

MO FACE INVESTIGATION #96MO012

SUBJECT:

Highway Department Supervisor Struck By Reversing Dump Truck

SUMMARY:

On February 6, 1996, a 55-year-old male highway department supervisor (victim), died from multiple trauma after he was struck by a reversing dump truck at a multi-lane highway repair project. The victim was the job-site superintendent on the project. He had just instructed the driver of the dump truck to back his truck, loaded with asphalt material, to the beginning of the road patch area. After delivering instructions to the workers, the supervisor proceeded to walk along the shoulder of the highway toward the incident site. The dump truck began reversing along the patch they had just completed.

At some point the supervisor crossed from the shoulder into the lane used by the reversing truck. The truck driver did not see the victim and backed over him.

Witnesses tried to warn the victim and the driver, and rushed to the site and halted the truck. One witness ran to call 911. Local emergency medical services (EMS) responded within minutes; however the victim was pronounced dead at the scene. The MO FACE investigator concluded that in order to prevent similar occurrences employers should:

- ensure that mobile equipment is equipped with well-maintained audible backup alarms to warn pedestrians of impending equipment movement;
- ensure that work procedure minimize or eliminate pedestrians' exposure to hazards from moving vehicles and mobile equipment;
- consider providing personal audible alarms to pedestrian workers who are exposed to hazards of vehicle movement.

INTRODUCTION:

On February 6, 1996, a 55-year-old male, highway department supervisor (victim), died from multiple trauma after he was struck by a reversing dump truck at a multi-lane road bed repair project. Approximately two hours after the incident the MO FACE investigator was notified by the county medical examiner's office. On February 7, 1996, the MO FACE investigator responded to the incident and met with employer representatives, the employer's safety officer, interviewed the driver of the vehicle, and surveyed the incident site. On February 14, 1996, the victim's supervisor was interviewed and on the February 15, 1996, several other witnesses to the event were interviewed.

The employer had been in operation since the 1920's. The victim had been employed for 30 years and had worked on this project for two weeks. The employer has written safety rules and procedures that included hazard assessment and training. The victim was the job-site superintendent with many years of experience, but normally did not work within this major metropolitan area.

INVESTIGATION:

The incident occurred on a heavily traveled metropolitan six-lane highway with a center divider. The incident site was an area with an overpass and with a highway entrance acceleration lane. This acceleration lane made the incident area four lanes wide. The project consisted of patching potholes and laying down a new layer of asphalt over the extremely broken up areas of the road bed. On the day of the incident the workers had set cones and shut down the entrance and acceleration lane and the outer lanes of the highway to traffic. The operators of the dump trucks were instructed to go to the local asphalt plant and load their trucks with cold/hot mix asphalt (approximately 14,000 pounds) before arriving at the work site. The victim was the job-site superintendent and had been directing the job-site that morning. He had instructed some of the workers

to be flaggers and one person to be spotter for starting and stopping the application of oil and asphalt. Some of the workers who were driving and operating the dump trucks sat in their vehicles until they were instructed where to spread their load of asphalt. Other operators exited their vehicles and watched the work from the road side. The project was working two graders and had two oil distributor trucks. The driver of the truck involved in the incident was directed to the start of the patch area. The spotter then set the chains on the dump gate. The driver was then instructed to raise his bed and to begin spreading the load of asphalt. At the end of the patch the driver was instructed to lower his bed and stop the mix. The driver then pulled forward a short distance and parked next to the oil distributor truck. The victim (job-site superintendent) then instructed the spotter, the driver and the oil distributor truck operator that he wanted to lay down another patch beside the first one. He turned and proceeded to walk along the shoulder toward the incident site. During this time a grader operator was spreading and leveling the material on the first patch in preparation for the asphalt rollers. The dump truck operator and the oil distributor truck operator decided it would be best that the dump truck should back up first to the starting point of the patch and the oil distributor truck would then follow. The dump truck then pulled into lane three and started backing toward the incident site. At some point after the operator started backing the victim crossed from the shoulder and into the lane used by the reversing truck. The truck driver did not see the victim, struck and backed over him. Several workers saw that the victim was about to be run over and tried to warn him and the truck driver. The workers rushed to the site and halted the truck. One witness ran to call 911. EMS responded within minutes; however the victim was pronounced dead at the scene.

CAUSE OF DEATH:

The autopsy report listed the cause of death as blunt head and chest trauma.

RECOMMENDATIONS AND DISCUSSION:

Recommendation #1: Employers should ensure that mobile equipment is equipped with well-maintained audible backup alarms to warn pedestrians of impending equipment movement.

