

# CSI Country-Wide Case Study Safety Strategy Discussion

## Construction Safety Investigator



### Instructions:

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The objective of this tool is to provide field supervisors with information to proactively engage workers and discuss safety related concerns that they may encounter. Safety discussions typically pertain to all activities that workers will be involved in that may have the potential for safety related exposures. This case study is based on facts and materials developed and first published by the agency/organization identified in the section below entitled Source of Case Study Investigative Information.

#### Case Day:

July 2013

#### Accident Type:

Mechanized Equip. Towing Accident – Caught Between

#### Relevant Laws, Rules, and Codes May Include:

29CFR 1926.20(a)(1); 29 CFR 1926.20(b)(2); 1926.20(f)(2); 1926.21;  
Komatsu D65PX-15 operation and maintenance manual

### Case:

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Project Delivery Driver Crushed Between Dozer and Semi-truck While Connecting Towline

### Accident Detail:

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An oil and gas industry delivery truck driver was fatally injured when he was crushed between a dozer and the front of his semi-truck.

The driver was delivering concrete to the job site and due to the hilly terrain, needed a tow to the well site. The towing dozer operator backed to the front of the driver's semi-truck.

The delivery driver exited his cab to connect to the dozer's towline. The driver was attempting to connect the towline to the front of his truck but needed a D-ring to complete the connection.

The dozer operator got up from his seat and was exiting the dozer to hand the delivery driver a D-ring. When exiting the dozer, it is believed his foot hit the parking brake lever and the dozer rolled backward, crushing the driver between the two vehicles. The dozer operator drove the dozer forward, and the delivery driver fell to the ground.

Emergency medical services (EMS) was called, and CPR was administered by another dozer operator until EMS arrived on-scene. The EMS responders pronounced the delivery truck driver dead shortly after their arrival. The medical examiner determined the cause of death was thoracic injuries.

### Reconstructive Safety Evaluation:

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- What are some of the possible causes of the accident being discussed?
- What actions could have been taken that might have prevented this accident from occurring?

## Agency's Accident Scene Conclusion:

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- The incident occurred on an access road to a well site while the delivery truck driver was hooking up his semi-truck with bulk cement trailer to a dozer. The section of access road was graded dirt and gravel surface with an approximately 10 percent grade. The dozer operator backed his dozer to within 3 feet of the driver's truck for hookup
- Two levers lock different parts of the machine. The safety lock lever is a device that locks the work equipment, such as the blade, from being used. The parking lever stops the tram control from being used and the machine from moving. In this incident, it is believed that the operator inadvertently kicked the parking brake lever while exiting the machine, releasing it, and causing the dozer to roll backward
- In this case, the dozer operator left the cab to give the delivery driver a D-ring, and the parking brake lever was inadvertently disengaged, which caused the dozer to roll back. A separate safety lock lever on the right side of the seat controls the work equipment attachments, such as the blade, from moving up and down. It is believed that this safety lock lever may not have been engaged
- The operator's manual warns that if the control lever (parking brake lever) is touched by accident, the machine may suddenly move and cause serious personal injury

### **Investigators identified the following hazards as key contributing factors in this incident:**

- Lack of safety training or standard operating procedure for towing vehicles
- Lack of appropriate safeguards for equipment
- Lack of spotter or designated hookup personnel
- Steep terrain
- Short length of chain being used; winch cable and chain not spooled out
- Truck not properly equipped ahead of time for towing (i.e., no D-ring pre-mounted on hitch pin)

### **Preventive Safety Measures Identified by the Investigating Agency Include:**

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- When leaving the machine, always lower the work equipment completely to the ground, set the safety lock lever (1) and parking lever (2) securely to the LOCK position, then stop the engine. Use the key to lock all the equipment. Always remove the key, take it with you, and keep it in a specified place [Komatsu 2004]
- Towing connections should be conducted on level ground where possible. In this incident, an attempt to hook up was performed on a slope of approximately 10 degrees. Steep terrain increases the chance of machinery moving unintentionally during operations. Designating a level area for hookup operations may reduce the risk of involuntary movement. If level ground isn't available, the machines should be staggered/offset so that if the potential to roll backward exists, the machine would not roll into the unit being towed
- Employers should ensure that drivers and equipment operators receive adequate safety training. In this case, consideration should be made for special hazards present during towline connection and disconnection, particularly when performed on a slope
- Vehicles being towed should be properly equipped for towing with all necessary hookup equipment prior to engaging in the hookup procedures
- The manual states: "When leaving the machine, always lower the work equipment to the ground, set work equipment lock lever and parking brake lever to lock position, and stop the engine. Always lock all parts, take the key with you, and leave the key in the specified place" [Komatsu 2004]

## Additional Commentary on Preventive Safety Measures from Chubb Include:

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- Complete a Job Safety Task Analysis that includes scope of work, anticipated exposures, and safety equipment and/or procedures needed to ensure the task is completed successfully and safely
- Conduct a pre-work meeting to review the JSTA and ensure workers understand the task to be completed, any safe working procedures and have the necessary safety equipment
- Employees should have adequate training on job-specific tasks. Proper training must extend to all workers, including day laborers. Language barriers and communication should also be considered during training

## Attendance Roster

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## Source of Case Study Investigative Information:

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This case study is based on facts and materials developed and first published by the following agencies during their investigation of the applicable incident:

- U.S. Centers for Disease Control and Prevention (CDC) and National Institute for Occupational Safety and Health Office of the Director (NIOSH)

The source material is otherwise available on the agency website for no charge. Chubb's use of information sourced from these or any other governmental agency does not constitute endorsement or recommendation of Chubb by these governmental agencies.

### Source and Links to Relevant Material:

NIOSH FACE Program, FACE Report 2015-01;  
<https://www.cdc.gov/niosh/face/In-house/full201501.html>

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