NJ FACE

INVESTIGATION REPORT

Fatality Assessment & Control Evaluation Project

FACE 03-NJ-070 **August 30, 2004**

Highway Worker Struck and Killed by an Auto While Filling Potholes

On September 5, 2003, a 31-year-old highway maintenance worker was struck and killed by an automobile while preparing to fill potholes in the shoulder of a toll road. The victim was part of a two-man mobile work crew assigned to fill potholes along a section of the highway. The workers had just stopped their utility truck on the shoulder of the road and had walked to the rear of the truck to get their equipment. At that time, a motorist was witnessed driving erratically down the highway. As he approached the crew, he drove his Volvo sedan onto the shoulder of the highway, striking the victim and sideswiping the truck. The force of the impact severed the victim's leg and threw him into the back of the utility truck. His co-worker, an experienced Emergency Medical Technician (EMT), was uninjured and tried to help the victim, who died at the scene. NJ FACE investigators recommend following these safety guidelines to prevent similar incidents:

- **Mobile highway work crews should use truck-mounted traffic attenuators and sign boards as per the USDOT *Manual for Uniform Traffic Control Devices*.**

- **Highway authorities should consider the use of automated machines for the routine filling of potholes.**

- **Employers should conduct a job hazard analysis of all work activities with the participation of the workers.**

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INTRODUCTION

On September 9, 2003, NJ FACE staff received a newspaper article about a highway maintenance worker who was killed at work on September 5, 2003. A FACE investigator contacted the Office of Public Employees Safety of the New Jersey Department of Labor & Workforce Development (NJDLWD), the state agency that enforces the safety standards under the New Jersey Public Employees Occupational Safety and Health Act. The FACE investigator then contacted the safety officer of the highway authority that employed the victim and arranged a site visit. On September 11, 2003, a site visit was conducted concurrently with the NJDLWD Compliance Officer. At that time, the FACE and NJDLWD investigators interviewed the safety officer for the highway authority and the victim's supervisors. The incident site was also photographed. On September 26, 2003, a second visit was conducted with the NJDLWD Compliance Officer to interview the co-worker who was with the victim during the incident. Additional information on the incident was obtained from the county Medical Examiner. The State Police report was available at the time of this report.

The victim's employer was a public highway authority (SIC 4173, NAICS 488490) that operated the two major toll highways running through the state. The authority employed 1,293 workers, 450 of whom worked in the maintenance division that operated and maintained 321 miles of highway. The two separate toll highways had recently been merged under the highway authority, and the work practices were in the process of being merged. In addition to having a full-time safety officer, the highway authority had a comprehensive written safety program which included a traffic control manual based on the US Department of Transportation (USDOT) *Manual for Uniform Traffic Control Devices*. Safety practices at the individual maintenance garages included labor-management safety committees, use of truck-mounted impact attenuators, and consistent use of safety vests and other personal protective equipment.

The victim was a 31-year-old white male who had worked for the highway authority for a total of eight years. He started as a toll collector in 1995 and applied for the highway maintenance division in March, 2003. He was accepted and assigned to a maintenance garage where he received basic on-the-job and classroom training in equipment, basic highway maintenance, fire extinguishers, and other related subjects. His supervisor said that the victim had just received his commercial driver's license and was satisfied with his new job duties.

INVESTIGATION

The incident occurred on the shoulder of a major toll road running through a rural area. The victim and his co-worker were stationed at a maintenance garage located off the toll road approximately ten miles north of the incident site. He had been working at the garage for about six months, after working for over seven years as a toll collector. Hired as a Level 1 Maintenance Person, the victim was learning the basic duties of highway maintenance, such as picking up litter, cleaning spills, mowing grass and brush, and filling potholes. He recently had received his commercial driver's license that allowed him to operate large trucks and plows.

The incident occurred on Friday, September 5, 2003. The victim arrived at his garage at about 6:45 a.m. for his usual 7:00 a.m. to 3:00 p.m. work shift. He spent the first part of the morning washing and waxing the trucks at the garage before getting his primary work assignment. At around 10:30 a.m., his supervisor, who had driven the highway looking for potholes, instructed the victim and his co-worker to fill the potholes along a 10-mile stretch of the highway. They were to take a Ford F-250 ¾-ton pickup truck out to the highway and fill the holes with a cold patching material. This was to be a single-truck mobile operation where they would travel the highway, find the potholes, stop, fill them, and continue. The highway authority had detailed plans for setting up mobile highway work zones, but filling potholes was not considered a mobile operation due to the short time needed to fill the individual potholes.

