



# FACE

Fatality Assessment and Control Evaluation Program

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***Hispanic Worker Dies After Falling From a Pile of Construction Debris in the Bed of a Trash-Style Body Truck to a Paved Driveway Below - North Carolina***  
***Revised September 6, 2006 to correct the name of a web site.***

## SUMMARY

On April 7, 2005, a 48-year-old Hispanic laborer (the victim) died after he fell from the top of a pile of construction debris that had been loaded into the bed of a trash-style body truck (hereafter referred to as a trash truck), to a paved driveway approximately 8.5 feet below. Just moments before the incident, one of two brothers who owned the debris hauling company and also worked as the crew's foreman, loaded debris (drywall, scrap lumber, plywood, concrete block, etc.) into the bed of the trash truck with a skid steer loader. He exited the skid steer loader with its bucket in the raised position resting against the right rear side of the truck bed,



*Trash truck involved in the incident*

and walked approximately 15 feet away to use a portable restroom. The victim was standing on debris inside the truck bed near the rear, and a coworker was standing on debris inside the truck bed near the cab and facing away from the victim, when the coworker heard a loud thumping sound. He turned and looked for the victim but he was no longer in the bed of the truck. He looked over the side of the trash truck bed and saw the victim lying on the paved driveway near the rear tires. He yelled to the foreman who rushed to the rear of the truck. The foreman observed that the

## Fatality Assessment and Control Evaluation (FACE) Program

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (FACE) investigations when notified by participating states (North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia); by the Wage and Hour Division, Department of Labor; or when a request for technical assistance is received from NIOSH-funded state-level FACE programs in Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin. The goal of FACE is to prevent fatal work injuries 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. FACE investigators evaluate information from multiple sources that may include interviews of employers, workers and other investigators; examination and measurement of the fatality site, and related equipment; and review of records such as OSHA, police, medical examiner reports, and employer safety procedures and training records. The FACE program does not seek to determine fault or place blame on companies or individual workers. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. For further information visit the FACE website [www.cdc.gov/niosh/face](http://www.cdc.gov/niosh/face) or call toll free 1-800-35-NIOSH.

victim was bleeding extensively from his mouth, nose, and ears and immediately called 911 using his cell phone. Sheriff's department and fire department personnel arrived on the scene within nine minutes of the 911 call but were unable to resuscitate the victim. EMS personnel dispatched from an area hospital examined the victim and found through examination and cardiac monitoring that he had died. After the sheriff's department completed their investigation, a second ambulance was called and transported the victim's body to an area hospital where the medical examiner pronounced the victim dead and determined the cause of death.

NIOSH investigators concluded that, to help prevent similar occurrences, employers should

- *establish work procedures that would eliminate the need for workers to enter the trash truck bed during and after loading operations where they are exposed to potential fall hazards*
- *contact equipment manufacturers before making any modifications or additions to purchased equipment, such as extending the side height of trash truck beds*
- *develop, implement and enforce a comprehensive safety program, and provide training in language(s) and literacy levels of workers, which includes training in hazard recognition and the avoidance of unsafe conditions.*

*Additionally,*

- *General contractors should consider requiring in their bid specifications that all contract proposals include a written comprehensive safety program that addresses safe operating procedures, and documents worker training for all tasks to be performed under the contract.*

## INTRODUCTION

On April 7, 2005, a 48-year-old Hispanic laborer (the victim) died after he fell from the top of a pile of construction debris that had been loaded into the bed of a trash truck, to a paved driveway approximately 8.5 feet below. On April 14, 2005, the North Carolina Occupational Safety and Health (NCOSH) office notified the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), of the incident. On May 23, a DSR safety and occupational health specialist met with the NCOSH compliance officer assigned to the incident. The DSR safety and occupational health specialist accompanied the NCOSH compliance officer to the incident site and interviewed the victim's employers and the general contractor at the site. The sheriff's report and medical examiner's report were reviewed. The cause of death was obtained from the medical examiner's report.

Employer: The victim's employer, a debris hauling service, had seven employees and had been in business for five months. The company was owned by two brothers, one of whom worked as foreman. The employer had no written safety and health program or documented training for any employees, including the victim.

Victim: The victim was Hispanic and had traveled from Mexico to the U.S. to work as a laborer. He had worked at various jobs in the United States for 15 years. He had a North Carolina driver's license issued in 2003. He spoke primarily Spanish. He had worked for the employer for five months. His previous work history and previous employment experience were not available.

Equipment: The single axle dump truck (trash truck) used at the time of the incident (Photo 1) was purchased new in 2005. The bed of the truck was 16 feet long by 8 feet wide and had 40-inch high solid sides. The foreman and his crew had inserted sheets of scrap plywood (side height extensions) that extended approximately 24 inches above the 40-inch sides of the truck bed so that more construction debris could be carried in each load. The foreman was an experienced long distance truck driver and was the designated operator for the trash truck and skid steer loader used to load debris into the truck bed.



