

TO: Director, National Institute for Occupational Safety and Health

FROM: California Fatality Assessment and Control Evaluation(FACE) Program

SUBJECT: Truck driver dies when run over by heavy equipment in California.

SUMMARY
California FACE Report #96CA0012

A 41-year old male owner/operator truck driver (victim) died after being run over by the rear wheels of his tractor and the rear wheels of its front trailer at a construction dump site. The victim was attempting to dump the dirt from his double trailer rig. His front trailer failed to dump. The victim got out of his tractor to attempt to make a field repair of the front bottom-dump trailer which had failed to open. While working on his rig, a dozer pulled up behind the tractor/trailer combination to push it out of the way. The dozer operator did not see the truck driver who was hidden behind the dual tires at the rear of the tractor. The truck driver had failed to set his parking brakes, so the dozer operator was able to push the tractor trailer rig about 25 yards. A number of on site workers noticed the situation and were finally able to stop the dozer operator. The CA/FACE investigator concluded that, in order to prevent future occurrences, employers should:

- Assure that truck drivers stay in their trucks when at a dump site and wait to be pushed clear of the danger area.
- Make certain that operators of heavy construction equipment locate the driver of trucks or other equipment to be sure they are clear of the danger area before attempting a pushing operation.
- Require truck drivers or equipment operators to wear high visibility garments when they get out of or off of their vehicles in hazardous traffic areas.
- Have a "dump man" on site to control any operation which involves pushing machinery or equipment.

INTRODUCTION

On August 5, 1996 at 11:10 a.m., a 41-year old male truck driver was run over by the rear wheels of his tractor and the rear wheels of its trailer, and was declared dead at 11:37 a.m. The victim had gotten out of his tractor at the dump site when his front trailer failed to dump its load. He was attempting to perform a field repair of the front bottom-dump trailer when the dozer pulled up behind his rig and began to push it out of the way of incoming rigs. The CA/FACE investigator learned of the incident on August 8, 1996 through the county coroner's office. The CA/FACE investigator responded to the site of the incident on August 12, 1996 and met with the project superintendent for the general contractor, the representative for the truck dispatching company and the project's safety officer who spent 100% of his time attending to safety matters. A copy of the Cal/OSHA form 36, coroner's report, and death certificate were obtained by the CA/FACE investigator.

The truck dispatching company who had hired the decedent for the job, had been in

business for 43 years and employed 75 permanent employees. They had been working at the site for one month. The truck dispatching company had one employee and three owner/operator trucks at the site at the time of the incident. The decedent, an independent owner/operator of his own transportation business, had worked at the site only on the day of the incident. He also had worked for the dispatch trucking company for three days on another job. Before hiring the decedent they ensured that he had a proper Public Utilities Commission permit, workers' compensation insurance, vehicle insurance, and a proper driver license. A site survey was performed by the company prior to work and on a periodic basis thereafter.

INVESTIGATION

The site is a large municipal port. The major project was soil stabilization and remediation for a parking area. Certain areas of the overall project were being excavated for contaminated soil. The soil was removed to an on-site area and stabilized by mixing it with concrete. Fresh fill dirt was brought in by the tractor/bottom-dump trailers to replace the removed soil. The dispatch trucking company began hauling dirt in July 1996.

The dump site where the incident occurred is located near the middle of the major land parcel. It is a long, narrow strip of land approximately 120 yards long by 40 yards wide and about 19 feet deep. There was a large excavation in the west side of the site about 10 yards wide, 70 yards long and 15 feet deeper than the rest of the site. The trucks and equipment were, therefore, limited to a 30 yard width. A haulage route began at an existing dirt road on the north and turned onto a dirt construction road along the east and south sides of the dump site. An access ramp had been built at the south end of the site for the tractor-trailers. The tractor-trailers rigs would drive down the ramp, dump their dirt, and while driving in a northerly direction, return to the existing dirt road. The municipality involved had contracted with the general contractor to complete the job. As part of the project, the general contractor had contracted with a broker to supply tractors and bottom-dump trailers to haul excavated material from and into the excavated areas. The broker, in turn, contracted with the truck dispatching company, who then contracted with the decedent to perform the subhaul as needed. The decedent provided his own tractor and two bottom-dump trailers for the job.

On the day of the incident, the decedent began early in the morning hauling dirt onto the job site with his tractor and the two bottom-dump trailers. He was part of a fleet of many similar rigs whose job was to move material into the excavated area to replace the contaminated dirt which had been previously removed. Normally, a driver dumps his rear trailer and then his front trailer. The decedent had dumped several times successfully earlier in the day. Just prior to the incident, the decedent's rear trailer dumped, but his front trailer did not. The decedent got out of his tractor, and walked to an area between his fuel tank and the left rear wheels of his tractor. He was facing south and reached in an easterly direction to manipulate the wires which lead from the tractor to the front trailer. These wires operate the hydraulic release for the doors of the bottom dump trailers.

The decedent had left his engine running and had not set the parking brake. After manipulating the wires, the decedent was observed to lay down and pull on the bottom dump doors of the front trailer. Meanwhile, the dozer/compactor operator saw the decedent's tractor/trailer rig in a stationary position after dumping its rear trailer. The operator assumed that the rig must be stuck. One of his jobs was to push stuck rigs out of the dump area. The operator stated that he did not see the decedent get out of the tractor's cab. He moved his dozer/compactor in behind the rear bottom dump trailer. He aligned the left side of his dozer/compactor blade

with the stinger (push pad) of the rear trailer. The operator could not see into the cab of the tractor because it was offset to the right. The operator began pushing the tractor/trailer rig unaware that the driver was in a danger zone.

