# Animal and Plant Health Inspection Service

# Transport Equipment Inspection Training Module

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Not every piece of equipment or every type of transport is covered. The operation manual from the manufacturer should be consulted for specific instructions. No endorsement is intended by the producers of this module of the products mentioned, nor is criticism implied in similar companies or their products not mentioned.

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## Background

Since field testing of federally regulated genetically engineered (GE) plants began in the late 1980's, proper equipment clean-out and subsequent compliance inspection have gained national and international importance. Adventitious presence of regulated GE seed or plant material, unintentionally introduced through transport equipment into food or feed channels, could result in losses of billions of dollars, with long-term impacts on the survivability of affected market sectors. In 2000, unintentional introduction of StarLink™ corn, a federally regulated GE corn line not approved for human consumption caused millions of dollars of food products to be pulled from store shelves and resulted in sudden negative responses by trading partners.

Experience with high-risk GE pharmaceutical-trait plants by the Animal and Plant Health Inspection Service (APHIS) has shown that due diligence in equipment clean-out and sanitation, including transport equipment is a critical step in preventing inadvertent introduction of material into the environment and the subsequent potential damage to the integrity of food and feed supplies. To aid in managing this complex regulatory issue this training guide on transport equipment has been prepared by Iowa State University for APHIS.

Introduction of value-added traits, identity preservation programs, federal organic standards, and the advent of field testing of federally regulated, genetically modified plants, have necessitated equipment clean-out and sanitation to address production, marketing, and regulatory concerns. In a growing number of cases, federal regulations by United States Department of Agriculture agencies under Marketing and Regulatory Programs, in the areas of certified organic production, plant protection and quarantine, and Biotechnology Regulatory Services, require that equipment be cleaned of seed and biomaterial before use, interstate transport, or return-to-service.

In the past, APHIS has been concerned with plant pest and disease pathway analysis and disease epidemiology related to the rapid spread of plant pests and diseases from one field location to another or to their introduction into the country via equipment. An example of APHIS's regulatory concerns and practices is its quarantine program for Karnal Bunt disease of wheat. In order to effectively contain this serious fungal disease and prevent its spread, interstate movement of conveyances (trucks, wagons, railcars, and other containers) used for transport of wheat was regulated, and this equipment was cleaned of residue biomaterials, disinfected, and inspected prior to moving to another location.

Currently, APHIS Biotechnology Regulatory Services (BRS) annually issues permits and notifications for field testing of regulated GE crops at over 5,000 domestic field test sites. In recent years, two new classes of GE plants have appeared: one class that expresses traits for the synthesis of pharmaceuticals and the second class that expresses traits for synthesis

of industrial compounds. BRS's regulation of pharmaceutical or industrial trait-expressing plants is more rigorous than that for traditional GE crops containing agronomic traits such as herbicide or insect resistance. Transport for relatively smaller quantities of these crops may be in dedicated bags, modular bins, or smaller transport vehicles. Equipment used to transport these high-risk traits must be cleaned, inspected, and in some cases opened by dismantling, as necessary, prior to return-to-service for transport of traditionally bred crops. The need for a trained cadre of compliance inspectors with both knowledge and experience in the area of transport equipment clean-out and inspection is an Agency imperative.

Because of the need for more scrupulous clean-out and sanitation, identity-preserved markets are generally developed around on-farm storage with the grower delivering product to transport vehicles directed to the end-user with minimal or no intermediate commercial storage. Transport vehicles are a necessary and significant part of movement from field to customer. The relative level of cleaning and inspection required will depend on the needs of the marketplace, end-use customer, suppliers, regulatory requirements, and the public good (e.g., disease prevention, integrity of food or feed chain).

## Overview

In this module the first section on basic concepts of transport equipment and inspection explains commonly encountered transport vehicles and general areas where grain may reside. Next is a description of useful tools. Then inspection and cleaning of individual transport vehicle styles are discussed in more detail beginning with the wagon. Subsequent vehicles discussed note significant new areas, but also build on cleaning concepts for vehicles described earlier. Types of safety hazards are introduced below, will be mentioned as they are presented within different vehicle types, and then summarized in a safety section at the end of the module.