Discussion: The dump truck in this incident was equipped with an audible backup alarm, which is activated when the vehicle is shifted in to reverse. According to the investigating highway patrol officer, the alarm was functioning correctly when tested after the incident. Audible alarms that give warning when mobile equipment is reversing can provide warning to pedestrians even if out of sight of the equipment, allowing time for them to retreat from the vehicle's path. This is especially important for work environments where more than one vehicle is operating.

Recommendation #2: Employers should ensure that work procedures minimize or eliminate pedestrian exposure to hazards from moving vehicles and mobile equipment.

Discussion: It appeared that the victim was inspecting the road bed prior to applying the asphalt mix at the time of the incident. He was walking toward the beginning of the patch area with his head down and the hood of his sweatshirt was pulled up around his ears. It is the policy of the employer that pedestrian traffic is not allowed in the work zone except for those persons designated as spotters for the trucks and equipment.

Recommendation #3 Employers should consider providing personal audible alarms to pedestrian workers who are exposed to hazards of vehicle movement.

Discussion: Small hand-held, gas-operated horns capable of generating 112 dB of sound or an electronic warning indicator that signals the driver inside the cab would allow pedestrians to warn vehicle operators of their presence within

the blind spot of the equipment, such as dump trucks. According to witnesses, the victim in this incident was not aware of the approaching dump truck until it was too late to escape. Had he been aware of the approaching dump truck and not able to escape its path, a warning device could have been activated, signaling the driver to stop.

The Missouri Department of Health, in co-operation with the National Institute for Occupational Safety and Health (NIOSH), is conducting a research project on work-related fatalities in Missouri. The goal of this project, known as the Missouri Occupational Fatality Assessment and Control Evaluation Program (**MO FACE**), is to show a measurable reduction in traumatic occupational fatalities in the State of Missouri. This goal is being met by identifying causal and risk factors that contribute to work-related fatalities. Identifying these factors will enable more effective intervention strategies to be developed and implemented by employers and employees. This project does not determine fault or legal liability associated with a fatal incident or with current regulations. All **MO FACE** data will be reported to **NIOSH** for trend analysis on a national basis. This will help **NIOSH** provide employers with effective recommendations for injury prevention. All personal and company identifiers are removed from all reports sent to **NIOSH** to protect the confidentiality of those who voluntarily participate with the program.

SIGNATURES:

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Chief Investigator

Daryl Roberts

**Chief
Bureau of Environmental Epidemiology**

MO FACE Dissemination List

NIOSH

Alaska Department of Health and Social Services

California Public Health Foundation

University of Iowa

Kentucky Injury Prevention and Research Center

Massachusetts Department of Public Health

Maryland Division of Labor & Industry

Minnesota Department of Health

Nebraska Department of Labor

State of New Jersey Department of Health

Ohio Department of Health

Oklahoma State Department of Health

Texas Worker's Compensation Commission

Washington Department of Labor & Industries

Wisconsin Division of Health

WVU School of Medicine

Wyoming Department of Health

Missouri Southern State College

Missouri Department of Public Safety

Cuivre River Electric Company

University of Missouri

OSHA Kansas City Area Office

MIRMA

OSHA St. Louis Area Office

St. Joseph Safety Council

Missouri Safety Council

St. Louis County Department of Community Health

41st Judicial Circuit of Missouri

Cape Girardeau County Community Traffic Safety

St. Louis County Medical Examiner Office

AMEC

Missouri Police Chiefs Association

Children's Mercy Hospital

St. Louis City Medical Examiner Office

St. Charles Police Department

Grundy Electric Company

Jackson County, Office of the Medical Examiner

Shelter Insurance Companies

Missouri Hospital Association

Safety Council of Greater St. Louis

MO Department of Elementary & Secondary Education

Missouri Farm Bureau

Missouri State Labor Council

Empire District Electric Company

Department of Social Services

Mine Safety and Health Administration

Safety Council of the Ozarks

Stephens College

AK FACE Program

CA FACE Program

IA FACE Program

KY FACE Program

MA FACE Program

MD FACE Program

MN FACE Program

NE FACE Program

NJ FACE Program

OH FACE Program

OK FACE Program

TX FACE Program

WA FACE Program

WI FACE Program

WV FACE Program

Missouri Department of Mental Health
Missouri Department of Labor and Industrial Relations
North Central Missouri Safety Council
Missouri Sheriff's Association
Missouri Attorney General's Office
Missouri Department of Agriculture
Safety and Health Council of Western Missouri & Kansas