STATE OF NEW YORK
DEPARTMENT OF HEALTH

FATALITY **A**SSESSMENT AND **C**ONTROL **E**VALUATION

Contractor Crushed against the Cab of a Dump Truck by the Dump Body
Case Report 08NY067

SUMMARY

In July 2008, a self-employed construction contractor (the victim) sustained fatal injuries when he was crushed against the cab of a dump truck by the dump body at a residential construction site. At the time of the incident, the victim was using the dump truck to deliver soil to the site and then grading the soil with a backhoe. The victim worked alone and there was no witness to the incident. The incident was initially reported by the property owner who arrived on site at approximately 5:00 PM and found both the dump truck and the backhoe idling. The property owner saw that the victim was crushed between the back of the cab and the front of the dump body that was in the down position. With the dump body down, the width of the space was 7 inches. The dump body movement was controlled by a dump lever located inside the cab. Post-incident examination determined that the dump lever was stuck and inoperable. There was a mechanical linkage between the dump body hydraulic control lever and the dump body cylinder valve. The linkage was located underneath the chassis between the frame members. The dump body could be actuated if the linkage was pushed. It appeared that the dump body may have been stuck when the last load of soil was being unloaded. The victim may have climbed up on the truck chassis, sat on the frame facing the dump body that was in the up position with his back against the cab trying to kick the linkage to actuate the hydraulic valve to activate the dump body. The dump body came down and crushed the victim before he could escape. The homeowner placed a 911 call and the paramedics arrived within minutes. The victim was pronounced dead at the scene.

New York State Fatality Assessment and Control Evaluation (NY FACE) investigators concluded that to help prevent similar incidents from occurring, employers should:

- **Ensure that an elevated dump body is securely blocked or cribbed to prevent inadvertent movement while workers perform troubleshooting work or maintenance;**
- **Ensure that operators strictly follow manufacturers' safe operating procedures by using proper machine controls when operating dump trucks;**
- **Ensure that periodic inspections and preventive maintenance are carried out strictly in accordance with the manufacturer's specifications; and**
- **keep and maintain manufacturer's operating and maintenance manuals for the specific model of dump trucks.**

Additionally, manufacturers of dump trucks should:

- **Enclose the mechanical linkage to discourage unsafe use.**

INTRODUCTION

In July 2008, a self-employed construction contractor (the victim) sustained fatal injuries when he was crushed against the cab of a dump truck by the dump body at a residential construction site. The New York State Fatality Assessment and Control Evaluation (NY FACE) staff learned of the incident from newspaper articles. On August 25, 2008, two NY FACE investigators traveled to the contractor's home to examine and photograph the dump truck that was involved in the fatal incident. An investigator from the County Sheriff's Department investigated the case with the help of an auto mechanic. The NY FACE investigators collected additional information from the Sheriff's investigator and the victim's relatives. The Occupational Safety and Health Administration (OSHA) initiated an investigation but terminated it due to lack of jurisdiction for self-employed proprietors.

The victim started his contracting firm in 2001 after retiring from his job as a plumber. He occasionally hired temporary helpers, but most of the time he worked alone.

INVESTIGATION

The victim left home around 8:30 on the morning of the incident and drove his dump truck to a residential construction site, where a new modular home and a driveway were being built. The victim used his dump truck to deliver soil to the site and a backhoe to grade the soil.

The dump truck was purchased by the victim from a private owner between 2000 and 2001, and had been solely maintained by the victim since that time. It was a 1969 six-wheel, dual-axle truck equipped with a 13-cubic yard dump body (Photo 1). The truck had 110,332 miles. The safety inspection of the truck required by the New York State Department of Motor Vehicles (NYS DMV) expired on May 2008, two months before the incident.

Photo 1. The dump truck that crushed the victim at the residential construction site. (Photo courtesy of County Sheriff's office).

It was supposed to be the last day on this job for the victim. He was working alone and there was no

witness to the incident. The incident was initially reported by the property owner who arrived on site at approximately 5:00 PM and found both the dump truck and the backhoe idling. The property owner saw that the victim was crushed between the back of the cab and the front of the dump body that was in the down position. He placed a 911 call and the paramedics arrived within minutes. The victim was pronounced dead at the scene.

