

Fatality Investigation Report

OR 2006-06-1

Worker killed when jacket pocket activated machinery

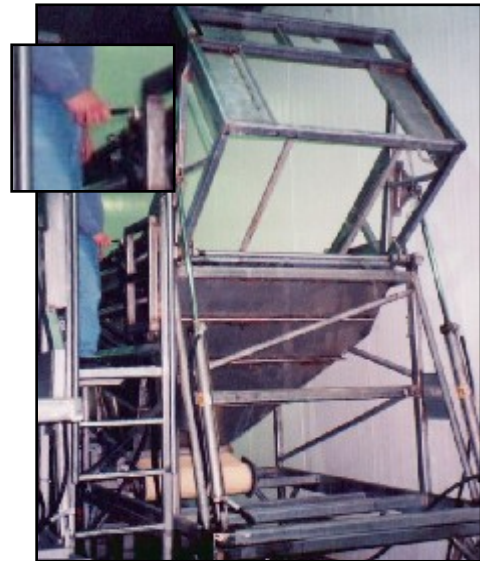
SUMMARY

On February 23, 2006, a 63-year-old shift supervisor at a food-processing plant, working as a machine operator, was killed while operating a custom-built tote-dumping machine. The supervisor activated the tote dump to raise and tilt a large box (tote) of frozen french fries to empty into a hopper. After emptying the tote, the supervisor leaned forward over the edge of the hopper, apparently to shake the plastic liner to dislodge remaining product, or retrieve a box liner that had fallen inside the hopper. As he leaned into the hopper, the supervisor's right jacket pocket caught the end of the tote-dump control lever and pushed it downward, causing the dump arm to descend. He was struck on the back and crushed against the hopper. A coworker witnessed the incident and responded to raise the dump arm. The victim was transported to a local hospital where he was pronounced dead.

CAUSE OF DEATH: Multiple traumatic injuries

RECOMMENDATIONS

- **Never place your hands or body in the operating areas of a machine without first shutting down the machine completely and locking out all forms of hazardous energy.**
- **Machine activation mechanisms should be guarded to prevent unintended startup. Guarding should also restrict access to all moving, shear, and pinch-point areas on machinery.**
- **Employers should develop a comprehensive hazardous energy program that includes machine-specific lockout procedures.**
- **Employers should conduct regular hazard surveys of the workplace, and a job safety analysis of each job to correct unsafe work practices.**
- **Employers should investigate on-the-job injuries and review work procedures in order to correct hazards and prevent similar incidents.**



The tote-dump machine, shown here in raised position, was lifting frozen french fries into a hopper for the packaging machine. The enlarged square shows clearly the control lever protruding into the work area on the catwalk.

INTRODUCTION

On February 23, 2006, a 63-year-old shift supervisor at a food-processing plant was killed while operating a tote dump machine. OR-FACE was notified of the incident the next day by Oregon OSHA. The employer declined an interview or onsite investigation by the OR-FACE investigator. This report is based on information provided by Oregon OSHA and medical examiner reports.

The Oregon plant was one of several food-processing plants owned by a large potato producer, operating in 12 states. The Oregon plant processed potatoes into french fries for large fast-food and frozen-food companies. The plant employed 54 nonunion workers, and operated three 8 hr shifts per day. The business changed ownership 1 month before the incident, but retained the original workforce.

The company had a written, generic hazardous-energy control program, and trained workers in safe practices through lectures, demonstrations, and audiovisual media. Lockout procedures were not specific for each machine or equipment. No specific procedures applied to the tote dump involved in this incident.

The hydraulic mainline tote-dump machine was custom-built by the farm division of the original company that owned the food-processing plant, and was installed in the repackaging department 2 years prior to this incident. The tote dump was operated 24 hours a day, 10 days in a row, and then shut down for 4 days. Injury records were unavailable, due to the recent change of ownership, but interviews indicated two previous incidents related to the tote dump, involving a bumped head and a pinched arm.

The shift supervisor, with 35 years experience in the food-processing industry, had worked at the plant 4½ years, and served 1 year as the quality-assurance and safety manager. He was experienced with the tote-dump machine.

INVESTIGATION

The custom-built tote dump was designed to raise and tilt a cardboard “tote” containing about 1,000 lbs of frozen-food product to empty into a hopper connected by conveyor belt to a packaging machine. The operator’s station for the machine was located on a catwalk 6 ft above the floor, accessed by a stairway. The catwalk was 2 ft wide and ran about 7 ft along the hopper and conveyor line. The hydraulic control lever to operate the tote dump protruded out into the walkway about waist high.

In a cycle, the tote-dump operator waited for a forklift to deposit a pallet with a loaded tote onto the tote dump’s metal cradle, then raised the cradle to empty the tote into the



A cardboard “tote” container with plastic liner held 1,000 lbs of frozen food product.

hopper. Reportedly, once the tote was raised and dumped, it was common practice for the tote-dump operator to reach in and shake the plastic liner in the tote, or retrieve liners and foreign objects from the hopper, without shutting down the machinery. In this action, the operator was exposed to a pinch point between the side of the hopper and the moving metal arm of the tote dump.