Safety issues that usually first come to mind with transport vehicles include lighting and marking, braking systems, tire loading, and other over-the-road items. Although these are important, other safety hazards are present during inspection and clean-out. Most conveyances are tall, 10 ft or more in some instances. Falls from these heights can cause great personal injury. If significant amounts of grain are still present or grain is accidentally loaded during cleaning or inspection, it can present an entrapment or even suffocation hazard. Some transports, particularly grain carts, have an attached auger that can entangle when operating.

Grain transport space is not designed for worker occupancy. As such it may affect ingress and egress, and in more tightly enclosed structures, ventilation. An outside ladder or step ladder may be needed to enter the grain box. If not already present, an inside ladder may be necessary to climb inside the grain box. It is difficult to maneuver on sloping hopper bottoms, even with non-slip footwear. Transports with rigid roofs such as railcars and shipping containers are not normally ventilated. Internal-combustion powered devices

(e.g., a gas-powered leaf blower or air compressor) should not be used inside transports. Although dust explosions are usually associated with large commercial storage facilities, grain dust in excessive concentration within a confined space can be explosive when combined with an ignition source. When in a grain transport, consider the need for contact with a responsible outside bystander who can help if difficulty is encountered. All internal workers should be able to maintain audible or visual communication with someone outside the transport. For larger transports (e.g., railcar), radio communication is warranted if audible or visual communication is difficult and if workers are outside steel enclosures that otherwise would inhibit radio signals.

Many different shapes and sizes of seeds may be conveyed in transport equipment. Major seed classes include cereals (e.g., corn, wheat, rice), oilseeds (e.g., canola or flax), grass, and clover seeds. Although some seeds are relatively large (e.g., corn, soybeans, edible beans), they break into smaller pieces when damaged. These pieces may get caught in small nooks and crevices, similar to small grains and grass seed. The term "grain" will be used in this module to denote all types of seeds.

## Basic concepts of transport inspection and clean-out

Grain transport can be thought of as movement of grain in mobile containers (e.g., grain boxes). The containers are often on wheels (e.g., truck, railcar) for movement overland, but may be barge transport on large navigable waterways or simply a portable shipping container capable of being loaded on trucks or ships. Transport involves significant structural stress on the grain box and vehicle from over-the-road travel. Frequent loading and unloading also means containers must be stronger than those used for stationary storage. Structural flanges (figure 1) are common. Box-like shapes with hopper-shaped bottoms (figure 2) for ease of unloading have numerous attachment points between two or more parts or materials (figure 3). Such flanges and seams between attachment points create numerous places for grain to be left behind after unloading.


**Figure 1. Structural flange at corner of grain box**


**Figure 2. Grain box with hopper-shaped bottom to funnel grain to unloading auger entry (hidden by lower frame) at bottom center of grain cart**


**Figure 3. Seam of overlapped steel at corner of grain box**

Below the container or box is often a supporting frame or chassis attached to axles and wheels. Grain falling during loading, transport, and unloading can become lodged on wheels, axles, and the structural supporting frame. Some transport equipment, notably single-axle grain carts (figure 4), have integral augers to unload grain into waiting trucks. The auger is not self-cleaning and requires inspection and clean-out. Grain "leakage" can occur during transport if holes (figure 5) or gaps in materials are present. Such spilled grain can fall onto the lower frame and be immediately lost to the surroundings or carried further before falling from the vehicle.


