

ACCIDENT ALERT

Driver dies after fall from top of container

The accident

A 49-year-old truck driver fell backwards from the top left rear of a 4-metre high container, on the deck of a trailer unit, landing heavily on his back on the concrete floor, his head striking the floor very hard. He died later the same day in hospital.

As the fall was witnessed, other persons and the police were on the scene immediately.

Outline of usual procedure

A truck and four-wheel trailer with a large bulk container is driven to the store. The grain which is stored in silos is transferred by mechanical auger and fed into the container, in some cases, through hatches on top of the container, in others, through open rear doors.

In the case of top-loaded containers, the driver of the truck positions the container so that the auger outlet is positioned above the hatch to be filled. He then climbs up a fixed-rung access way to the top of the container, releases the catches on the hatch and opens it. He then climbs up the container again to monitor filling progress. In some cases the storeman is available to operate the auger controls.

Once the container is close to full, the driver climbs down from the container and shuts down the auger. He again climbs up the container, closes the hatch and fixes the catches in place. He then climbs down, drives the vehicle forward to line up with

the next hatch. The operation continues as before until both compartments of the container are full. The truck is then driven to the railway siding to await loading onto a train for transportation.

A store manager is on site as is a storeman to assist the driver.

Inspector's findings

- A person arriving later on the day of the accident to remove the truck and trailer unit checked the container and noticed that the rear hatch had not been secured and a small quantity of spilt grain was on top of the container.
- The driver was very experienced but not a regular on this operation. He was reasonably fit and safety conscious. At the time, he was wearing steel-cap slip-on safety boots.
- When the driver fell, he missed striking the deck of the trailer which extended about 0.7 metres out from the end of the container. Therefore, it was unlikely the driver fell while climbing the ladder on the container. It is thought he most likely fell from the top of the container.
- It is speculated that the driver may have been attempting to close the hatch. The auger is in such a position that access to the hatch is restricted. Any spilt grain on the smooth steel surface of the top of the container would have made any attempt to stand as

difficult as wearing roller skates. It is speculated that the driver lost his footing and balance when he stood on the grain.

- It was also speculated that the driver may have tripped on the uneven surface of the container or tripped on the protruding handhold positioned on the container directly above the ladder.
- The access ladder on the container provided limited foothold and was unsuitable considering the frequency of its use during filling.
- An in-depth hazard identification exercise had not been carried out into the grain filling operation by all the parties involved.

Findings of an independent firm of consulting engineers

The firm found the following hazards:

1. The steps on the rear of the container were simply flat bars welded across the recessed corrugations in the container's end panel, of insufficient depth for a shoe or boot. These toe bars also serve as handholds. There were no side rails or safety hoops.
2. A single handhold was located on the top of the container for moving from the bar rungs on the end panel. An unnerving manoeuvre for even a dexterous person.

3. Conversely, in coming down there is an equally dangerous manoeuvre, presumably, kneeling on the top edge with one hand on a handhold while probing around with one foot for the first toe bar.
4. On the top face there is no handrail. The edge is 4 m above the ground.
5. The top face was formed by corrugated steel panels without shoe adhesion.
6. There is an introduced hazard on the container top of some inevitable spillage of wheat.
7. The means of feeding the elevator required numerous trips up and down the container to check container filling.

Findings of the Coroner as to probable cause of the accident

The Coroner found the accident was due to a number of factors as follows:

1. Need to stand on top of the container.
2. Number of times the driver had to climb up and down the container.
3. Uneven surface of the container.
4. Handgrip protrusion.
5. Possible restriction on opening the hatch.
6. Presence of spilt wheat on surface.
7. The climbing procedure.

Coroner's recommendations as to preventative measures

The Coroner made the following recommendations:

1. That the fixed ladder rungs and handhold system for ascent and

descent of top-loading containers be reviewed.

2. That consideration be given to the provision of nonslip surfaces on the upper surface of top-loading containers.
3. The operation of a top-loading container should minimise the number of times a person has to climb to the top of the container.
4. A person should be on hand to assist the driver in the grain-loading operation (as was the case in this accident).
5. That all carrier companies involved in the cartage of grain be advised of the hazards (this should also be extended to include farmers, storemen and other groups involved in similar activities).

OSH comments

Could the accident have been avoided?

OSH believes it could have been.

The Health and Safety in Employment Act 1992 requires that all hazards be identified and significant hazards be "eliminated, isolated and minimised". One such method of hazard identification is to carry out an assessment under three categories: process, job task and plant/environment. An example of the exercise might be:

- **Process.** The transfer of grain from silo to container. The result is spillage of grain both on the ground and around the hatch container. Methods to overcome this need to be considered.
- **Job task.** The act of having to climb on and off the container a number of times to observe the filling,

to open/secure the hatches and operate the auger controls. Assess the need to carry out a number of or all of these tasks in this manner.

- **Plant/environment.** The height of the plant means that access ways, ladders, handholds and secure footing becomes an issue and also needs to be addressed.

Factors such as improved tread surface around the hatch; ladder rungs on the side of the container improved to provide better foothold; switching provided at the top of the auger to allow the driver to control the grain flow from the top of the container; alternative access to the top of the container while it is in store; controlled filling system to prevent spillage of grain, etc. could be considered.

As can be seen there were a number of options which, if considered prior to the accident, may have prevented it.

OSH recommendations

- That owners of containers reassess the safe use of all containers under their control.
- That operators of grain stores reassess the plant and procedures under their control.
- That carrier companies involved in the cartage of grain reassess their procedures and work practices.
- That all the above parties note the information and recommendations in this alert, take steps to review their operations, and implement equipment, procedures and practices that will prevent further serious and fatal accidents.