*Photo 1. This photograph illustrates the trash truck used on the day of the incident. Scrap plywood pieces had been used to extend the truck bed height an additional 24 inches. [Photograph courtesy of NCOSH].*

The skid steer loader was purchased new in 2005 and was equipped with a loader bucket with a retractable clamp attachment. The foreman operated the skid steer loader. His training was not documented. The company also owned a larger trash truck but it was not at the incident site.

This was the employer's first fatality.



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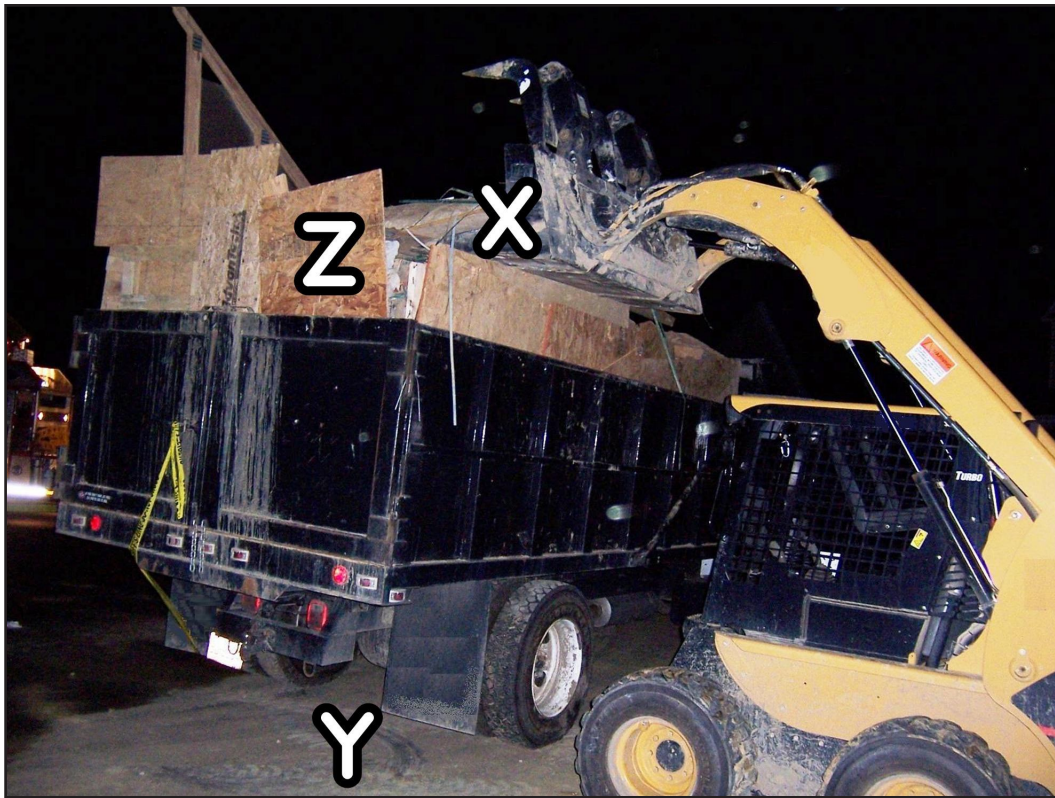
## INVESTIGATION

The general contractor at the residential housing development had contracted with the victim's employer (debris hauling company) to remove construction debris from several houses under construction. Construction debris was piled up behind the newly constructed houses so that it was not visible to prospective buyers driving through the neighborhood. To minimize damage to the land surrounding the houses, the foreman parked the trash truck in the driveway of one of the new houses. He used a skid steer loader with a bucket and retractable clamp attachment to pick up debris piled behind the homes and drove to the trash truck where he loaded the debris into the bed.

On the day of the incident, the victim was working with his foreman and three Hispanic coworkers. The victim and his Hispanic coworkers spoke primarily Spanish and the foreman spoke primarily English. Despite the primary language differences, the foreman told investigators that he felt that he was able to communicate with his workers because they had worked together for several months and they were doing work that was pretty much the same each day. At the beginning of the day, the foreman parked the trash truck in the driveway in front of a house that had construction debris piled behind it and proceeded to use a skid steer loader to move debris from behind the house to the trash truck. They began loading construction debris at approximately 7:00 a.m., took an hour lunch break at around 1:00 p.m., and resumed loading debris about 2:00 p.m. The victim and a coworker were located inside the truck bed standing on the pile of broken concrete, drywall, paper and lumber debris more than 8.5-feet above the paved driveway and used their hands to pull debris from the retractable clamps of the skid steer loader bucket and place it in open spaces.