**Figure 4. Single-axle grain cart (folding point of unloading auger just visible at upper left corner of grain box)**


**Figure 5. Holes in grain box (just below seam between sidewall and hopper bottom)**

Grain suffocation can be a fatal hazard in grain transport equipment as bulk grain starts to flow during unloading. As grain is unloaded from a transport container, the grain surface forms a cone of depression with the cone apex

over the point of unloading. Flowing grain acts similarly to quicksand. Anyone standing on the grain can become quickly pulled into the grain mass where grain pressure limits breathing. The person eventually can be pulled under the surface if the grain is deep enough. Stay out of loaded transports since entrapment and fatal suffocation are possible in flowing grain during unloading. When empty, ensure that movement of the transport cannot occur during cleaning or inspection and that accidental loading cannot occur, if necessary by locking out towing or loading equipment.

Barges and ship holds have capacities much larger than those of other shipping vehicles, and are not well suited to carrying smaller quantities of identity-preserved grain. Because of this, inspection and clean-out of these transports is not specifically covered in this module. If these or other grain transport vehicles not mentioned will be inspected and cleaned, it is recommended to use basic concepts and principles described in this module as they apply to the larger volumes encountered. These principles include investigating seams, edges, joints of two or more materials, corners, and bends as well as grain entry and exit points (including horizontal surfaces where grain may spill). Safety hazards (as outlined in the concluding section of this module) should be evaluated before proceeding with inspection or cleaning.

## Grain removal tools

Tools to remove and inspect for residual grain include both functional cleaning tools and personal protective equipment (PPE). If larger grain amounts are present, a broom or small scoop may be useful for initial cleaning. Because steel is commonly used for vehicle construction and is prone to rust, air is preferred over water for cleaning smaller residual amounts. Vacuum air, such as supplied by a high-capacity shop vacuum, helps to control dust escape and lowers dust levels while cleaning inside transports. Pressurized air may be used on exterior surfaces if dust control is not a concern. A pick such as a flat-head screwdriver may be needed to mechanically dislodge grain wedged into cracks or tightly adhering to surfaces. For inspection, particularly inside transports or in low light conditions, auxiliary lighting, such as with a flashlight or headlamp (good for freeing hands), may be necessary.

Personal protective equipment may be needed during cleaning and inspection (figure 6) depending on the situation and activity. A two-strap dust mask or respirator will protect lungs against dust generated from broken grain and smaller foreign material during cleaning. Safety glasses or goggles help protect eyes from dust or flying particles as material may be forcefully removed from crevices. A hard hat or bump cap can help protect the head from overhead structure. Cleaning equipment such as a shop vacuum, leaf blower, or air compressor generates enough noise to warrant hearing protection from ear plugs or acoustical muffs. Gloves protect hands from abrasions and sharp surfaces.


**Figure 6. Personal protective equipment including two-strap dust mask, ear plugs, hard hat, safety glasses (folded side shields not visible), and gloves**

Grain removal tools and PPE should be themselves cleaned between clean-outs and inspections if commingling tolerances are low, reducing the potential for cross contamination.

## Wagon

A wagon is basically a container or box to hold grain that rests on a frame with chassis and wheels capable of being towed (figure 7). Most wagons will have two axles, a front axle steered by the wagon tongue and a fixed rear axle. Large, single-axle wagons are typically termed grain carts and have a mechanical unloading mechanism. Many newer grain wagons have sloping hopper-shaped bottoms to allow grain to be unloaded by gravity rather than having to tip the wagon or unload by mechanical devices (e.g., pneumatic grain handler) or manual scooping.


**Figure 7. Wagon with hopper bottom for unloading by gravity through retractable door on left side (note exterior access ladder)**

Although vertical sidewalls and sloping hopper bottoms are designed to unload grain, small amounts of individual grain kernels or seeds can become caught in crevices and seams. If initial grain is wetter than typical for storage, unloading by gravity becomes more difficult and significant amounts of grain may cling to the sloping hopper sides. If grain becomes wet such as from an untimely rain in an uncovered wagon or goes out-of-condition (spoils), it can stick or adhere to vertical surfaces as well as other locations.

