The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Trash Collector Dies After Being Crushed by Collection Truck–Virginia

FACE 9231

SUMMARY

On July 15, 1992, a 52-year-old male trash collector, (the victim) was crushed to death when a collection vehicle ran over him at the town landfill. The victim and two co-workers (a driver and another trash collector) made up the three-person crew; the two co-workers had been inside the cab and the victim had been on the rear riding step. They finished the last collection run of the day and the driver parked the truck beside the access road to the landfill. The trash collector, who had been riding inside the cab, exited the truck, only to find the victim, who had been on the rear riding step, lying face down on the ground in front of the truck. It is not known whether the victim fell from the riding step, or had dismounted and was already on the ground when he was run over by the truck.

NIOSH investigators concluded that in order to prevent similar incidents municipalities and employers should:

- **develop and strictly enforce policies prohibiting trash collectors from riding on the rear of trash collection vehicles when not on the collection route**
- **consider equipping vehicles with safety devices designed to warn the driver when riders have left the riding steps of trash collection vehicles**
- **consider equipping vehicles with devices which will eliminate the blind spot behind trash collection vehicles by either providing the driver with a view of the rear of the vehicle or by sensing the presence of objects behind the vehicle**
- **consider equipping trash collection trucks with devices which will automatically activate the brakes when the truck contacts a pedestrian who may be in the path of reversing vehicles.**

INTRODUCTION

On July 15, 1992, a 52-year-old male trash collector was fatally crushed when the rear-loading trash collection truck he had been riding on, ran over him. On August 14, 1992, the Virginia Occupational Safety and Health Administration (VAOSHA) notified the Division of Safety Research (DSR) of this fatality and requested assistance. On September 3, 1992, a safety engineer traveled to the incident site and conducted an investigation. During the investigation the town manager, the director of public works, the trash collection truck driver, and the VAOSHA compliance officer were interviewed. Photographs and measurements of the site and the trash collection truck were taken and the medical examiner's report, death certificate, and police report were obtained.

The employer was a small municipality that employed 125 people, including five full-time and three part-time trash collectors. Safety management for the trash collectors is the responsibility of the town's director of public works, who reports directly to the town manager. The landfill had been in operation since 1951. The victim had been employed as a trash collector for 6 years prior to the incident and had received informal, apprentice-type, on-the-job training. In addition, town management conducts a yearly evaluation of job effectiveness for each city employee which includes evaluation of the employee's safety habits. According to the town manager, this was the first fatality of a town employee, other than the police department, since the founding of the town in the middle 1800's.

INVESTIGATION

On the day of the incident, the victim and two co-workers (a driver and a trash collector) had started the workday at 7 a.m. and conducted their normal round of pick-ups until the lunch period at noon. After lunch, they traveled to the town landfill and dumped the morning's collection. They then returned to the municipal garage and exchanged trucks (the truck they had been using for the morning collections was due for routine servicing), before continuing the afternoon round of collections. Just before 2:30 p.m., they returned to the landfill to dump the afternoon collection. Upon arrival at the landfill, the driver turned and backed into the active working face (area of the landfill which has not been compacted or covered). The victim and the other trash collector prepared the truck's dump body for discharge by disengaging the turnbuckles (the turnbuckles secure the dump body in the down position). After the load was dumped, the driver pulled forward, clearing the working face. The victim and his co-worker checked the truck's dump body to ascertain whether the load was fully discharged. They then secured the turnbuckles and mounted the truck. One worker entered the cab on the passenger side and the victim mounted the 76-inch long by 10-inch wide riding step which extended across the rear of the truck. The driver left the dumping area and traveled across the access road where he intended to park the truck for a few minutes before returning to the town garage. This was consistent with the daily routine of the crew. Although the incident was unwitnessed, evidence indicates that after the truck pulled across the access road, the driver backed up a little more than one truck length, 272 feet, set the parking brake, and shut down the engine. The co-worker, who was riding in the passenger seat, exited the cab and went to the rear of the truck. When he could not find the victim, he went to the front of the truck where he observed the victim lying face down on the driver's side. He immediately notified the driver, who exited the truck cab. Upon seeing the victim, the driver entered the cab and backed the truck to provide access to him. The co-worker notified workers at the nearby town animal shelter who then notified a local emergency medical squad (EMS). The EMS responded to the incident and transported the victim to a local hospital emergency room where he was pronounced dead at 3:40 p.m.