At approximately 6:00 p.m., the foreman placed the last load of debris into the right rear end of the truck bed. He rested the bucket of the skid steer loader against the right rear side of the truck bed and extended the clamp. While the victim and another Hispanic coworker were inside the bed, he shut down and exited the skid steer loader with its bucket still in the raised position resting against the right rear side of the truck bed, and walked approximately 15 feet away to use a portable restroom. The victim was standing on debris inside the truck bed near the rear, and a coworker was standing on debris inside the truck bed near the cab, facing away from the victim. A few minutes later, the coworker heard a loud thumping sound. He turned and looked for the victim, but he was no longer in the bed of the truck. He looked over the side of the trash truck bed and saw the victim lying on the paved driveway near the rear tires of the trash truck (Photo 2). He yelled to the foreman who rushed to the rear of the truck. The foreman observed that the victim was bleeding extensively from his mouth, nose, and ears and immediately called 911 using his cell phone. Sheriff's department and fire department personnel arrived on the scene within nine minutes of the 911 call but were unable to resuscitate the victim. EMS personnel dispatched from an area hospital examined the victim and found through examination and cardiac monitoring that he had died. After the sheriff's department completed their investigation, a second ambulance was called and transported the victim's body to an area hospital where the medical examiner pronounced the victim dead and determined the cause of death.

According to the foreman, trash trucks are specifically designed to carry debris over-the-road. He drove the truck approximately 25 miles each way to a landfill and normally filled the truck close



*Photo 2. This photograph illustrates the trash truck used on the day of the incident. An X has been placed on the photograph to identify the victim's approximate location before his fall; a Y to identify the victim's approximate location after this fall; a Z to identify the scrap plywood pieces used to extend the truck bed height and additional 24 inches. [Photograph courtesy of NIOSHA].*

to its capacity in order to save on trips. To get more of the large, oddly shaped materials into the bed of the trash truck, the owner and crew placed large scrap pieces of plywood along the sides and back of the truck bed. Because the pieces of scrap plywood had been placed in the bed, the load could be piled inside the truck bed 24 inches higher than the trash truck's 40-inch sides would have normally allowed. According to the employer/foreman, these scrap plywood pieces were not secured but remained in place due to the weight of the load against them. They always secured a tarp over the load before the trash truck departed for the landfill. Because the odd shapes and sizes of the construction debris left open spaces in the bed of the truck, the victim and his coworkers routinely climbed into the bed of the truck and used their hands to place debris into empty areas. Weight allowances for these types of trucks are set and enforced by the United States Department of Transportation (USDOT). The USDOT also requires that loads be covered when transported over-the-road. The foreman reported to investigators that his loads were near capacity but that he had not received fines for being over capacity and his loads were regularly weighed and checked at the landfill. The foreman said that the skid steer loader was purchased new and that he had not considered using any other type of equipment to fill the truck bed. The DSR investigator concluded that the weight of the load on the truck at the time of the incident was not a factor in this incident. The height of the load, made possible by placing scrap plywood pieces in the bed and

extending the side height an additional 24 inches, was considered an important factor as it placed the victim 8.5 feet above the paved driveway without fall protection.

According to a sales representative working for a company that sold this make of truck with a trash-style body, a trash-style body truck is basically a truck cab with an 8-foot wide flat bed that has either 40-inch or 42-inch solid sides. The beds are manufactured in 12 foot to 26 foot lengths. The manufacturer does not manufacture side extensions to increase the height of the truck bed.

## CAUSE OF DEATH

The medical examiner's office reported that the cause of death was massive head injury due to a fall.

## RECOMMENDATIONS /DISCUSSION

***Recommendation #1: Employers should establish work procedures that would eliminate the need for workers to enter the trash truck bed during and after loading operations where they are exposed to potential fall hazards.***

Discussion: Employers are required under OSHA's General Duty Clause to furnish a place of employment which is free of recognized hazards that are causing or likely to cause death or serious physical harm to employees.<sup>1</sup> To eliminate the need for workers to stand on debris during and after loading where they are exposed to a potential fall hazard, all loading and leveling of loads should be done by equipment alone. Skid steer loaders basically tilt back and forth and move up and down, and are not equipped to move items around in the truck bed to utilize space. If employers choose to use skid steer loaders for this work, they should load the trash truck without use of plywood to extend the side height and without placing workers into the truck bed. Employers may have to plan for additional trips to the landfill, understanding that the bed space will not be completely utilized when filled using the skid steer loader alone. The skid steer loader operator should ensure that workers are not in the truck bed during any phase of the loading and hauling process and should always lower the bucket of the skid steer loader to the ground before exiting the machine for any reason. A trash truck with a larger bed can be utilized and loaded by the skid steer loader so that more debris could be carried on each trip to the landfill.