Several areas inside the wagon box commonly hold residual grain or biomaterial. Before climbing on or into the box, make sure that it cannot be moved or loaded and check for adequate means of ingress and egress using ladders and hand-rails. Clean-out should occur from top to bottom so that any dropped residuals fall to a lower level. Ledges such as at the top of the grain box or where the top of the grain box meets attached extensions (figure 8) may hold material. Cross-supports inside the box (figure 9), if present, may hold grain. Seams or welds where steel sheets meet may harbor whole grain or smaller material (figure 3). Bends in material (e.g., in hopper bottom, figure 10) allow other opportunities for biomaterial to hang up. Small dust particles can adhere to vertical walls as well as larger pieces of spoiled or wet grain.


**Figure 8. Extensions to extend sidewall height at the top of the grain box**


**Figure 9. Cross-support attached to grain box wall**


**Figure 10. Grain in bend forming hopper bottom**

A special place to clean and inspect, both from inside and outside the box, is the unloading opening at the bottom of the hopper, usually on the side of the wagon. A retractable door operating within a slide track on two opposite sides opens for grain unloading (figure 11). Grain can easily become lodged near bottom corners of the sliding door, in slide tracks (figure 12), or along reinforced seams where the door is mounted into the box. Slide tracks should be inspected by raising the door.


**Figure 11. Retractable door for grain unloading (note two ledges above door opening)**


**Figure 12. Grain caught in slide track along edge of retractable door (note also grain lodged in seam on box floor next to doorway)**

On the wagon exterior, box and hopper sidewalls should be inspected and cleaned as necessary. Although the support frame and wagon chassis including axles, tires, and tongue are not normally in contact with grain, some may have accidentally dropped on these areas during unloading, loading, or transport so these areas should be inspected and cleaned. Areas most likely to harbor material are horizontal surfaces, those with exposed lubrication (e.g., grease) (figure 13) or mud, and tire treads.


**Figure 13. Grain on horizontal exterior surface and exposed grease near hydraulic ram**

## Truck

Trucks used to haul grain commonly are in two categories, a combination semi-tractor with trailer ("semi"; figure 14) and a smaller capacity grain or "straight" truck (figure 15). The straight truck has a grain box frame and chassis that is in a fixed (or straight) position with the operator's cab whereas the trailer of the semi-truck can pivot about the cab on a "fifth-wheel" hitch.


Figure 14. Semi-tractor with grain trailer or semi-truck


**Figure 15. Grain or "straight" truck**

On a grain or "straight" truck some components such as vertical sidewalls, possible height extensions to the wall, cross bracing, and a sliding unloading door (at the rear) are similar to those of a wagon and similar procedures should be followed. Differences include a commonly flat-bottom floor, cab closely mounted to grain box, and possible tarp cover. Although the grain box is commonly tipped to unload at a receiving grain elevator, a flat floor is a natural place to hold residual grain, particularly at the rear of the box nearer the unloading door (figure 16). Material also easily catches in seams along the flooring materials (figure 17). Because grain may blow off the load surface at higher road speeds, a rollable tarp is often present on the truck (figure 14). Since grain can become caught between rolls of the tarp, it should be unrolled and inspected. Supporting cross braces used to hold the tarp (figure 18) over the grain surface should be inspected and cleaned. Although air flow during transport cleans the cab roof, it should be inspected as well as cleaning and inspecting the area between the cab and box.