Although no one actually observed the truck run over the victim, there was evidence of contact between the truck undercarriage and the victim. Accumulated grease and dirt present on the undercarriage had been scraped from several areas corresponding to the location of the victim after the incident. Also, the back of the victim's clothing was soiled by grease and dirt corresponding to the location of the scrape marks on the truck undercarriage.

CAUSE OF DEATH

According to the death certificate and the medical examiner's report, death was due to shock resulting from massive crushing injury to the chest.

RECOMMENDATIONSDISCUSSION

Recommendation #1: Municipalities and employers should develop and strictly enforce policies prohibiting trash collectors from riding on the rear of trash collection vehicles when not on the collection route.

Discussion: The victim had been advised on several occasions by town management and the truck driver to ride in the cab of the vehicle when not on the collection route; however, he preferred to ride on the rear riding step. NIOSH Publication No. 82-113, Residential Waste Collection: Hazard Recognition & Prevention, warns of the danger of riding on these steps, which are normally provided on the rear of trash collection vehicles, when not on the collection route.

Recommendation #2: Municipalities and employers should consider equipping vehicles with safety devices designed to warn the driver when riders have left the riding steps of trash collection vehicles.

Discussion: The truck was equipped with a functioning gong-type backup alarm mounted on the hub of the right rear wheel. This type of alarm is intended to alert pedestrians, as opposed to the vehicle operator, to hazards of vehicle backup movement. The effectiveness of this type of intervention relies on the ability of pedestrians to clear the path of the vehicle after hearing the alarm. However, if pedestrians are impeded or prevented from clearing the vehicle path, such as might occur due to slips or falls, the alarm may not prevent injury. Pressure sensitive mats are available which can be used to sound an alarm when activated by either the presence or absence of pressure. Such devices could be applied to the riding steps of trash collection vehicles to provide an audible warning to the driver in the cab when persons either board or dismount the riding steps.

Recommendation #3: Municipalities and employers should consider equipping vehicles with devices which will eliminate the blind spot behind trash collection vehicles by either providing the driver with a view of the rear of the vehicle or by sensing the presence of objects behind the vehicle.

Discussion: The truck involved in this incident was equipped with rear view mirrors on each side of the cab. During the investigation it was found that the mirrors afforded the driver a clear view spanning 21 feet from the left rear corner and 29 feet from the right rear corner of the truck; however objects directly behind the truck were not visible. Additional mirrors could be mounted on the left rear corner of the vehicle to provide the driver with a view across the rear of the vehicle.

Additionally, a closed circuit television system could be used to monitor the rear of the vehicle. Devices are also available which are capable, through the use of ultrasonic or infrared signals, of sensing objects within the vehicle's path. These devices, while not commonly used on rear-loading trash collection trucks, may offer enhanced safety for trash collectors exposed to the hazards of backing vehicles. Such devices could be used to activate either audible or visual warnings to the driver when pedestrians or inanimate objects were within the reversing vehicle's path.

Recommendation #4: Municipalities and employers should consider equipping trash collection trucks with devices which will automatically activate the brakes when the truck contacts a pedestrian who may be in the path of reversing vehicles.

Discussion: Devices are available which could be used to activate the vehicle's braking system if pedestrians or other objects are in the vehicle's path. Contact sensing bumpers could be mounted on the rear of the truck and used to mechanically or electrically activate the brakes. Ultrasonic and infrared sensors could, in addition to activating an alarm as described in Recommendation #3, be used to activate the braking system of a reversing vehicle. These devices, while not commonly used on rear-loading trash collection trucks, could offer enhanced safety for pedestrians exposed to the hazards of reversing vehicles.

REFERENCES

DHHS (NIOSH) Publication No. 82-113 Residential Waste Collection: Hazard

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