OR-FACE
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Center for Research on Occupational & Environmental Toxicology (CROET)
OHSU OREGON HEALTH & SCIENCE UNIVERSITY

Fatality Investigation Report

OR FACE 2003-15-01

Construction worker dies when he leans out of the protective cage of a skid steer forklift and is crushed.

Summary

A 32-year-old construction worker was killed when he leaned out in front of the loader's protective cage and the lift assembly came down crushing him. The skid steer's load was approximately 3 feet off of the ground. A short length of 2X4 had been placed on the ground beneath the load to help stabilize it. It is believed that the victim first leaned out over the safety bar, to remove the short length of 2x4 with a hammer from his tool belt. His hammer was not long enough and the victim raised the safety bar and leaned his body outside of the protective operator's cage in an attempt to again remove the 2X4. Witnesses at the scene stated that the victim's tool belt contacted the actuators in the operator's cage and the lift assembly lowered while he was leaning outside the operator's cage. According to the equipment manufacturer both the operators seat and safety bar are interlocked on this model and the hydraulics should not have raised or lowered the lift, had they been working properly.

The OR FACE program received notice of this workplace fatality from a news service. The employer declined a site visit and interview. This report is based on information obtained from the local police report of the incident, information from the loss control specialist of a building trade association and various news reports.

Recommendations:

- ✓ **Never modify, defeat, or override safety features. Similarly, never operate equipment in which safety systems or features have been modified or are not working properly.**
- ✓ **Do not leave the protective operators enclosure while operating equipment. Turn off the equipment before exiting the enclosure.**
- ✓ **Only trained skid steer operators should be allowed to operate equipment.**
- ✓ **Take care to remove or properly stow items that could interfere with the safe operation of equipment. (e.g., loose clothing, tool belts, etc.)**

Key Words: Construction

On June 3, 2003, a 32-year old construction worker was killed while operating a skid steer forklift, when the lift assembly came down and crushed him. OR FACE received notification of this incident on June 16, 2003.

The employer declined an onsite evaluation and interview. This report was compiled from secondary sources including interviews with emergency responders, local police reports, the Medical Examiners report and death certificate, and reports and photographs from other official investigations.

Investigation

The incident occurred in the parking lot of an active construction site. The victim worked for his father, the employer. On the day of the incident the victim and a co-worker were preparing to unload siding from the front of a skid steer. The siding was to be installed on a building under construction. The skid steer was parked in the parking lot and immediately adjacent to the building under construction. The parking lot was in the final stages of preparation for paving.

Photo 2. Position of safety bar following the incident.

The victim is reported to have told a coworker that he would, "get in and move the skid steer" to facilitate the parking lot surface preparation. The victim, while still wearing his tool belt, entered the operator's area to move the skid steer. According to an investigative report, the employer did have a policy of not operating equipment while wearing tool belts. The victim presumably was aware of this company policy, and a coworker saw that the victim was wearing his tool belt while operating the equipment, but did not intervene.

Once the victim was in the operator's seat, he realized that a 2X4 was still under the load and that it needed to be removed before moving the skid steer. The victim leaned forward while still in the seat in an attempt to knock the 2X4 out, from under the load, with the claw end of his hammer. The hammer, however, was too short. According to those on scene, he next lifted the safety bar up and out of his way and either got on his knees, or stood up, in the operator's cage and extended himself out of the protective operator's enclosure to a point where he was actually under the lift assembly. When he moved to this position, his tool belt caught on an actuator causing the lift assembly to lower on him. His head was crushed between the forklift assembly and the frame of the machine.

Local police and EMS were called to the scene. The victim was entangled in the fork assembly and EMS crew had to extricate him to perform advanced life support. The victim was transported to a local hospital and pronounced dead shortly after arrival.

A representative of the equipment manufacturer stated that the seat and the safety bar had an interlock function that should have prevented the lift mechanism from raising or lowering. Interviews with witnesses suggest that the safety interlock was not functioning properly at the time of the incident and may have been deactivated.

Cause of death: Severe head injury.

Recommendation/Discussion

- ✓ **Never modify, defeat, or override safety features. Similarly, never operate equipment in which safety systems or features have been modified or are not working properly.**

Discussion: Check all equipment and ensure that all safety systems are operational. All safety features that are not working properly should be reported and the equipment should not be used until repaired. Before returning equipment to service, check to ensure that all systems are operational and functioning as intended.

- ✓ **Do not leave the protective operators enclosure while operating equipment. Turn off the equipment before exiting the enclosure.**

Discussion: The protective cage is designed to keep the operator safe while operating the skid steer loader. The front of the cage is open to maximize visibility from the operator's seat. The safety bar is designed to deactivate the hydraulic systems if the worker leaves the seat and to remind the operator to stay seated inside the protective cage when operating the equipment.

If an activity needs to be performed outside of the protective enclosure, the operator must turn off the equipment before exiting the enclosure.

- ✓ **Only trained skid steer operators should be allowed to operate equipment**.

Discussion: Skid steer operators should have training to ensure that they can operate the equipment safely. Only certified employees should operate equipment. Classroom training should be augmented with hands on sessions where skills can be observed. Periodic reassessment of skills should be done to ensure that equipment is being used safely.

- ✓ **Take care to remove or properly stow items that could interfere with the safe operation of equipment. (e.g., loose clothing, tool belts, etc.)**

Discussion: The company is reported to have a policy requiring employees to remove tool belts before operating equipment. The victim was wearing his tool belt while he was

operating this equipment. The tool belt is depicted in Photo1. The tool belt is large and bulky and could easily interfere with safe operation or egress in the cramped operator's cage.

For More Information

The Center for Research on Occupational and Environmental Toxicology at Oregon Health & Science University performs Fatality Assessment and Control Evaluation (FACE) investigations through a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR). 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.

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