**Figure 16. Residual grain near unloading door**

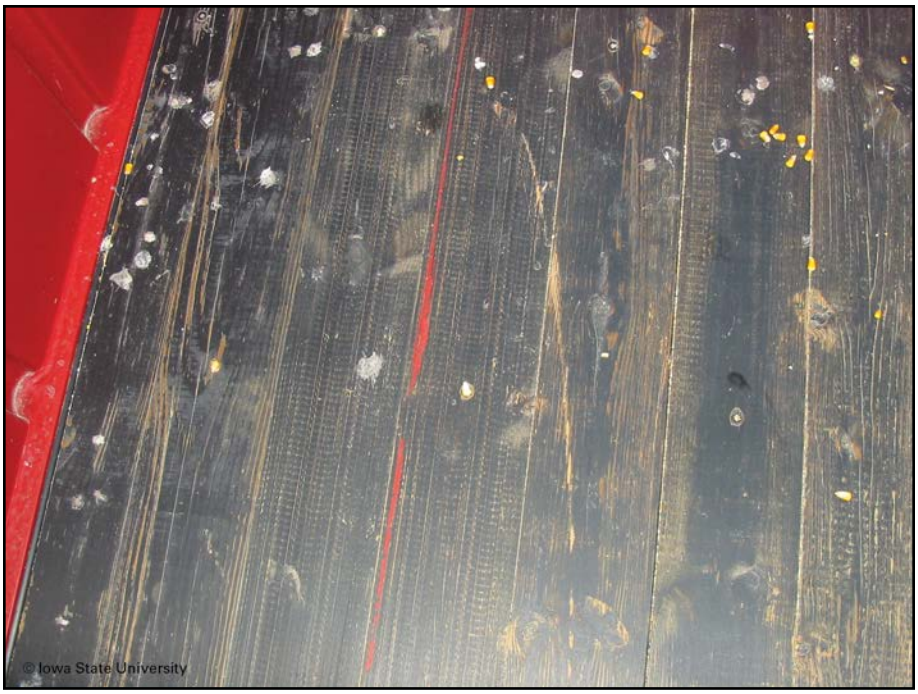


**Figure 17. Seams along floor in grain box on truck**


**Figure 18. Rolled-up tarp sitting on top edge of truck grain box next to a cross-support (note grain between tarp and grain box edge; if open, end of hollow tube should also be inspected)**

Depending on style, inspection and cleaning procedures of a semi-trailer and tractor may be similar to those of a straight truck, only with larger volumes and surfaces. An exception would be dedicated semi-trailers for hauling bulk materials such as grains. These will often have multiple hoppers and unloading doors along the underside of the trailer along the centerline. If

multiple hoppers are present, check for material resting on the dividing edge or lip between hoppers. Although hopper-bottom surfaces on trailers are sloped, transitional edges are more rounded on some trailer models rather than the sharp bend observed on wagons and grain carts. The larger size of these vehicles can make ingress and egress even more challenging without ladders and suitable handrails.

After cleaning and inspecting inside the truck grain box check external surfaces, support frame, chassis, axles, wheels, and tires similar to the wagon procedure. The presence of dual wheels and a spare wheel are common differences from a wagon.

## Grain cart

Although a casual observer might consider a grain cart to be a wagon, it has a specialized function. Rather than being used primarily for grain transport or movement from the field, it is used as a portable holding device for grain harvested in the field before transfer onto a truck or wagon that moves grain away from the field. Grain cart capacity is often larger than that of an over-the-road wagon and the grain box is usually mounted on a large single axle to increase maneuverability within the field (figure 4). Because grain must be lifted vertically to load trucks or wagons in the field, a mechanical auger system is required.

Inspection and clean-out details are similar to those of a large wagon with some exceptions. Screw-type auger(s) present are natural collectors of residual grain. The auger intake at the hopper bottom is a potential hazard and is covered by a safety grate on many newer grain carts. The power source for the auger (usually a power-take-off shaft) should be disconnected from the power source (usually a tractor) before cleaning and inspection. A responsible external bystander should be aware if someone is inside the cart, and a lockout should be in place if the auger power source cannot be manually disconnected during cart entry. Augers should be inspected and cleaned at the entrance, exit, at a folding point (figure 19) if present, and at any other access openings. Access along the interior flow path of the auger is limited due to safety concerns. Make sure all safety shields are replaced before re-operation and never be near the auger during operation due to possible entrapment hazards. It is advisable to flush the auger with inert material (e.g., wood chips) for cleaning. More complete disassembly may be required by pulling the auger flighting from the housing if tolerance of residual material is very low. If part of the auger housing is inside the grain box, it presents additional places for grain to collect (figure 20).