Employers could also consider purchasing a knuckle boom attachment for their trash trucks which would allow the truck operator to use the knuckle boom to move construction debris around in the bed. Employers could also consider using an excavator with a grapple to both load the trash truck and move the debris around in the truck bed.

***Recommendation #2: Employers should contact equipment manufacturers before making any modifications or additions to purchased equipment, such as extending the side height of trash truck beds.***

Discussion: According to the trash truck manufacturer's sales representative, the manufacturer does not manufacture side extensions to increase the height of truck beds and recommends that they not be used. Instead, the manufacturer sells truck beds in a variety of bed lengths and in 40

and 42-inch side heights. The manufacturer recommends that buyers purchase trucks that are properly sized to meet their needs.

***Recommendation #3: Employers should develop, implement and enforce a comprehensive safety program, and provide safety training in language(s) and literacy level(s) of workers, which includes training in hazard recognition and the avoidance of unsafe conditions.***

Discussion: Employers should evaluate tasks performed by workers, identify all potential hazards, and then develop, implement, and enforce a safety program that meets applicable OSHA standards addressing these identified hazards. The safety program should include, at a minimum, worker training in hazard identification, and the avoidance and abatement of these hazards.<sup>2</sup> For example, workers need to be trained to recognize potential fall hazards associated with standing on unstable materials piled into truck beds and to remain outside of loaded truck beds. Skid steer loader operators should be trained to recognize hazards associated with loading a truck bed while workers are in the truck bed and hazards associated with failing to lower the skid steer loader bucket to the ground before making a proper exit. Companies that employ workers who do not understand English should identify the languages spoken by their employees and design, implement, and enforce a multi-language safety program. To the extent feasible, the safety program should be developed at a literacy level that corresponds with the literacy level of the company's workforce. Employers may need to consider providing special safety training for workers with low literacy to meet their safety responsibilities. The program, in addition to being multi-language, should include a competent interpreter to explain worker rights to protection in the workplace, safe work practices workers are expected to adhere to, specific safety protection for all tasks performed, ways to identify and avoid hazards, and who they should contact when safety and health issues arise.

Information useful for training workers about skid steer loader safety can be found in the NIOSH *Alert: Preventing Injuries and Deaths from Skid Steer Loaders*<sup>3</sup> available through the NIOSH web site at <http://www.cdc.gov/niosh> or by calling 1-800-356-4674. The Alert is available in both English and Spanish (<http://www.cdc.gov/spanish/niosh/docs/98-117sp.html>). The Alert contains a tear-out sheet (printed in English and Spanish) that summarizes safety precautions for operators of skid steer loaders. Posting this tear-out sheet at the worksite may serve as an additional means of communicating safe work procedures to workers.

Recently, OSHA developed the Compliance Assistance: Hispanic Employers and Workers web page to assist employers with a Spanish-speaking workforce in learning more about workplace rights and responsibilities, identifying Spanish-language outreach and training resources, and learning how to work cooperatively with OSHA. In addition, the Compliance Assistance: Hispanic Employers and Workers web page provides a list of OSHA's Hispanic/English-as-a-second-language coordinators. These materials are available at: [http://www.osha.gov/dcsp/compliance\\_assistance/index\\_hispanic.html](http://www.osha.gov/dcsp/compliance_assistance/index_hispanic.html)<sup>4</sup> or can be obtained by contacting an OSHA area office. Information provided can be used by employers who are developing or improving safety and training programs for their Spanish speaking employees.



***Recommendation #4: General contractors should consider requiring in their bid specifications that all contract proposals include a written comprehensive safety program that addresses safe operating procedures, and documents worker training for all tasks to be performed under the contract.***

Discussion: To help foster safe work environments for contracted employees, general contractors should require all potential contractors to submit a written safety program as part of their bid specifications. By requiring in the bidding process that safety programs, at minimum, meet OSHA safety and health standards, contractors are reminded of the importance of safety and that the costs of safety are a recognized and necessary cost of doing business. NCOSHA has sample safety and health programs for employers available by calling 1-800-NCLABOR or by visiting [http://www.dol.state.nc.us/osha/consult/sample\\_programs.htm](http://www.dol.state.nc.us/osha/consult/sample_programs.htm). These sample safety and health programs are written generically and are to be used as stepping stones toward a comprehensive safety program, not as the final product. Employers are expected to add materials and delete materials as needed to create a program that meets their company's specific safety needs.

## REFERENCES

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## INVESTIGATOR INFORMATION

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