



## FATALITY ASSESSMENT AND CONTROL EVALUATION

### Worker Crushed Unloading Steel Waste Container Case Report 16NY066

#### CASE SUMMARY

On May 25, 2016, a 58-year-old shop supervisor (victim) at a waste management company was fatally crushed while unloading a 2-yard steel container that weighed 900 Lb. from the back of a truck using an attached hydraulic liftgate. At the time of the incident, the truck driver was inside the bed of the truck operating the liftgate while the victim stood on the ground below to hold the container from rolling off the liftgate during its descent. When the driver began to lower the liftgate, he felt the container start to move and yelled to warn the victim below. The victim attempted to hold the container in place and was unable to remove himself as it fell. He was crushed by the container. The driver moved the container off the victim and ran inside to alert co-workers to call 911. EMS arrived on scene and the victim was transported to an area hospital where he was pronounced dead.

#### CONTRIBUTING FACTORS

- A forklift was not readily available to unload containers from the truck bed.
- The liftgate on the back of the truck pitched downward at an angle of nine degrees when lowered out of its seated position.
- The bed of the truck did not line up with the height of the loading dock of the wash bay and could not be used.
- There was no program specific to liftgate safety that addressed written operating procedure, loading and unloading, and preventative maintenance.
- There was no written procedure specific to the safe handling of containers.
- This method of handling containers was a common practice routinely done by many employees when a forklift was not available.

#### KEY RECOMMENDATIONS

- *Establish a written procedure on safe work practices to safely handle, load, and unload containers as well as provide a forklift or a truck that is compatible with the loading dock.*
- *Ensure that containers are secured to the liftgate during loading and unloading.*
- *Implement a liftgate preventative maintenance schedule according to manufacturer specifications.*
- *Develop and implement a liftgate safety program that addresses safety hazards associated with operating the equipment, safe operating procedures, and specific prevention measures.*
- *Train workers on safe operation of liftgate and handling waste containers according to company policy and manufacturer guidelines.*

- *Perform a Job Hazard Analysis (JHA) to identify hazards and establish control measures.*
- *Utilize additional liftgate safety features to reduce risk factors and make the equipment safer to operate.*

## **INTRODUCTION**

On May 25, 2016, a 58-year-old shop supervisor (victim) at a waste management company was fatally crushed while unloading a 2-yard steel container that weighed 900 Lb. from the back of a truck with an attached hydraulic liftgate (Photo 1). The New York State Fatality Assessment and Control Evaluation (NY FACE) staff learned of the incident from the news media and contacted the employer to initiate an investigation. The company declined to participate in the NY FACE investigation. The Occupational Safety and Health Administration (OSHA) and the city police department investigated the case. The NY FACE investigator discussed the case with the OSHA compliance officer and reviewed the OSHA and police reports and the death certificate. This report was developed based on the information provided by OSHA and the city police department.

The company had been in the business of waste management for approximately 20 years and had 100 employees at the time of the incident. It specialized in waste collection and removal for residential, commercial, and construction clients. This was the first fatal injury in the company's history. The victim had been employed by this company for approximately 15 years and was a shop supervisor. The employees at this company, including the victim, are union members. The company has a written Health and Safety program.

For the contract that the victim was working on at the time of the incident, full containers would be picked up by drivers and brought back to the main facility where they would be emptied and washed. Once the container had been emptied, it would be transported to the wash bay to be power washed. This process was performed 2-3 times per week for this client. There was no written standard procedure for loading and unloading the waste containers. At the time of the incident, the empty container was being unloaded at the wash bay.



*Photo 1. The truck with hydraulic liftgate being used to load and unload containers and the container after falling from the liftgate. (Photo courtesy of OSHA)*

## **INVESTIGATION**

A forklift, if one was available, would be used to remove the container from the bed of the truck. However, in most cases the container was unloaded manually by 2-3 employees. At the time of the incident, the company had three forklifts on site. One forklift was located on the opposite side of the facility, one was out of service, and one was being used for another activity.