**Figure 19. Exposed folding point with auger folded in transport position**


**Figure 20. Auger housing inside box on grain cart (note cross support in foreground)**

Because of larger volumes, interior access steps (figure 21) or ladders are more common inside grain cart boxes than in smaller wagons. Check for residual grain along the safety grate (figure 22), auger housing (both external and if present internal), and interior access steps if present. Check the external frame, chassis, axle, wheel, and tire surfaces in addition to external auger surfaces.


**Figure 21. Interior access step in grain cart (note window with gasket on left)**


**Figure 22. Safety grate over auger intake in bottom of grain cart**

## Railcar

Hopper-bottomed railcars (figure 23) are used for transporting grain or other granular materials over rail lines. Railcars are larger containers, often capable of carrying 200,000 lb or more of grain. Three or four sloping hopper-shaped bottoms for emptying are typical on each car. A sliding gate or door that can be opened with a pry bar seals each bottom opening (figure 24). Hatches along the top center of the car (usually three to six) are opened for loading.


**Figure 23. Hopper-bottomed railcars**


**Figure 24. Sliding door at bottom of hopper**

Initial inspection is normally accomplished by viewing through open hatches on the top of the railcar (figure 25) to get an overview of any noticeable residual material in the railcar. If the history of the car is uncertain, it may have been previously used for non-grain products such as granular fertilizer or other bulk aggregate material. Open all top hatches for inspection. While open, check for residual material around gasketed seals on the hatches (figure 26). Also check around latches (figure 27) and in the protected area underneath the catwalk (figure 28) for residual material that may have fallen there during filling but not blown off during transport.


**Figure 25. Open hatches on top of rail cars**


**Figure 26. Gasketed seal inside either side of opened top hatch (note grain kernels on gasket)**


**Figure 27. Latch for top hatch (note residual material under adjacent hatch lip)**

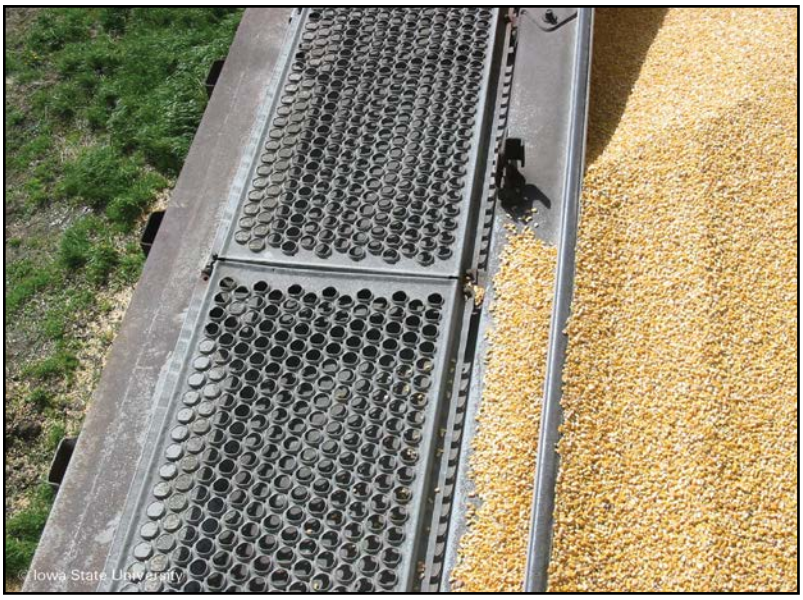


**Figure 28. Catwalk adjacent to filled top hatch opening (note grain spillage over hatch lip and underneath catwalk)**

Entry inside the car for cleaning and closer interior inspection is usually accomplished through bottom hopper-door openings. Open a sufficient number of top hatches and bottom doors for ventilation and lighting before entry. Residual material that has fallen during car movement since emptying often rests on top of the bottom door (figure 29). Because of the strongly sloping hopper bottom, cleaning and inspection may be easiest by standing on the partially closed bottom door and reaching surfaces with a long-handled stiff broom or scraper. As in other grain transport boxes, check seams between sloping hopper surfaces, ledges between hoppers, cross braces, and any other irregular areas. Check around interior steps if present (figure 30).

