CHAPTER 1

PROCEDURES FOR OFFFICIAL WEIGHING SERVICES

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1.1 Terms

a. **Grain Handling Terms.**

(1) **Belt/Conveyor.** Grain moving devices that transport grain in a horizontal or inclined direction. Usually constructed of an endless rubberized belt that moves over rollers, between a motor-driven head pulley, and a nonmotorized tail pulley.

(2) **Bin Floor.** Name commonly given to the area directly above shipping and/or storage bins. The bin floor usually contains a variety of chutes, spouts, conveyor belts, and trippers that allow grain to be moved to various parts of the facility.

(3) **Boot.** The covering (usually metal) around the bottom of an elevator leg. Grain is thrown off a horizontal conveyor belt into the boot where it is scooped up by buckets attached to the vertical elevator leg. The boot may be located in a sunken portion of elevator floor, referred to as the "boot pit."

(4) **Boxcar.** A carrier used to transport grain by rail. Access doors for loading and unloading are located on each side and require specialized loading and unloading equipment and procedures.

(5) **Carrier.** A truck, trailer, truck/trailer combination, railcar, barge, ship, or other container used to transport bulk or sacked grain.

(6) **Container.** A bin or other storage space, bag, box, or other receptacle for grain.

(7) **Delivery System.** A system used to deliver inbound grain from the carrier to the scale or to deliver outbound grain from the scale to the carrier. The delivery system includes all belts, pits, bins, legs, chutes, and spouts through which the grain must travel in order to reach its intended destination.

(8) **Distributor.** A piece of equipment used to direct grain to any of several bins, belts, or spouts. The distributor can be a movable spout or a movable turnhead that can be positioned over a number of stationary spouts or chutes.

(9) **Diversion Point.** Any point in the delivery system where the direction of the grain flow can be changed. Diversion points existing in a facility define the grain flow security system and are prime areas for spills and leaks.

(10) **Diverter-Type Mechanical Sampler.** A mechanical grain sampling device that periodically removes a proportional amount of grain from the flow for inspection purposes.

(11) **Draft.** An amount of grain that is weighed in one weighing operation, especially on a large-capacity scale.

(12) **Elevator Legs.** Vertical conveyor belts (usually enclosed in a metal covering) that lift grain through the facility by means of buckets made of various materials.

(13) **Elevator Facility Handbook.** The guide to a facility which provides official personnel with detailed information on the facility in which they work.

(14) **Floating Rig.** A waterborne grain handling and weighing system used to remove and weigh grain from barges directly to other waterborne carriers.

(15) **Gallery.** An elevated structure that houses shipping belts and trippers that direct grain through spouts to vessels or barges. In some locales, the diverter-type mechanical sampler is also located in the gallery.

(16) **Garner.** A temporary holding area above or below the weigh hopper included in the grain weighing system to allow for continuous grain flow.

(17) **Grain Cleaning Apparatus.** Devices that remove nongrain material or that clean grain for shipment or storage. Cleaners that remove large pieces of metal, wood, and other nongrain foreign material from the grain are usually called “scalpers”. Cleaners that remove fine grain particles or dirt from grain are often called “shakers” and operate with a series of screens that separate fine particles as the grain passes over the screens.

(18) **Grain Flow Security.** Measures taken by official personnel to guard against grain losses and verify grain movement throughout a facility’s grain weighing and delivery system.

(19) **Head Floor.** Name given to an elevator floor where elevator legs turn and deposit grain into garners above weigh hoppers. In many facilities, grain cleaning equipment is also located on the head floor. The head floor is usually the top floor of the elevator building.

(20) **Hopper Car.** A carrier used to transport grain by rail. Hopper cars have access doors for loading on the top and are unloaded by opening slides at the bottom of the cars.

(21) **Limit Switches.** Mechanically activated switches used to indicate the position of slides, gates, and valves.

(22) **Permissive (Official).** A term used in this handbook referencing a physical release, indication, or response by official personnel to maintain grain flow security e.g., response to an equipment failure alarm, releasing the control of equipment, consent to proceed to the next level of loading or unloading.

(23) **Permissive Device.** Grain flow devices which have to be disengaged by official personnel before facilities may control the use of the elevator equipment.

(24) **Scale Floor.** The area of the elevator building that contains weigh hoppers and weighing equipment. In most elevators, the scale floor is directly below the upper garners of the head floor.