The section of the road the crew was to work on was a four-lane divided highway with two northbound lanes and two southbound lanes. The two roadways were separated by a wide, wooded median. Each traffic lane was 12 feet wide, and each roadway had an 11-foot-wide right shoulder and a narrow left shoulder. The procedure for filling the potholes was as follows; 1) after sighting a pothole, the crew would pull onto the shoulder of the road, 2) they would leave the truck, get their tools, and shovel in some plastic-based cold patch from the back of the truck., and, 3) they would tamp (pound) down the patch with their shovels. The patch was tamped down further when run over by passing cars. It took only a few minutes to complete the repair before they moved onto the next hole.

Photo 1
Highway leading to incident site (arrow)

The two-man crew left the garage a few minutes after receiving their assignment. The crew started work on the southbound side, filling two potholes before reversing direction to move northbound. At 11:05 a.m., the crew approached an eight-by-four-inch pothole on a gently curving section of highway with a mild incline (see Photo 1). A guard rail ran along the right shoulder of the road. The co-worker drove the truck onto the shoulder, and the victim asked him to "get close to the rail, I'm skinny enough" (to get out). As the two men left the truck, each was wearing a yellow and orange ANSI Type II safety vest. The truck was also equipped with a flashing amber light bar on the roof. The two went to the rear of the truck to get their shovels, with the victim standing closest to the highway. At that time, witnesses reported seeing a Volvo sedan traveling erratically across the highway lanes for approximately two miles. Witnesses reported seeing the driver's head bobbing, indicating the driver may have been falling asleep. The two men did not see the car as it approached them and moved onto the shoulder. The sedan struck the victim at 11:15 a.m., completely sever the victim's lower left leg and throwing his body into the back of the pickup truck. The car struck the truck, pushing it forward about 15 feet. The car then moved back into the traffic lane for a short distance before moving back to the shoulder where it struck the guardrail and came to a stop. There were no skid marks at the incident scene, indicating that the driver did not use his brakes before the impact.

The co-worker was standing directly beside the victim when he was struck by the car. He saw

the victim thrown into the pickup, striking the rear window of the truck and landing in the truck bed. A trained and experienced rescue squad EMT, the co-worker immediately went to help the victim and called on his two-way radio for assistance. He found that the victim was unresponsive and had no pulse. As he waited for help, the co-worker retrieved the victim's leg which had been thrown into the traffic lanes. The victim's supervisors were the first to arrive on the scene, followed closely by the police and Emergency Medical Service paramedics. The victim was pronounced dead at the scene at 11:40 a.m.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Mobile highway work crews should use truck-mounted traffic attenuators and sign boards as per the USDOT *Manual for Uniform Traffic Control Devices*.

Discussion: Due to the short time spent repairing a pothole, this operation was not covered by the highway authority's highway work-zone procedures. This operation only used a single truck with flashing lights, providing minimum protection for the workers. To provide additional protection, NJ FACE recommends that employers follow the recommendations outlined in the US Department of Transportation *Manual for Uniform Traffic Control Devices, Millennium Edition* whenever working on an active highway work-zone. Under these guidelines, this type of operation would be considered a mobile work zone, requiring the use of a vehicle equipped with a truck-mounted attenuator and a separate vehicle with a signboard to help direct traffic away from the area. The manual also gives specific practices for many other types of work-zone operations.

It was noted the NJDLWD Office of Public Employees Safety cited the highway authority for failure to use legible traffic signs to warn drivers of men filling potholes at the point of hazard. The highway authority has corrected this violation.

Recommendation #2: Highway authorities should consider the use of automated machines for the routine filling of potholes.

Discussion: In this incident, the intruding motorist was driving erratically and reportedly entered the work zone at an angle. There is a strong possibility that having the additional safety equipment recommended above may not have prevented this incident since the driver may have

entered the work zone ahead of the equipment. To better protect the workers, NJ FACE recommends that the highway authority consider the use of automated pothole filling machines. These are specialized vehicles that can approach and repair potholes without any workers needing to leave the relative safety of the vehicle. Although the use of this machine would still require the equipment for a mobile work zone, it would better protect the workers involved in the operation.

Recommendation #3: Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

Discussion: As a general precaution, we recommend that employers conduct a job hazard analysis of all work areas and job tasks with the employees. A job hazard analysis should begin by reviewing the work activities that the employee is responsible for and the equipment that is needed. Each task is further examined for mechanical, electrical, chemical, or any other hazard the worker may encounter. The results of the analysis can be used to design or modify the written employee standard operating procedures. Additional information on conducting a job hazard analysis is included in the appendix.