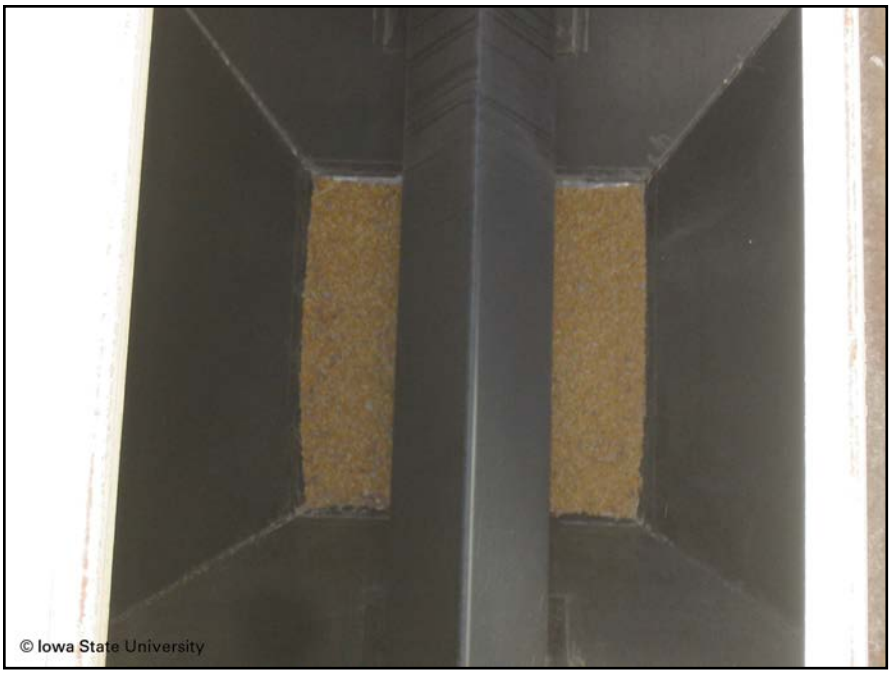


**Figure 29. Grain resting atop the bottom hopper door inside car (view partially obstructed by structural cross brace inside hopper)**


**Figure 30. Interior access steps as viewed through top hatch**

After cleaning and inspection on top and inside the railcar, check other railcar exterior surfaces particularly around the bottom door openings, horizontal surfaces at each end of the railcar, lower frame, and wheel carriages. Grain leakage around the bottom doors is more common on the front or back of the door than on the sides (figure 31). Seals around bottom doors and top hatches should be checked for the possibility of leakage as doors may "spring" over time and be unable to form a tight seal.


**Figure 31. Retracting side of bottom door (note grain kernels atop door near opening edge)**

Railcars are tall. Falls from the catwalk used to access the top hatches can cause serious injury. Use of a safety harness attached to an overhead cable (figure 32) is advisable in many situations when on top of the car. Limited access with few tightly fitting doors and strongly sloped hopper bottoms greatly increase the potential confined space hazard of cleaning or inspecting a railcar. An external observer should be present whenever someone is inside the car. Handheld radios can provide a communication link among workers outside the steel car environment. Because of the larger size and longer distances, a team of four workers (e.g., two on the ground and two on top) are often used around a railcar in the yard. Make absolutely certain there is no possibility of car loading (or unloading) when someone is in the car. Do not enter a loaded or partially loaded car where grain suffocation could occur during an unexpected unloading.


**Figure 32. Worker atop rail car tethered by cable and safety harness**

## Safety

Several unfamiliar safety hazards may be present during inspection and cleaning of grain and seed transport equipment. A good general rule is to carefully assess the situation before beginning inspection or initiating clean-out activity.

