The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research

City Worker Dies when Struck and Dragged by Mobile Equipment in Ohio

FACE 8810

Introduction

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (FACE) investigations when a participating state reports an occupational fatality and requests technical assistance. The goal of these evaluations is to prevent fatal work injuries in the future by studying: the working 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.

On November 16, 1987, at 10:55 a.m., a 61-year-old city male worker died when he fell from a trailer-mounted leaf vacuum while engaged in sweeping tree leaves from the street.

Contacts/Activities

Officials of the Industrial Commission of Ohio (ICO) notified DSR of this fatality and requested technical assistance. On January 6, 1988, a DSR research team met with city officials to discuss this incident and examine the piece of equipment involved. Prior to conducting a field evaluation, DSR investigators discussed this incident with ICO personnel, and then conducted a field evaluation.

Overview of Employer's Safety Program

The victim was employed by the street department in a small municipality. The street department normally employs 10 individuals but hires additional employees for busier times of the year. Employees are given written and verbal instructions on safe work practices. Training is performed on the job.

Synopsis of Events

The victim had worked for the city intermittently for the past few years, but had only begun permanent employment 2 months prior to the incident. on the day of the incident, the victim was a member of a four-man crew involved in collecting leaves from the city streets. Residents had placed loose leaves along the curb and the city workers were picking them up using a leaf vacuum.

The leaf vacuum is mounted on a two-wheeled trailer, which is pulled behind a truck by a draw bar. The draw bar is offset to the left side to place the vacuum intake closer to the curbside. The suction intake is at the extreme right side of the unit. The unit is pulled slowly along the edge of the street while workers ensure that the leaves are fed to the machine. A platform on the rear of the trailer provides a riding position for two workers. Approximately 15 years ago, city personnel modified this unit by installing an automotive “bucket” seat at the front of the trailer between the draw bar and the suction intake. This seat is mounted on angle iron brackets welded to the front of the trailer, with the lower bracket being approximately 8 inches above the roadway. Neither footrests nor other restraining equipment, such as seatbelts, are present on the machine. The employee riding on this seat uses a pitchfork to push leaves toward the intake.

At the time of the incident, the victim was riding on the bucket seat and pushing leaves into the intake. As the unit crossed an intersection the intake housing struck the sidewalk with sufficient force to gouge the concrete. Although there were no eyewitnesses, it is assumed that the victim dropped his pitchfork and either fell from the seat or exited the seat in an attempt to recover the pitchfork. As the trailer moved forward, the victim was knocked down by the seat, struck by the angle iron mounting bracket, and dragged approximately 44 feet down the asphalt roadway. Co-workers observed the victim beneath the trailer and called to the driver to stop the truck. Emergency medical service (EMS) personnel were summoned to the scene and arrived 10 minutes after the accident. Casualty care was administered at the scene and enroute to the hospital where the victim was rushed into surgery. The victim died 17 hours and 37 minutes after the incident.

Cause of Death

The coroner listed the cause of death as cardiopulmonary arrest following multiple traumatic injuries, and hemorrhaging.

Recommendations/Discussion

Recommendation #1: Modifications to standard pieces of equipment should not be made until a thorough review of potential safety problems created by the modifications has been completed and appropriate corrective measures taken.

Discussion: The leaf vacuum unit was approximately 20 years old, and was not designed to carry a rider. Approximately 15 years ago, city employees modified the unit by adding a seat at the front to simplify work operations. Apparently, no consideration was given to the potential danger posed by riding unrestrained on this seat. The unit had been used successfully for 15 years without incident. Had footrests and a seat belt been added to this equipment and their use required, the above fatality may not have occurred.

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Last Reviewed: November 18, 2015

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