The container in this incident was a two-yard metal compacting container that rested on a set of four caster wheels. Empty, this container weighs approximately 860 pounds plus ten pounds for each caster resulting in a total of 900 pounds. The dimensions of the container measure 50.5 inches high on its castings, 76.25 inches wide, and 36 inches deep. The manufacturer warned of tipping and crushing hazards associated with this container (Photo 3).

On the day of the incident, the driver was bringing the empty container to the wash bay in the back of a Ford 550 dump truck that was equipped with a Tommy Gate hydraulic liftgate attached to the rear of the vehicle (Photo 1). The weight capacity of the liftgate was not available for the investigation, but it is not believed to be a factor in the incident. The width of the liftgate allowed for 12 inches of space on either side of the container if centered. The liftgate was 28 inches deep to the beginning of the bevel which was an additional six inches. The center point of the casters on the container came to the edge of

the bevel leaving no room for any front to back movement during descent. The liftgate on the truck was known to pitch downward as it lowered from its seated position. During the investigation, the pitch of the liftgate was measured at an angle of 9.5 degrees when lowered (Photo 2). With the casters resting on the edge of the bevel and the downward pitch of the liftgate, the container was at risk of rolling off the liftgate during unloading. In its seated position, the liftgate was measured at a height of 47.5 inches. The wash bay did have a loading dock that could be used to unload containers. However, the bed of the truck was not high enough to line up with the loading dock. Employees would either use a forklift or manually unload the container.



*Photo 2. The hydraulic liftgate in a lowered position. A level showing the downward pitch of the liftgate. The downward pitch was measured at an angle of 9.5 degrees. (Photo courtesy of OSHA)*

Since a forklift was not available, the driver proceeded to have the victim to assist him in unloading the container manually. The driver rolled the container and positioned it on the liftgate. From inside the bed of the truck, the driver used one hand to hold the container while using his other hand to operate the toggle switch on the side of the truck that controlled the liftgate. Meanwhile the victim positioned himself on the ground directly below the container to steady it during descent. The driver felt the container begin to move and shouted to alert the victim below to get out of the way. Surveillance video shows that the victim attempted to stop the container from rolling off the liftgate as it fell and crushed the victim. The container fell from a height of approximately 42 inches. The driver moved the container off the victim and ran inside to alert coworkers and call 911. EMS arrived on site and the victim was transported to an area hospital where he was pronounced dead as a result of his injuries.

The employer had a safety program with documented components and procedures; however, there was no written procedure for this task. The liftgate on the back of the truck was known to pitch downward when lowered which reinforced the employees' method of standing below the container to hold it in place. There was no evaluation of this procedure for hazards, or control measures in place, at the time of the incident.



Photo 3. The two-yard steel compactor container and warning labels depicting crushing hazard. (Photo courtesy of OSHA)

## RECOMMENDATIONS

**Recommendation #1:** *Employers should establish a written procedure that specifies safe work practices to safely handle, load, and unload containers. Employers should provide a forklift or a truck that is compatible with the loading dock to safely load and unload containers that are too large and heavy to be handled by a truck liftgate.*

**Discussion:** Employers are required to provide a workplace that is free from recognized hazards. Manually unloading and standing below an unsecured container presented an imminent and serious hazard. Employers should provide a written procedure that establishes specific safe work practices for handling containers. A written procedure sets forth expectations for employees and provides a framework to guide decision making. Employees should be held accountable to these safe work procedures to ensure a safe working environment free from hazards.

There were three forklifts located at this facility; however, none was available for this task at the time. A forklift should be designated to this task and incorporated into the written procedure. Another option is to use a truck that can be used with the loading dock of the wash bay to better facilitate loading and unloading containers. This should also be incorporated into the written procedure.