### Falls

Although many conveyances are not excessively tall due to right-of-way height restrictions, the upper lip of the grain box is usually high enough so that falls while climbing across it can inflict serious injury. In addition, grain holding boxes and containers are designed to hold grain and discourage human entry (for security and to avoid potential for grain suffocation). A secure ladder may be required to enter over the upper lip of the grain box if an exterior access ladder is not present. A second ladder (if not present) may be needed to climb into the interior of the box and later exit. A sloped hopper bottom on the floor of the grain box makes standing and walking difficult. Someone outside the grain box is often required to pass larger tools, such as a shop vacuum, to a worker inside the grain transport.

### Entrapment and suffocation

Grain is typically only a few kernels deep or less during clean-out or inspection of transport equipment. If, however, there is enough grain residue left overhead to present an entrapment hazard should it suddenly come loose, fatal grain suffocation could occur. Even when grain depth only covers calves and knees it is difficult to free one self. If the grain level is deep enough to press against chest and lungs, life-sustaining oxygen can be prohibited from reaching the body with possibly fatal consequences. If significant amounts of grain are present that could entrap in a sudden collapse, always clean from the top. This will loosen grain and allow it to fall below before entering the area. Grain suffocation can also occur during unloading if someone is on (later "in") the grain mass. Never enter a grain mass unless the possibility of unloading has been locked out. Perhaps more pertinent for an empty grain transport, assess if there is any possibility that loading could occur during the time of inspection or clean-out. Make certain that accidental loading of the transport is not possible during cleaning and inspection, by blocking access or electrical lock-out if necessary. Since movement of the transport during cleaning or inspection could be potentially hazardous, the towing mechanism should be detached or locked out in most instances.

### Entanglement

Augers may be present on some transport equipment, notably grain carts, and stand-alone augers may be in the vicinity of grain transports. Power should be disconnected and augers inoperative during cleaning and inspection. A guard is usually present at the auger's aggressive intake. If guards or access doors along the auger body are removed during cleaning or inspection make

sure they are replaced before start up. Rotating power shafts or belt-pulley combinations used to power augers are also entanglement hazards and should be guarded. Make certain power has been physically disconnected or locked out before cleaning and inspection. Replace shields and doors before re-operation and stay clear of the auger area during operation (such as when flushing with inert material).

## Confined space

A confined space is characterized by limited openings for entry and exit, unfavorable natural ventilation, and not being designed for continuous worker occupancy. Most grain transports meet one or more of these criteria. Safety issues in confined spaces include atmospheric hazards (e.g., toxic, flammable, oxygen deficient), communication with those outside the space, and extraction plans.

Gas-powered and internal combustion engines require good ventilation in open areas. Do not use gas-powered or internal combustion appliances such as leaf blowers, air compressors, or power washers in closed areas (or even partially closed areas without adequate ventilation). Carbon monoxide from exhaust fumes can quickly incapacitate and kill.

Significant quantities of organic dust dispersed in the air and an ignition source (e.g., spark from motor, high temperature surface) have the possibility to ignite a dust explosion. Within a confined enclosure, pressures can build almost instantaneously. Explosions have been more commonly associated with large quantities of dust near a grain elevator leg. Common methods to reduce the hazard around the elevator are good housekeeping, cleanliness, and structural openings to prevent pressure build-up. To avoid putting large amounts of dust in the air during cleaning, use a stiff broom or scoop to first collect and remove larger quantities of material before using a shop vacuum or other appliance with ignition source.

If the transport can be closed tightly enough to inhibit natural air exchange, make sure hatches and doors are open and provide adequate ventilation for anyone inside the grain box and to decrease the potential for pressure build-up.

Consider the need for an adequate communication link between someone cleaning or inspecting inside the grain transport and a second party on the outside. Radio communication may be considered, but will often not be feasible with workers inside a steel enclosure. Visual or audible contact with a responsible exterior person who can monitor the safety of the individual(s) inside the grain transport should be maintained. If some combination of egress difficulty, work hazards, or limited visual/audible contact with the outside exists, do not enter a transport without a responsible bystander able to monitor your safety.