

Road Equipment Operator Run Over by Roller in Wyoming

SUMMARY

A 36 year old male county road equipment operator died from injuries suffered when the pavement roller he was operating struck the rear end of a belly-dump asphalt carrier while travelling from a work site at the end of a county road improvement project. The two vehicles had been on a patching job approximately 90 miles away from the county seat. The truck had dumped a load of asphalt at the patch site and had driven up to the top of a hill to turn around while the victim operated a pavement compactor to roll the asphalt. After turning around, the truck drove past the job site and was slowing to a stop to wait for the victim to finish, so that they could drive together to a nearby staging area to park their vehicles.

The victim completed his job and started after the truck at the highest possible speed of the machine (approximately 13 mph). Neither the truck driver nor his passenger saw the victim leave the job site and enter the roadway. The victim apparently did not realize that the truck was slowing or properly judge the distance between the two vehicles. The pavement compactor/roller struck the protruding "stinger" at the rear of the truck, causing the roller to "articulate" (bend in the middle with the front and back rollers moving from parallel to perpendicular), ejecting the operator. The roller then began a circular movement, running over the victim and continuing in a circular pattern.

The truck passenger, feeling the shock of the collision, ran to the rear of the truck to see what had happened, saw the victim lying on the edge of the road, and tried to pull him out of the path of the machine while the truck driver attempted to climb on the still-circling machine to get it stopped before it ran over the victim a second time. They called for medical help and a life flight aircraft arrived in approximately 30 minutes. The victim was conscious and alert during the entire time. He tried to get up but the driver and passenger kept him laying down.

The victim was transported to a major hospital in the central part of the state, where he was received approximately 1½ hours after the incident occurred. Emergency treatment was provided en-route from the incident scene and in the hospital emergency room. He was awake and able to communicate by hand motions, but could not talk due to multiple face injuries. The victim expired in the hospital approximately two hours after being received there, and about 3½ hours after the incident occurred.

Results of a drug screen determined the existence of Cannabinoids in the urine and blood, indicating the use of marijuana within hours of the incident.

Employers may be able to minimize the potential for occurrence of this type of incident through the following precautions:

- **Maintain visual contact with machinery that is scheduled to be moved to another location**
- **Establish and enforce strict policy regarding use and abuse of alcohol and other drugs, to include employee counseling or drug screening where appropriate**

- **Provide employee incentives to refuse to work with a co-worker who is under the influence of alcohol or drugs.**

INTRODUCTION

On a Thursday afternoon, August 26, 1993 a county road equipment operator was working with three co-workers to patch a pothole with asphalt. The victim had been employed for the past five years as an operator of the pavement compactor that he was operating at the time of the incident, and had been employed by the county for nearly ten years.

The task involved the crew leader (who was a truck passenger at the time of the incident), a truck driver, the operator of a road grader, and the victim who was the operator of a pavement compactor/roller. Early in the afternoon, the belly-dump truck arrived at the scene with a load of hot asphalt, which was dumped on the area to be patched. After the asphalt had been laid, the road grader was brought in to smooth out the hot asphalt. After the grading had been finished, the victim brought his pavement roller into the area to pack down the asphalt. As the asphalt was being rolled, the crew leader told the truck driver to go to the top of the hill and turn around, so that they would be ready to return to the staging area where the equipment was to be parked for the night. The operator of the road grader was outside the work area, cleaning the blade with diesel. As the truck returned to the work area, the crew leader stepped up onto the running board of the truck, which travelled another 400' and slowed to a stop to wait for the pavement roller to join them for the drive back to the staging area.

Apparently, the victim completed his task earlier than had been expected, and left the work area to follow the truck. The roller was set at open throttle, which would maintain the top speed possible of about 13 miles per hour. No one viewed the incident or knew that the victim had left the work area. Both the driver of the truck and the crew leader, who was riding on the running board of the truck, became aware when they felt the impact on the truck.

At the time of impact, the truck had slowed almost to a stop, and the passenger, who was riding on the running board of the slow moving truck, jumped off and ran to the back of the truck to see what had happened. The driver brought the truck to a stop, and then ran to the back of the truck. The passenger saw the victim lying at the edge of the pavement and tried to pull him out of the way. The driver saw the roller, which was still circling in a counter-clockwise direction, run over the victim. The driver then ran to the roller to attempt to stop it. After running over the victim once, the machine continued to circle three or four times before he got it stopped, but only ran over the victim once.