With the dump body down, the width of the space between the cab and the dump body was 7 inches. The dump body movement was controlled by a dump lever located inside the cab. The dump lever was examined by the mechanic who assisted the sheriff's investigator after the incident. According to the mechanic, the dump lever was stuck and inoperable.

There was a mechanical linkage (Photo 2) connecting the pump control lever in the cab and the dump body cylinder valve. The linkage was located underneath the chassis between the frame members of the truck: approximately 25 inches above the ground and 30 inches from the back of the cab. The dump body could be actuated if the linkage was engaged. It appeared that the dump body may have been stuck when the last load of soil was being unloaded. The victim may have climbed up on the truck chassis, sat on the frame facing the dump body that was in the up position with his back against the cab trying to kick the linkage to actuate the hydraulic valve to activate the dump body. If the dump body had been completely empty and the hydraulic system working properly, the dump body would have had descended in a controlled manner. The victim may have thought that he would have enough time to get out of the way. However, the dump body contained a quarter load of damp and rocky soil and it crushed the victim before he could escape.

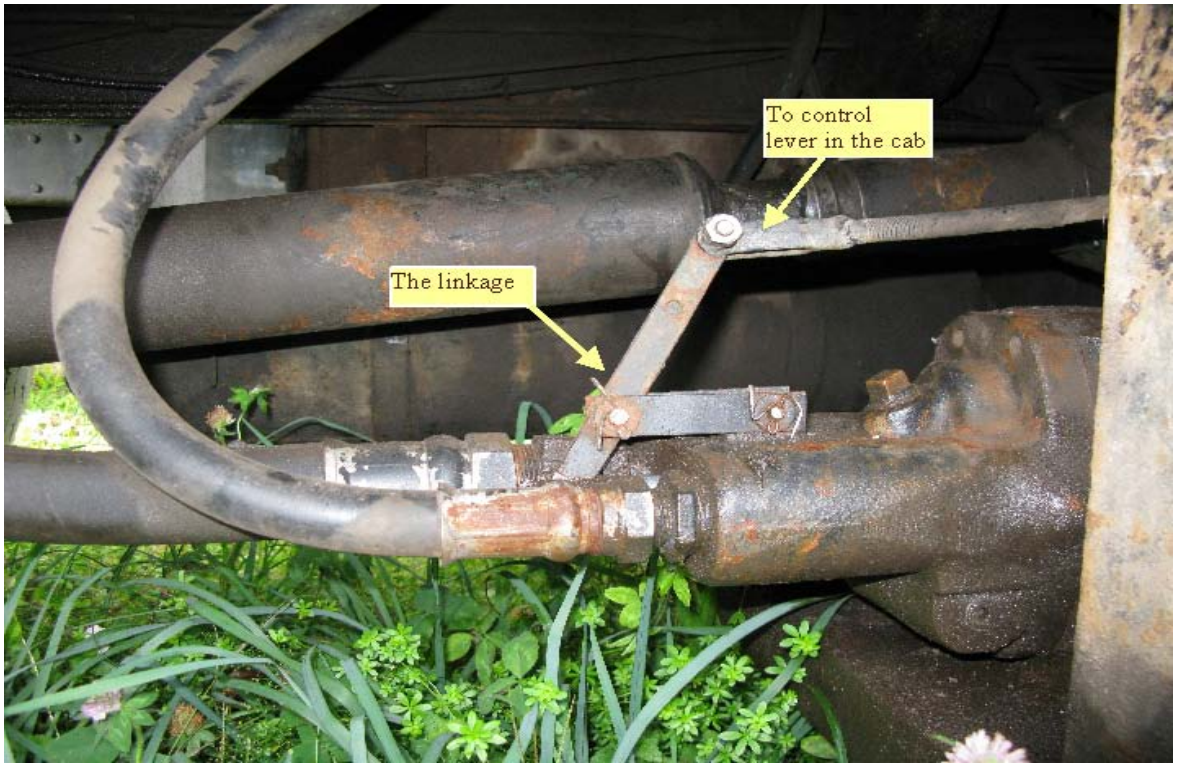

Photo 2. The mechanical linkage located underneath the truck frame. The upper end of the linkage was connected to the control lever in the cab through a horizontal bar. The lower end (not visible) was connected to the dump body cylinder valve.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: ***During troubleshooting or routine maintenance, employers should ensure that an elevated dump body is securely blocked or cribbed to prevent inadvertent movement.***

Discussion: Dump bodies may weigh over 4,000 pounds and are extremely hazardous to work under while performing troubleshooting or maintenance activities. Between 1996 and 2006, 31 incidents involving the unanticipated release of movement of an elevated truck body were recorded by the Occupational Safety and Health Administration (OSHA) and nearly all of these incidents resulted in fatalities. OSHA issued a Safety and Health Information Bulletin entitled "Hazards of Unintended Movement of Dump Truck Body Beds" in 2006 to alert employers and employees about this hazard.

