

Colorado Fatality Assessment and Control Evaluation (FACE)
Program

SUBJECT:

Colorado FACE Investigation 95C0094

Landscape Laborer Dies When the Tractor He is Driving Overturns.

SUMMARY:

On November 6, 1995 a 45-year-old laborer for a landscaping company died from injuries sustained when the tractor he was driving rolled over on him. The deceased was using a John Deere model 2440 tractor equipped with a front bucket and rear grading blade. He had filled the bucket with dirt and was backing away from the dirt pile when the tractor rolled over. The terrain on which the tractor was located was sloping at an angle of 13 to 17 degrees. He had the bucket approximately six feet above ground level as he backed up and turned the vehicle. Skid marks in the dirt indicated that he was backing at an excessive speed for the terrain. Because the bucket was in an elevated position, the tractor's center of gravity was high. These two factors contributed to the tractor turning over. The tractor was not equipped with a roll over protection system (ROPS) and the driver was crushed by the tractor seat and controls.

The Colorado Department of Public Health and Environment (CDPHE) investigator concluded that to prevent future similar occurrences, employers should:

- Equip all tractors with a roll over protection system and a seat belt.
- Ensure that tractors equipped with buckets are operated with the bucket in the lowest possible position.
- Develop, implement, and enforce a comprehensive written safety program that includes, but is not limited to, training on all equipment to be utilized
- Conduct a job-site survey on a regular basis to identify

potential hazards, implement appropriate control measures, and provide subsequent training to employees that specifically addresses all identified hazards.

INVESTIGATIVE AUTHORITY:

CDPHE performs investigations of occupational fatalities under the authority of the Colorado Revised Statutes and Board of Health Regulations. CDPHE is required to establish and operate a program to monitor and investigate those conditions which affect public health and are preventable. The goal of the workplace investigation is to prevent work-related injuries in the future by study of the working environment, the worker, the task the worker was performing, the tools the worker was using, and the role of management in controlling how these factors interact.

This report is generated and distributed to fulfill the Department's duty to provide relevant education to the community on methods to prevent severe occupational injuries.

INVESTIGATION:

The investigation of this work-related fatality was prompted by a report of the incident from the Occupational Safety and Health Administration (OSHA). The CDPHE investigator arrived at the worksite thirty-six hours after the time of the incident. The investigation included interviews with coworkers and the company owner. The incident site was photographed, and autopsy and police reports were obtained from the local authorities.

The company employs four people. The company did not have a safety program and safety training was not conducted.

CAUSE OF DEATH:

The cause of death as determined by autopsy and listed on the death certificate as mechanical asphyxiation and blunt trauma due to tractor roll over.

RECOMMENDATIONS/DISCUSSION:

Recommendation #1: All tractors should be equipped with a roll over protection system and a seat belt.

Discussion: Preventing death and serious injury to tractor operators during roll overs requires the use of a roll over protection system (ROPS) and a seat belt. These structures, either a roll-bar frame or an enclosed roll-protective cab, are designed to withstand the dynamic forces acting on them during a roll over. In addition seat belt use is necessary to ensure that the operator remains within the "zone of protection" provided by the ROPS. Government regulations require that all tractors built after October 25, 1976 must be equipped with a ROPS. Many older

tractors are in use and do not have nor are they required to have these structures. All older tractors should be fitted with a properly designed, manufactured and installed ROPS and seat belt.

If the tractor involved in this incident had been fitted with a ROPS and a seat belt, and the seat belt had been in use, this roll over and fatality might have been prevented.

Recommendation #2: While in motion, tractors equipped with buckets should be operated with the bucket in the lowest possible position

Discussion: A front-end loader on a tractor raises the tractor's center of gravity. In addition, the center of gravity rises further as the height of the loader is increased. Raising the center of gravity increases the potential of a side roll over, especially if the tractor is driven across inclined terrain. Therefore, it is recommended that the loader bucket be kept as low as possible whenever a tractor is in use or in motion. This is particularly important if the tractor is on inclined terrain. If the bucket in this incident had been lower to the ground, this roll over and fatality might have been prevented.

Recommendation #3: Develop, implement, and enforce a comprehensive written safety program that includes, but is not limited to, training on all equipment to be utilized

Discussion: Employers should emphasize safety of their employees by designing, developing, implementing and enforcing a comprehensive safety program to prevent incidents such as this. The safety program should include, but not be limited to, the proper use and operation of equipment.

Recommendation #4: Conduct a job-site survey on a regular basis to identify potential hazards, implement appropriate control measures, and provide subsequent training to employees that specifically addresses all identified hazards.

Discussion: According to 29 CFR 1926.21(b)(2), employers are required to instruct each employee in the recognition and avoidance of unsafe conditions, and to control or eliminate any hazards or other exposure to illness or injury. In this and similar situations the employer may need to provide additional training to ensure that these employees understand the hazards and how to properly use safety equipment to protect themselves.

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