RECOMMENDED RESOURCES

It is extremely important that employers obtain accurate information on health, safety, and applicable OSHA standards. NJ FACE recommends the following sources of information which should help both employers and employees:

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)

Federal OSHA will provide information on safety and health standards on request. OSHA has several offices in New Jersey that cover the following counties:

☏ Hunterdon, Middlesex, Somerset, Union, and Warren counties.....(732) 750-3270

☏ Essex, Hudson, Morris, and Sussex counties.....(973) 263-1003

☏ Bergen and Passaic counties.....(201) 288-1700

☏ Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester, Mercer, Monmouth, Ocean, and Salem counties.....(856) 757-5181

🖷 Federal OSHA Website: *www.osha.gov*

NJ Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH act covers all NJ state, county, and municipal employees. Two state departments administer the act; the NJ Department of Labor and Workforce Development (NJDLWD), which investigates safety hazards, and the NJ Department of Health and Senior Services (NJDHSS) which investigates health hazards. PEOSH has information that may also benefit private employers.

NJDLWD, Office of Public Employees Safety

☏Telephone: (609) 292-7036

🖷 Website: *www.state.nj.us/labor/mainpages/safety.html*

NJDHSS, Public Employees Occupational Safety & Health Program

☏Telephone: (609) 984-1863

🖷 Website: *www.state.nj.us/health/eoh/peoshweb*

NJDLWD Occupational Safety and Health On-Site Consultation Program

Located in the NJ Department of Labor and Workforce Development, this program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards.

☏Telephone: (609) 984-0785 or (609) 292-0104

🖷 Website: *www.state.nj.us/labor/wps/psosh/onsite/onsite.htm*

New Jersey State Safety Council

The NJ State Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars.

☏Telephone: (908) 272-7712. 🖷 Website: *www.njsafety.org*

Internet Resources

Other useful internet sites for occupational safety and health information:

www.cdc.gov/niosh - The CDC/NIOSH website.

www.dol.gov/elaws -USDOL Employment Laws Assistance for Workers and Small Businesses.

www.nsc.org - National Safety Council.

www.state.nj.us/health/eoh/survweb/face.htm - NJDHSS FACE reports.

www.cdc.gov/niosh/face/faceweb.html - CDC/NIOSH FACE website.

REFERENCES

MUTCD 2000: Manual on Uniform Traffic Control Devices, Millennium Edition. US Department of Transportation, Federal Highway Administration, 2001. Available for free download at http://mutcd.fhwa.dot.gov/kno-millennium_12.28.01.htm

Building Safer Highway Work Zones: Measures to Prevent Worker Injuries From Vehicles and Equipment. DHSS (NIOSH) publication 2001-128, NIOSH Publications Dissemination, Cincinnati, OH (800) 356-4674. *www.cdc.gov/niosh/2001128.html*

Job Hazard Analysis. US Department of Labor Publication # OSHA-3071, 1998 (revised). USDOL, OSHA/OICA Publications, PO Box 37535, Washington DC 20013-7535.

DISTRIBUTION LIST

Immediate Distribution

NIOSH

Employer

Incident Site Owner

NJ State Medical Examiner

County Medical Examiner

Local Health Officer

NJDHSS Occupational Health Service Internet Site

NJDHSS Census of Fatal Occupational Injuries (CFOI) Project

Fatality Assessment and Control Evaluation (FACE) Project
Investigation # 03-NJ-070

Staff members of the New Jersey Department of Health and Senior Services, Occupational Health Service, perform FACE investigations when there is a report of a targeted work-related fatal injury. The goal of FACE is to prevent fatal work injuries by studying the work environment, the worker, the task and tools the worker was using, the energy exchange resulting in the fatal injury, and the role of management in controlling how these factors interact. FACE gathers information from multiple sources that may include interviews of employers, workers, and other investigators; examination of the fatality site and related equipment; and reviewing OSHA, police, and medical examiner reports, employer safety procedures, and training plans. The FACE program does not determine fault or place blame on employers or individual workers. Findings are summarized in narrative investigation reports that include recommendations for preventing similar events. All names and other identifiers are removed from FACE reports and other data to protect the confidentiality of those who participate in the program.

NIOSH-funded state-based FACE Programs include: Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin. For further information, visit the NJ FACE website at www.state.nj.us/health/eoh/survweb/face.htm or the CDC/NIOSH FACE website at www.cdc.gov/niosh/face/faceweb.html.

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