and equipment used on the job meet safety regulations and are suitable for the task.**

Discussion: When employers allow personal tools or equipment to be used on a job site, they need to verify and document that those personal items meet applicable safety standards and are suitable for the specific task being performed. Such verification should be the responsibility of the person or persons responsible for safety as documented in the IIPP or the person assigned safety duties at the site.

Had the persons responsible for safety inspected the stakebed truck's lift gate and the fan cart, and had they questioned the method of unloading to be used, they would have discovered it to be unsafe and required a safer method be used.

**References**

Barclays Official Code of Regulations, Vol. 9, Title 8, Industrial Relations. South San Francisco, CA., 1990.

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**FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM**

The California Department of Health Services, in cooperation with the Public Health Institute and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations of 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,

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Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York,  
Oklahoma, Oregon, Washington, West Virginia, and Wisconsin.

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

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