Employers should ensure that all trucks with dump bodies are equipped with positive means of support that are permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done. The safety blocking or cribbing device recommended or provided by the manufacturer should be used. Employers should follow the manufacturers' instructions for the use of these devices.

Owners of older dump trucks should contact the original manufacturers to discuss options for suitable safe methods including using a "truck bed brace bracket" for performing maintenance or troubleshooting work (For additional information on the prototype truck bed body prop brace, contact OSHA's Madison, Wisconsin area office at (608) 441-5388). No worker should ever position himself/herself underneath a raised dump body that is not blocked or cribbed.

Recommendation #2: ***Operators should strictly follow manufacturer's safe operating procedures by using proper machine controls when operating dump trucks.***

Discussion: Operators should only use the dump body control lever that is located inside the cab to operate the dump body. The victim in this case appeared to use the mechanical linkage located under the truck frame as an alternative to operate the dump body. In order to access the linkage, the victim placed himself under the raised dump body. Employers should provide training and supervision to ensure that workers strictly follow the safe operating procedures recommended by the manufacturers.

Recommendation #3: ***The owners of dump trucks should ensure that periodic inspections and preventive maintenance are carried out strictly in accordance with the manufacturer's specifications.***

Discussion: A systematic and thorough inspection can detect defective or damaged parts and ensure the safe operation of a dump truck. When purchasing an older dump truck, a qualified person or a dealer representative should be hired to inspect mechanical and hydraulic systems. Manufacturers should be contacted for maintenance schedules and manuals. Owners should strictly follow machine inspection and maintenance schedules in accordance with the manufacturer's recommendations. All malfunctions and problems identified during the inspections should be corrected before returning a dump truck back to service.

Recommendation #4: ***The owners should keep and maintain manufacturer's operating and maintenance manuals for the specific model of dump trucks.***

Discussion: Owners should obtain and maintain copies of the operating and maintenance manuals for the specific models that they own. These manuals are considered to be an integral part of the dump trucks and are vital for communicating the necessary safety information to operators and maintenance personnel. All information in these manuals should be read and understood before any attempt is made to operate the vehicle.

Recommendation #5: ***Manufacturers of dump trucks should consider enclosing the mechanical linkage between the dump body hydraulic control lever and the dump body cylinder valve to discourage unsafe use.***

Discussion: The mechanical linkage in this older dump truck was easily accessible from the sides of the truck when the dump body was raised. While the linkage is not intentionally designed as a dump body control, it has been reported that workers have used such linkage 1) to save time without having to go inside the cab to use the control lever; 2) to deliver a partial load while working alone; or 3) to bypass the control lever that was inoperable as in this case. It is quicker for a worker who monitors unloading at the side of the dump body to engage the linkage than to use the control level in the cab.

NY FACE consulted a local dump body manufacturer who stated that the mechanical linkage is usually not enclosed even on the new models. Manufacturers of the dump bodies should enclose the linkage to discourage the unsafe use. Manufacturers may consider sending a hazard alert through their dealer network to warn users not to use the linkage.

Keywords: dump truck, mechanical linkage, dump body, hydraulic lever, crushing, residential construction.

REFERENCES

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The New York State Fatality Assessment and Control (NY FACE) program is one of many workplace health and safety programs administered by the New York State Department of Health (NYS DOH). It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), the NY FACE collects information on occupational fatalities in New York State (excluding New York City) and targets specific types of fatalities for evaluation. NYS FACE investigators evaluate information from multiple sources. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. 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:

New York State Department of Health FACE Program
Bureau of Occupational Health
Flanigan Square, Room 230
547 River Street
Troy, NY 12180
1-866-807-2130
www.nyhealth.gov/nysdoh/face/face.htm