An operator who was in the cab of a scrapper, which was being loaded by an excavator at the northwest end of the site, saw what was happening. He exited the cab of his scrapper and ran, using the northwest ramp, to the cab of the tractor which was now moving due to the pushing action of the dozer/compactor. He saw the wheels of the tractor and front trailer run over the decedent. He entered the cab of the tractor and applied the "maxie" brakes. This caused the rig to move off to its left toward the deeper excavation. When the dozer/compactor operator noted the movement to the left, he stopped the pushing operation. The decedent was now under the left rear wheel of the fully loaded front trailer. The scrapper operator attempted to give aid to the decedent. The excavator operator had noticed the scrapper operator running toward the tractor/trailer rig. He then saw the decedent being crushed by the left rear wheel of the front trailer. He immediately drove the excavator, using the south ramp, to the front trailer. He used his bucket to lift the left side of the front trailer off of the decedent.

Two safety officers had just completed air monitoring in the deeper pit when they observed the decedent being run over. They were both waving and running toward the dozer/compactor operator to attempt to get him to stop. They saw the front trailer stop with its left rear tire on top of the decedent. They proceeded to that area to see if they could aid in the rescue. The paramedics were dispatched at 11:11 am and arrived at 11:29am. The decedent was found pinned under the left rear wheel of the bottom-dump trailer. He was laying on his stomach with blood coming out of his mouth, nose and ears. He was wearing blue pants and a blue and white stripped shirt. He was not wearing any high visibility garments or protective equipment such as a hardhat, steel toe caps or shoes.

Two workers were attempting to lift the wheels off of the decedent by using a block and a jack. The paramedics asked the workers to step back so the decedent could be evaluated. He was found to have no pulse and no spontaneous respiration. It was evident that he had been severely crushed by the fully loaded trailer's wheels. No cardiopulmonary resuscitation was initiated. He was pronounced dead at 11:37 a.m. Since the excavator holding the left side of the trailer in the air posed a hazard, the decision was made by rescue personnel to move the victim from under the wheels of the trailer.

CAUSE OF DEATH

The coroner's report indicated the cause of death to be multiple traumatic injuries.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Assure that truck drivers stay in their trucks when stuck at a dump site and wait to be pushed clear of the danger area.

Discussion: When the front bottom-dump trailer failed to dump its load, the driver got out to perform a field repair of the dump mechanism by manipulating its wiring. He left the engine running but did not set the parking brakes. The driver proceeded to the area between his tractor's rear wheels and its fuel tank. The dozer/compactor operator arrived to push the apparently stuck tractor-trailer out of the area. The decedent apparently did not hear or see the dozer/compactor in time to get out of the way. The tractor-trailer driver should have stayed in his cab. It is common practice at dump sites that drivers do not leave the cab of their truck when they become stuck. Drivers are supposed to wait to be pushed to a "dead" area so they can repair their rig.

Had the driver stayed in the cab of his tractor, this incident would not have occurred.

Recommendation #2: Make certain that operators of heavy construction equipment locate the driver of trucks or other equipment to be sure they are clear of the danger area before attempting a pushing operation.

Discussion: Although the driver of the tractor-trailer was partially hidden from the dozer/compactor operator's view by the rear tire of the tractor, the dozer/compactor operator should have attempted to make contact with the driver before beginning a pushing operation. Such communication could be accomplished by providing the tractor-trailer driver with a flag operation. If the operator of the grader had noted through positive communication that he had the driver's permission to perform the pushing operation, this incident may not have happened.

Recommendation #3: Require truck drivers or equipment operators to wear high visibility garments when they get out of or off of their vehicles in hazardous traffic areas.

Discussion: The tractor-trailer driver was wearing blue pants and a blue and white stripped shirt, and no personal protective equipment. It is common practice to require employees on a construction site to wear high visibility garments when in or near traffic areas. Often employees are required to wear such garments at all times on construction sites where there is moving traffic. Had the tractor-trailer driver been wearing a high visibility garment, the grader operator may have noted him getting out of his cab and walking to the rear of his tractor or saw him upon his approach to the rear trailer. Other employees at the site may have noted the driver, if he was wearing a high visibility garment, and waved off the grader operator before he began the pushing operation.

Recommendation #4: Employers should have a "dump man" on site to control any operation which involves pushing machinery or equipment.

Discussion: Many dump sites have a "dump man" whose job it is to control traffic in and around the dump site. In addition to controlling arriving and departing traffic, they also arrange for pushing stuck vehicles or equipment out of the dump site. They make sure it is safe to push a stuck vehicle or piece of equipment before the pushing operation begins. Had a dump man been working at the location and made sure it was safe to perform the pushing operation, this incident may not have happened.

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FATALITY ASSESSMENT AND CONTROL EVALUATION PROGRAM

The California Department of Health Services, in cooperation with the Public Health Institute and the National Institute for Occupational Safety and Health (NIOSH), conducts investigations of work-related fatalities. The goal of this program, known as the California Fatality Assessment and Control Evaluation (CA/FACE), is to prevent fatal work injuries in the future. CA/FACE aims to achieve this goal by studying the work 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. 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.

Additional information regarding the CA/FACE program is available from:

California FACE Program

California Department of Health Services

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