A Traffic Controller is Killed When Backed Over by a Dump Truck

SUMMARY

A 53-year-old female traffic controller died when a 10-yard dump truck backed over her. The truck was doing the initial compaction of a 25-foot asphalt patch that the crew had just applied to the highway. The victim was raking the asphalt directly behind the truck as the truck was backing. The victim's assigned duties did not include raking the asphalt. Her assignment was traffic control and flagger. No one saw her go behind the truck.

The CA/FACE investigator determined that, in order to prevent future occurrences, employers, as part of their Injury and Illness Prevention Program (IIPP) should:

- **Use a second person as a spotter when backing heavy equipment with blind spots.**
- **Ensure that employees, when not operating equipment, stay out of the work area and in clear view of those who are operating equipment.**
- **Consider educating employees on the concept of teamwork in safety as part of the documented safety-meeting program.**
- **Consider using additional safety devices for heavy equipment to warn workers of a backing vehicle and to warn drivers when someone is in their blind spot.**

INTRODUCTION

On March 19, 2001, at approximately 10:00 a.m., a 53-year-old female equipment operator working as a traffic controller, died when a 10-wheel dump truck backed over her. The CA/FACE investigator learned of this incident on March 22, 2001, through the local legal office of the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA). On April 5, 2001, the CA/FACE investigator traveled to the decedent's place of employment, interviewed the employer's District Safety Officer and a Safety Specialist from the company's Office of Safety and Health, and took pictures of the truck.

The employer of the victim was the State's Department of Transportation. The employer had been in business for over 100 years and had approximately 24,000 employees working for them at the time of the incident. Six employees were at the site when the incident occurred. The victim had been employed for 11 years. The incident took place on the first day at the site. The employer had a safety program and a written Injury and Illness Prevention Program (IIPP) with all the required elements at the time of the incident. There were written task specific safe work procedures for all job functions occurring at the site. These functions were reviewed at the daily safety tailgate meetings held on site and documented.

Training was provided to all employees and was documented. The type of training made available varied as to the need, which included on-the-job-training (OJT), classroom, video, and manual training. All training was measured by testing or demonstration and documented.

INVESTIGATION

The site of the incident was a major interstate highway, running east and west with two lanes in each direction. The incident occurred in the #2 eastbound lane. On the day of the incident, the victim was assigned as the traffic controller for the job. Even though her occupation was "equipment operator", the union allowed employees to perform tasks that were outside the scope of their assigned duties, providing they were qualified and trained. The victim, as well as other employees in her class, were trained and qualified as traffic controllers and flag persons and would often perform these tasks when equipment operation wasn't necessary. The victim's assigned duty on the day of the incident was to set up the traffic control work zone and maintain it throughout the day.

The victim started her shift at 6:30 a.m. and setup a 2200-foot work zone in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). She then parked her truck off the shoulder approximately 50 feet away from the work area. At approximately 10:00 a.m., the work crew was approximately 1400 feet within the work zone repairing the weather-damaged highway. A 25-foot asphalt patch, referred to as a "skin patch", was being applied to the highway surface. The crew used the following procedure. After the truck dumped the asphalt on the highway, a grader would spread it over the damaged area. The dump truck would then do the initial compaction by driving back and forth over the graded asphalt. A steel roller would then do the final compaction, giving it the finished look.

The victim was standing by her truck when the "skin patch" was being applied. A witness to the incident stated he saw the victim standing by her truck just prior to the incident. Other witnesses, approximately 125 feet in front of the dump truck, stated they saw her legs and the end of a rake going back and forth behind the dump truck just prior to the incident. They stated they ran toward the truck waving their hands and yelling at the truck driver to stop, but their efforts were not in time. No one saw the victim take a rake and go behind the dump truck. The truck driver stated he was watching his rearward progress in the truck mirrors and never saw the victim. The supervisor on the job was talking to the grader operator when the incident occurred. He called 911 on his cellular phone and paramedics arrived at the scene within minutes. The paramedics checked for spontaneous respirations and a pulse and found none. Death was pronounced at the scene.

CAUSE OF DEATH

The cause of death, according to the death certificate, was multiple blunt force trauma.

RECOMMENDATIONS / DISCUSSION

Recommendation #1: Use a second person as a spotter when backing heavy equipment with blind spots.

Discussion: The driver must assure that the path is free of equipment and people whenever backing pieces of equipment with blind spots. Blind spots are those areas a driver cannot see in the side view mirrors. Even when they physically check the rear of vehicles before backing, conditions can change unexpectedly. Using another employee as a spotter when backing heavy equipment with blind spots assures drivers that when conditions change on the work site, they will be given the time to react appropriately. Had a second person been used as a spotter, this incident might have been prevented.

Recommendation #2: Ensure that employees, when not operating equipment, stay out of the work area and in clear view of those who are operating equipment.

Discussion: The topics discussed at several documented safety meetings were the work area and how to keep it clear

of pedestrian traffic, and employee locations that can be easily seen by operators in work areas when equipment is working. Everyone involved in this incident claimed they were aware of the work area and were instructed to stay clear of all moving and backing equipment. No one knows why the victim did what she did and no one saw her take a rake and go into the work area behind the backing truck. Employers can ensure worker compliance with safe work practices through continued documented programs of training, supervision, safe work recognition, and progressive disciplinary measures.

Recommendation #3: Consider educating employees on the concept of teamwork in safety as part of the documented safety-meeting program.

Discussion: The employer might consider adding to their safety program the concept of safety as a team effort. When everyone at the scene claimed they didn't see the victim go behind the backing truck, this is an indication of lack of teamwork. The social work environment or sense of belonging to a work group is a principle that should be addressed at safety meetings. The concept of teamwork as a safety factor is used in many high hazard situations such as confined spaces, energized high voltage work, and fire fighting. Stressing the concept of teamwork as a safety endeavor motivates workers to want to belong to their work group and minimizes chances of exclusion. When all employees buy into the concept of teamwork, often they create safety standards that are a lot higher than the standards set for individuals. Had, the teamwork concept of safety been employed in this incident, a fatality might have been prevented.

Recommendation #4: Consider using additional safety devices for heavy equipment to warn workers of a backing vehicle and to warn drivers when someone is in their blind spot.

Discussion: Workers on construction sites often work in close proximity to moving heavy equipment. Being exposed on a daily basis to the noise and warning devices of backing equipment can desensitize individuals to the presence of such vehicles. Other devices such as a strobe light or different noises should be considered as additions to the standard back-up alarm to warn workers of a backing vehicle. There are also devices available that can detect the presence of persons in the blind spots of vehicles and provide a warning to the driver. These additions should be considered especially when the standard practice has failed.

RESOURCES

California Code of Regulations, Vol. 9, Title 8, Subchapter 4, Article 10, Sections 1592.

Haapaniemi P (1996) "Will High-Tech Systems Help Drivers Avoid Crashes?" Traffic Safety Vol. 96, No. 5, pp 16-19. National Safety Council, September/October 1996.

Manual on Uniform Traffic Control Devices, Part VI, 1988 Edition, Revision 3, Issued February 19, 1998.

Parlay International. Transportation and Traffic Safety 1989, “Backing Up”, 1050.012, 1050.078.

National Safety Council Supervisors Safety Manual, Fifth Edition, Chicago, Ill, 1980, pp. 38-44.

Ferry, Ted. S. Modern Accident Investigation and Analysis, John Wiley & Sons, 1981,pp. 55-75.

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.

To contact California State FACE program personnel regarding State-based FACE reports, please use information listed on the Contact Sheet on the NIOSH FACE website. Please contact In-house FACE program personnel regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.