

**DATE:** December 18, 1992

**FROM:** Minnesota Fatality Assessment and Control Evaluation (MN FACE) Project  
Minnesota Department of Health

**SUBJECT:** MN FACE Investigation MN9218  
Excavation Company Owner Dies after Bulldozer Slips Over the Side of  
A Flat Bed Trailer

## **SUMMARY**

A 28-year-old male owner of an excavation company (victim) was fatally injured after the bulldozer he was operating slipped over the side of a flat bed trailer. The injury occurred as a result of the victim striking his head on the bulldozer's rollover protective structure (ROPS). The seat belt in the bulldozer had been removed; the victim was not restrained in the bulldozer. At the time of the incident the trailer sat across (blocking) a 7 percent inclined roadway. As the victim backed the bulldozer toward the rear of the trailer, its metal track cleats slipped on the metal surfaced portion of the trailer over the wheels down grade toward the trailer's edge. The bulldozer slipped off the edge and overturned onto its left side. The victim struck his head on the ROPS as he attempted to jump clear. He died of the injuries he received. MN FACE investigators concluded that, in order to prevent similar occurrences, the following guidelines should be followed:

- > trailers should be level and stable before unloading equipment to prevent slippage of the equipment off trailer edges;
- > seat belts should be provided for earth moving or other types of mobile construction equipment; and
- > operators should be restrained with seat belts when using construction equipment to avoid the hazards of being thrown from, or injury within, it.

## **INTRODUCTION**

MN FACE was notified of a September 28, 1992, construction fatality by the Minnesota Department of Labor and Industry's Division of Occupational Safety and Health (MN OSHA) on October 2, 1992. City police and county coroner interviews were conducted. Reports were requested.

Company representatives elected not to participate in the MN FACE Study. Information about the excavation company and victim could not, therefore, be obtained from this source. A site investigation was not conducted. The information contained in this report was supplied by police and MN OSHA personnel interviews and reports.

## **INVESTIGATION**

The incident took place at the edge of a curved residential roadway running east and west at about 2:30 p.m. The victim was unloading a bulldozer from a flat bed trailer and intended to back-fill a small, swampy pond located in the residential area. The trailer, which had been used to transport the bulldozer to the site, was parked in a north-easterly direction, blocking the roadway. According to the city street department, the trailer was parked on a 7 percent grade, descending to the west. The left (driver's) side of the trailer was, therefore, angled downwards and lower than the right side. The rear of the trailer extended over the curb line into a grassy area. See Figure 1.

The victim was backing the bulldozer to the rear of the trailer for unloading. It was equipped with a ROPS, which consisted of four uprights and a roof. The bulldozer had been equipped with a seat belt but it had been removed from the bulldozer at some point previous to the incident.

As the victim was backing the bulldozer to the rear of the trailer it slipped off the trailer's down grade edge, flipped, and landed on its left side next to the trailer. Fresh scratches on the trailer bed indicated that the bulldozer slipped off between the second and third trailer axle. The metal track cleats of the bulldozer were in contact with the metal surfaced portion of the trailer over the wheels at this point.

According to a witness, who was positioned on the east up-slope side of the trailer at the time of the incident, the victim attempted to jump clear of the falling bulldozer but hit his head on the ROPS in the process. The victim was found unrestrained inside of the operator's compartment. He sustained severe injuries to his head and died as a result. Minnesota State Patrol accident reconstructionists believe that the tractor and trailer remained stationary during the incident.

## **CAUSE OF DEATH**

The cause of death reported by the county coroner's office was blunt force head injuries.

## **RECOMMENDATIONS/DISCUSSION**

**Recommendation #1:** Trailers should be level and stable before unloading equipment to prevent slippage of the equipment off trailer edges.

**Discussion:** The bulldozer in this incident was being unloaded from a trailer, which was not level. The westerly descending grade of the road probably contributed to the bulldozer slipping in this direction while being unloaded, especially after the metal track cleats of the bulldozer contacted the metal surfaced portion of the trailer deck.

Trailers should be parked on level ground or parallel to the slope and securely blocked against motion when unloading mobile equipment.

**Recommendation #2:** Seat belts should be provided for earth moving or other types of mobile construction equipment. This recommendation is in accordance with CFR 1926.602(2)(i).

**Discussion:** Seat belts are provided as standard equipment by the manufacturer for this type of bulldozer when newly purchased. The belt had, however, been removed at some point previous to the incident. If, for maintenance or repair purposes, it is necessary to remove seat belts, employers and operators should ensure and insist that they be reinstalled. Likewise, when purchasing used equipment employers should demand that functioning seat belts are provided before purchase.

**Recommendation #3:** Operators should be restrained with seat belts when using construction equipment to avoid the hazards of being thrown from, or injury within, it.

**Discussion:** With the bulldozer's existing ROPS in place, it is possible that, had the victim been restrained inside the operator's compartment with a seat belt, this fatality may not have occurred. Operators of construction equipment must be educated and informed of the requirements and importance of using seat belts during work. Employers and workers should make all attempts to encourage and comply with this important safety issue.

## **REFERENCES**

1. Office of the Federal Register, Code of Federal Regulations, Labor, 29 CFR Part 1926.602(2)(i), U.S. Department of Labor, Occupational Safety and Health Administration, Washington, D.C., July 1, 1991.