INVESTIGATION

Through a reciprocal notification agreement with the Director of the Occupational Safety and Health Division of the Department of Employment, the WY-Wyoming FACE Project was notified on August 31, 1993. Requests for information were hand carried to local authorities and the Project Coordinator conducted its investigation.

The victim was a large man, weighing approximately 220 pounds. He was 36 years old and had been employed by the county for around 10 years; first as a fireman and later as a heavy road equipment

operator. He had reportedly transferred from the fire department to the road department following a traffic incident where the fire truck he was driving was involved in a fatal crash. Since transfer to the road department, he had operated a pavement compactor/ roller similar to the unit he was operating at the time of this incident. He was considered by his superior to be well qualified to operate the machine. Company representatives noted that he was interested in watching wildlife in the area, and that he often spotted items from tin cans to arrowheads at the side of the road; supposing that he had been distracted by observing off-the-road events rather than watching the truck ahead of him. They indicated doubts as to whether he would be "showing off" or drinking on the job, seeing him as one who took pride in his abilities to handle the machine and one who accepted responsibility.

The task being conducted was a routine patch job to repair a pothole on a county road. Four persons were at the scene, which was about 90 miles from their home base; a crew supervisor, the driver of a belly-dump truck loaded with asphalt, the operator of a road grader, and the victim. At the time of the incident, the truck and road grader operations had been completed and the drivers of those vehicles had left the work area preparatory to returning to the staging area where the vehicles were to be parked.

The victim was the last to complete his part of the task, and is assumed to have been driving at top speed toward the rear of the truck, which was slowing to a stop to wait for him. Neither the driver of the truck nor the crew leader who was riding on the running board realized that the victim had completed his task and left the work area to join them for the trip back to the staging area.

The crew leader attempted to pull the victim out of the way of the roller, but was unable to move him because of her strength and his weight. After having been run over, the victim was able to roll himself out of the path to prevent being run over a second time. After setting the brake on the truck, the driver tried to get the machine stopped. When he first attempted to get on the roller he fell and was nearly run over himself. On the second try, he got on the machine, located the throttle and shut the machine down. He then came to the crew leader who was beside the victim, and the crew leader left to use the truck radio to call for help.

At that time, the victim was alert and talking, and tried to get up, but his co-workers kept him still. The victim complained of pain and was bleeding. The co-workers covered him for warmth and kept him talking while they waited for help to arrive.

The lifeflight aircraft was notified within minutes of the incident and was airborne within 8 minutes of notification, arriving at the scene 26 minutes after takeoff and approximately 36 minutes after the incident occurred. On arrival, paramedics found the victim lying on his right side in the grass on the shoulder of the road. He was alert and talking, but difficult to understand due to injuries to his face, chest and abdomen. Both eyes were swollen shut and covered by dried blood. His skin was dry and cool to the touch. There was a 6" laceration across his forehead and possible depression of the skull. His upper jaw and some teeth were dislodged and his nose was swollen, but no free or floating teeth were noted and he was able to maintain his airway on his side. All extremities were moveable with equal sensation. Log roll attempts to place the victim supine caused immediate airway trouble, so he was transported on his right side. IV was initiated enroute & airway maintenance was provided. He was received in the hospital emergency room an hour and 20 minutes after notification of the incident.

On arrival at the emergency room, the victim was awake and alert, but could not talk due to his facial injuries. By means of hand signals, he communicated that most of his pain was across his face and left shoulder. He had some chest pain with breathing, but indicated an absence of abdominal, pelvic, or lower extremity pain. He indicated that he did not remember what had happened to him, and that he was

not certain what medication he was on, although it was apparent that he was on some form of medication.

After being stabilized, the victim was given a CT Scan to find what damage might have occurred as a result of the laceration to his head. While in the CT scanning suite, he suddenly developed bradycardia and hypotension and, within less than two minutes, went into cardiopulmonary arrest and full cardiopulmonary resuscitation was initiated. Despite extensive resuscitation efforts and left lateral thoracostomy, he was not responding. Resuscitation efforts were discontinued and the victim was declared dead less than two hours after admission and approximately 3½ hours after the incident occurred.