The liftgate was frequently used at this facility for container handling. It is important to know the capacity of the liftgate as well as the size of the loading platform. Employers should develop and

implement a liftgate safety program (see Recommendation #2). Written safety procedures and policies should be updated to reflect the changes in the workplaces and regularly reviewed and evaluated for their effectiveness.

**Recommendations #2:** *Employers should develop and implement a liftgate safety program that addresses safety hazards associated with operating the equipment, safe operating procedures, and specific prevention measures.*

**Discussion:** Liftgates are widely used for loading and unloading cargos from delivery vehicles and improper use can result in serious worker injuries and death. Employers should develop and implement a liftgate safety program that identifies safety hazards associated with operating the equipment and address specific prevention measures. The program should address the issues of load capacity and placement, safe loading/unloading procedure, daily liftgate inspection, and repair and preventative maintenance.

**Recommendation #3:** *Employers should ensure that containers are secured to the liftgate during loading and unloading so that they would not fall off the platform and cause worker injury.*

**Discussion:** The 900 Lb. waste container with casters was neither strapped nor chocked in this case. Employers should ensure that large, heavy, and unstable containers are restrained and strapped securely to the liftgate. Wheeled containers such as the one in this case should be both strapped and chocked to prevent them from tipping and rolling of the liftgate platform causing worker injury and death.

**Recommendation #4:** *Employers should implement a regular liftgate preventative maintenance schedule according to manufacturer specifications.*

**Discussion:** According to the owner's manual, the liftgate needed to be serviced every 60 days. A preventative maintenance program must be followed in order to keep the liftgate in its best and safe operating condition. If there are any noticeable problems with the liftgate, such as a platform pitching downward, it should be taken out of service and repaired immediately.

**Recommendation #5:** *Employers should train workers on safe operation of liftgate and handling waste containers according to company policy and manufacturer guidelines.*

**Discussion:** Employees should be trained on how to handle waste containers safely by strictly following company's written standard operating procedures. Workers should learn not to attempt to manually handle a container that is beyond their ability to control. They should always use a forklift for the containers that are too large and heavy to be handled by the liftgate. Do not operate the liftgate unless the unstable container is strapped and chocked. Workers should be directed to stand away from the container falling zone. They should never try to stop a container from falling.

**Recommendation #6:** *Employers should conduct Job Hazard Analysis (JHA's) for jobs that carry high potential risk for serious injury to identify hazards, establish control measures, and develop safe work procedures.*

**Discussion:** A Job Hazard Analysis (JHA) is an important tool that can be used to identify hazards and implement prevention measures. Jobs that pose the potential risk for severe injuries should be evaluated with a Job Hazard Analysis. This breaks down the job into specific steps and identifies the hazard associated with each step. Prevention measures should be considered according the hierarchy of controls and be included in any written policy or procedure for that job. From most effective to least effective, the hierarchy of controls for managing occupational hazards begins with elimination of the hazard, substitution, engineering controls, administrative controls, and lastly personal protective equipment.

**Recommendation #7:** *Employers should consider installing additional liftgate safety features to reduce risk factors and make the equipment safer to operate.*

**Discussion:** Manufacturers have developed features and mechanisms that make a liftgate safer to operate. A remote control allows a worker to operate the liftgate outside the cargo falling zone. Self-leveling liftgates can keep the platform level and liftgate cart-stops can prevent cargo from rolling off the platform. Employers should consider installing and utilizing these liftgate safety features to enhance the equipment safety so that workers can be better protected.

**Keywords:** *waste management, compacting container, liftgate, loading, unloading, material handling, struck-by, crushing*

## REFERENCES

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The New York State Fatality Assessment and Control Evaluation (NY FACE) program is funded by the National Institute for Occupational Safety and Health and administered by the New York State Department of Health. NY FACE is a research program designed to study the causes of workplace fatalities and develop practical and effective prevention measures. NY FACE investigators evaluate information from multiple sources and provide recommendations for prevention in summary reports. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. The NY FACE does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program. Additional information regarding the NY FACE program can be obtained from:

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