On the day of the incident, the shift supervisor operating the tote-dump machine and a forklift operator were processing 14 totes an hour. According to the forklift operator, after each tote was dumped, the supervisor bent over the side of the hopper to shake out the tote liner and release any remaining fries. In one of these operations, the supervisor's right jacket pocket caught on the control lever and pushed it down, causing the tote arm to descend and pin the supervisor against the hopper.

The forklift operator witnessed the incident and responded to raise the tote-dump arm. The victim was transported to a local hospital, where he was pronounced dead.

RECOMMENDATIONS/DISCUSSION

Recommendation #1. Never place your hands or body in the operating areas of a machine without first shutting down the machine completely and locking out all forms of hazardous energy.

As this incident testifies, reaching into an energized machine, even if no motion is occurring at the time, can result in serious injury or death. Operating procedures should never involve placing one's hands or body in the way of moving parts or within the "point of operation" of machinery. In order to avoid unintended contact, operators should avoid loose clothing or jewelry, and keep long hair closely confined.

Recommendation #2. Machine activation mechanisms should be guarded to prevent unintended startup. Guarding should also restrict access to all moving, shear, and pinch-point areas on machinery.

The design of the hydraulic control lever on the custom-built food hopper in this incident is a primary point of concern. Machine activation mechanisms should be guarded to prevent unintended startup. An enclosed push button or flat paddles mounted flush with the control panel are common solutions. If the operator is within reaching distance of the moving parts of a



The machine operator was crushed between the arm of the tote dump (XX) and the upper edge of the hopper (X). His right jacket pocket caught on the protruding control lever and activated the machinery to descend.

machine, two buttons that must be pushed simultaneously with both hands can prevent the operator from reaching into the machine during activation.

In addition, all moving parts and pinch-point areas should be fully enclosed or barricaded from access. The design and installation of custom-built machinery should include appropriate guarding and inspections to ensure that guards are in place while the machinery is in operation.

Recommendation #3. Employers should develop a comprehensive hazardous energy program that includes machine-specific lockout procedures.

Employers need to identify all tasks that may expose workers to a sudden release of hazardous energy. Written shutdown and lockout procedures should address each specific machine, and workers must be educated to use those shutdown and lockout procedures before attempting any maintenance or other activity that places hands or body in the operating areas of the machinery. All maintenance personnel, machine operators, and supervisors need to be trained in shutdown and lockout procedures, and employers need to consistently reinforce them (29 CFR 1910.147). Retraining should be conducted whenever the employer has reason to believe that the employee has inadequate knowledge of or deviates from the use of energy-control procedures.

Recommendation #4. Employers should conduct regular hazard surveys of the workplace, and a job safety analysis of each job to correct unsafe work practices.

An employer should perform a hazard survey of the workplace to identify and correct hazards. In this instance, the hydraulic control lever extending into the work area of the custom-built tote dump presented a risk of unintended activation. Often, a safety committee composed of both management and production workers can help identify such hazards and recommend corrective action.

Along with a hazard survey of workplace conditions, a job safety analysis is a useful procedure to observe and correct actual work practices. In this instance, the practice of leaning into the machine could have been detected, and a safe alternative instituted as a standard operating procedure to shake out the liner of the tote. A job safety analysis should be applied to each new piece of equipment or new process, and in training new workers.

Standard operating procedures should be reviewed on a regular basis. Employers need to frequently and consistently reinforce safe work behaviors with documented, appropriate disciplinary action when necessary. Written records help to ensure adequate and accurate training, and promote compliance by both supervisors and frontline workers.

Recommendation #5. Employers should investigate on-the-job injuries and review work procedures in order to correct hazards and prevent similar incidents.

Investigation of injury incidents is crucial to the maintenance of an effective safety and training program. Data collected regarding these incidents can provide employers with the necessary information to implement corrective action related to engineering controls, employee work practices, and revised safe-work procedures. In this case, an investigation of previous injuries or

“near-misses” related to the tote-dump machine may have confirmed a hazard and led to corrective action.

REFERENCES

National Institute for Occupational Safety and Health. (1999). *Preventing worker deaths from uncontrolled release of electrical, mechanical, and other types of hazardous energy*. Available online: www.cdc.gov/niosh/99-110.html

Occupational Safety and Health Administration. Online resources.

- *Machine guarding*:
www.osha.gov/SLTC/machineguarding/index.html
- *Control of hazardous energy (lockout/tagout)*:
www.osha.gov/SLTC/controlhazardousenergy/index.html
- *Lockout-tagout interactive training program*:
www.osha.gov/dts/osta/lototraining/index.htm

Oregon OSHA. (2005). *Safety committees for the real world*. Available online: <http://www.cbs.state.or.us/external/osha/pdf/pubs/2341.pdf>

FOR MORE INFORMATION

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CROET at OHSU performs OR-FACE investigations through a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research. The goal of these evaluations is to prevent fatal work injuries in the future by studying the work environment, the worker, the task, the tools, the fatal energy exchange, and the role of management in controlling how these factors interact.

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