Drug tests conducted on blood and urine confirmed the presence of cannabinoids in both the blood and urine. The results indicate that marijuana may have been ingested within hours of drawing blood and urine for testing. Having observed that the victim seemed to be on medication while in the emergency room, his wife was asked about medications. She stated that he took a prescribed anti-hypertensive as well as a medication for gout.

On the morning following the incident, the truck driver was interviewed by law enforcement personnel about the incident. Following that interview, the driver asked to be given a drug test so "two or three months or years from now...no one could accuse him of being on drugs".

CAUSE OF DEATH

The Medical Examiner listed the cause of death as Cerebellar herniation (traumatic) due to massive head and chest blunt trauma.

RECOMMENDATIONS/DISCUSSION

This incident could have been prevented by the victim himself by being more cognizant of the distance and speed differential between his vehicle and the vehicle ahead. He was travelling at the highest possible rate of speed for his machine, which was approximately 13 miles per hour as the truck was slowing to a stop on a downgrade. The roadway was dry asphalt. The occurrence was in daylight with clear skies and no visual obstructions. There were no reported defects to either of the vehicles. Law enforcement officers noted driver inattention as a possible contributor and drug tests showed the presence of marijuana in the victim's blood and urine. One of the known side-effects of marijuana use is a deficiency of depth perception, which may have contributed to the incident.

There is an engineering function that could have served as a preventative for this type of incident. If the pavement roller had been equipped with a shut-off mechanism that activated when the seat was vacated, the machine would have shut down when the victim was first ejected and might not have run over him. The machine was a two-seater which allows the operator to move from seat to seat in order to face forward whether the machine is operating in forward or reverse. Such a mechanism might inhibit such opportunity. The victim was apparently in the forward seat, facing backwards, at the time of the incident.

There may be an advantage, in the aftermath of this incident, to include procedures for this type of operation that require the crew leader to maintain visual contact with machinery that is about to enter or leave a work area, so that others in the area can be alerted to that movement. While the crew leader was outside the cab area of the truck, she was apparently not watching the victim as he finished his task and departed from the area.

Two side events should be noted that indicate hazardous work practices. First, the crew leader was riding on the running board of a moving truck. While this is a common practice it is not a safe one. Secondly, in attempting to stop the circulating machine the truck driver was nearly run over himself. He was not aware of the machine operation and needed to hunt for the throttle after he finally got on the pavement roller. Cross-training of employees who work together on work crews may help reduce that potential.

The most critical consideration must be the employees apparent use of a controlled substance on a job site. While this investigation could not determine how long before the test the marijuana had been consumed, it seems likely that it was ingested during the work day. The physicians' concern that the victim was on some kind of medication and the co-worker's concern to be tested as proof that he had no drugs in his system favor the possibility that the victim had taken drugs prior to the incident.

This possibility encourages this and all companies who may have employees who work while under the influence of alcohol or drugs to take steps to minimize the potential for such actions. Companies should establish and strictly enforce policy regarding the use and abuse of alcohol and other drugs. Such policy should include employee counseling or drug screening where appropriate. Companies should also consider employee incentives to refuse to work with a co-worker who might be under the influence or drugs or alcohol. When one worker is under such influence, it creates a danger to co-workers as well, and employers would be well advised to encourage employees to not accept such work conditions.

FATAL ACCIDENT CIRCUMSTANCES AND EPIDEMIOLOGY (Wyoming FACE) PROJECT

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatal Accident Circumstances and Epidemiology (Wyoming 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.

States participating in this study include: Kentucky, Maryland, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

NIOSH Funded/State-based Wyoming FACE Projects providing surveillance and intervention capabilities to show a measurable reduction in workplace fatalities include: Alaska, California, Colorado, Georgia, Indiana, Iowa, Massachusetts, New Jersey, Minnesota, Missouri, Wisconsin and Wyoming.

Additional information regarding this report is available from:

Wyoming Occupational Fatality Analysis Program
522 Hathaway Building - 2300 Capitol Avenue
Cheyenne, WY 82002
(307) 777-5439

Please use information listed on the Contact Sheet on the NIOSH FACE web site to contact [In-house FACE program personnel](#) regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.