SHARP
Safety & Health Assessment & Research for Prevention

Hospitalization Hazard

Grain Auger Amputations

July 2024

Grain augers are dangerous when not properly guarded. In recent years, two workers suffered foot amputations after stepping into subfloor augers in Washington grain facilities.

Injuries from augers are preventable! The powerful augers used to move grain pose a serious hazard to workers if necessary guards are not in place and safety precautions are not followed.

Workers suffer foot amputations in subfloor grain augers

Incident 1:

A seasonal worker was one of five workers cleaning out and removing the remaining grain from a grain silo. The inside of the silo was dusty and the light was dim.

There were six holes in the floor, each about six inches in diameter, which opened to an auger below that transported grain out of the silo. The auger openings were supposed to be covered with protective grates while workers were in the silo, but they had been left uncovered during cleaning and the auger was running.

The worker was sweeping grain into one of the unguarded holes when he stepped backward into the opening. His right foot was pulled into the rotating auger blade, amputating his leg below the knee.

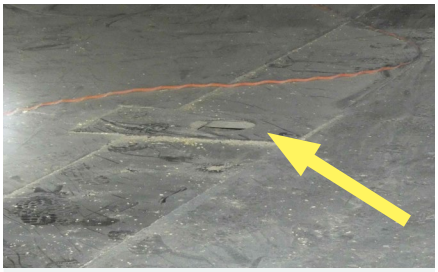
Incident 2:

Two workers were transferring grain from a storage building. One began using a skid steer loader to move grain into a section of the floor auger covered by a metal grate, while his coworker went to monitor equipment in another building.

When he realized that he didn't have enough room to maneuver the loader, he backed it out of the building, then walked back in and began shoveling grain by hand. In the area where he was working, the moving auger was covered by steel plates to allow the loader to drive over them.

As he shoveled grain around a large tube, he stepped backward into a gap between two of the steel plates that were still covered by grain. His foot was pulled in and amputated at the ankle by the rotating blade.

He used his own belt to create a tourniquet and radioed his coworker, who shut down the auger, called 911, and drove them to meet the ambulance.



Incident 1: Arrow points to the auger hole the worker stepped in while sweeping in dark, dusty conditions.

Incident 2: Floor auger with the metal grate cover. The grate could be removed and replaced with steel plates that a loader could drive over.

Incident 2: The injured worker was shoveling grain around the tube on the left. The auger was covered with steel plates during the incident.

Recommendations

Energy Control

- Ensure that Lockout/Tagout (LOTO) procedures for work around augers are detailed and specific. Frequently check that the LOTO procedures are well understood and consistently followed.
- Install emergency shut-off mechanisms in close proximity to subfloor augers.

Hazard Identification

- Periodically inspect guarding to ensure that it is undamaged and properly secured.
- Train workers to use situational awareness at all times when working in grain storage units, including awareness of hazards that may be obscured or less visible due to low light.

Plan for Safety

- Create a Job Hazard Analysis (JHA) for each operation. If changes in the work plan occur, stop to identify any new hazards and update the JHA. Whenever possible, include workers in JHA development.
- Hold a pre-task safety meeting to review the JHA before grain bin entry.
- Explore ways to increase lighting for work done inside grain storage facilities.

Requirements

Hazard Protection

- Employers must ensure that during the occupation of storage structures, including walking or standing on grain, employees are protected from hazards related to: (a) mechanical; (b) electrical; (c) hydraulic; and (d) pneumatic equipment by using safeguards, lockout-tagout, or other equally effective means. All provisions for the control of hazardous energy (lockout/tagout) from chapter 296-803 WAC apply to this chapter. See WAC 296-99-040(3)
- All augers must be covered or guarded when exposed to contact. See WAC 296-307-29005(2)

Lockout Tagout

- The employer must perform and document periodic reviews at least annually to verify workers know and can apply the energy control procedures. See WAC 296-803-70010(1)(a)

Training

- In the absence of an infirmary, clinic, or hospital in near proximity to the workplace, which is used for the treatment of all injured workers, a person or persons must be adequately trained to render first aid. See WAC 296-800-15005

Reporting

- Employers are required to contact DOSH within 8 hours of a workplace fatality or in-patient hospitalization of any employee and within 24 hours of a non-hospitalized amputation or loss of an eye of any employee. See WAC 296-27-031

Resources

Safety Standards for Grain Handling Facilities, Chapter 296-99 WAC: https://app.leg.wa.gov/WAC/default.aspx?cite=296-99

Safety Standards for Agriculture, Chapter 296-307 WAC: https://apps.leg.wa.gov/wac/default.aspx?cite=296-307

Lockout/Tagout (Control of Hazardous Energy), Chapter 296-803 WAC: https://app.leg.wa.gov/wac/default.aspx?cite=296-803

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