(25) **Seals.** A security device that allows official personnel to secure and monitor the flow of grain in areas where they are not permanently stationed.

(26) **Shipping Bins.** Temporary holding bins for grain intended for shipment. Shipping bins are usually smaller than elevator storage bins and can be used to hold ship sublots for inspection purposes.

(27) **Slides/Gates.** Control devices that give elevator personnel the ability to change the direction of grain flow. Slides and gates are usually found at the bottom of shipping and storage bins, junction of spouts, and in some trippers.

(28) **Spout.** A cylindrical or rectangular chute through which grain passes while being loaded aboard a vessel or into other carriers. Spouts can also be used within the elevator to direct grain to other types of delivery systems.

(29) **Surge Bins.** Small temporary holding bins that allow the elevator to quickly shut off the grain supply (when located in the gallery) or allow the weigh hopper to discharge quickly.

(30) **Tripper.** A movable device for directing grain. Trippers are used on conveyor belts to direct grain into storage or shipping bins or to direct grain into a number of different loading spouts. There can be more than one tripper on a conveyor belt.

(31) **Trolley Spout.** A spout located beneath the weigh hopper that can be moved to various positions, directing grain to different locations in the elevator.

(32) **Unit Train.** A group of hopper cars weighed and certified as one lot. Unit trains may have a specific identification name or number or may be identified using the identification of the hopper cars comprising the unit train.

(33) **Valves.** A device used to direct, limit, or seal off the flow of grain at any given point. There are several kinds of valves, these include: (1) basket valves, which control a flat plate that swings on pivots right or left to close off one side or the other of a spout; (2) slide valves, which control the flow of grain through a spout by means of a sliding plate; and (3) clam shell valves, comprised of two half-plates that swing in an arc and bite together to either completely or partially close off a spout.

(34) **Weighback Spout.** A movable or stationary device through which grain in shipping bins is directed back into elevator legs for reweighing.

b. **Official Personnel/Certification Terms.**

NOTE: Certification Procedures are found in Chapter 2 of this handbook.

(1) **Agency.** Any state or local Government agency, or any person, designated by the Administrator pursuant to subsection (f) of Section 7 of the Act for the conduct of official inspection (other than appeal inspection), or subsection (c) of Section 7A of the Act for the conduct of Class X or Class Y weighing (other than review of weighing).

(2) **Agricultural Marketing Act of 1946 (AMA).** A law passed by Congress to facilitate the marketing and distribution of agricultural products.

(3) **Combined Lots.** Grain loaded aboard, being loaded aboard, or discharged from two or more carriers.

(4) **Conversion Factor.** Any mathematical factor used to convert one form of measured units to another.

(5) **Cutoff.** A requested ending of the weighing and/or inspection of grain for shipment prior to completing the loading. An official certificate is issued for grain weighed before the cutoff and for grain weighed after the cutoff. The portions shall be treated as separate lots.

(6) **Delegated Agency.** A State agency delegated authority under the Act to perform official inspection functions and official Class X and Class Y weighing functions at one or more export port locations in the State.

(7) **Designated Agency.** A State or local Government agency or person designated by the Service to perform all or specified official inspection functions and/or official Class X and Class Y weighing functions at locations other than export port locations.

(8) **Grain Additives.** Material approved by the Food and Drug Administration (FDA) or the Environmental Protection Agency (EPA) and added to grain for the purposes of insect and fungi control, dust suppression, or identification.

(9) **Intercompany Grain Movement.** Movement of grain from a facility belonging to one party to another facility belonging to a different party.

(10) **Intracompany Grain Movement.** Movement of grain from a facility belonging to one party to another facility belonging to the same party.

(11) **Key Control.** Measures taken to safeguard and provide accountability for keys to padlocks used in the grain flow security system.

(12) **Local Movement.** Movement of grain within a single facility.

(13) **Master Key.** A single key that will unlock a group of similar locks used in the grain flow security system.

(14) **Official Personnel.** Persons licensed or otherwise authorized by the Administrator pursuant to Section 8 of the Act to perform all or specified functions involved in official inspection, Class X or Class Y weighing, or in the supervision of official inspection or Class X or Class Y weighing.

(15) **Official Weighing.** (Referred to as Class X weighing). The determination and certification by official personnel of the quantity of a lot of grain under standards provided for in the Act, based on the actual performance of weighing or the physical supervision thereof, including the physical inspection and testing for accuracy of the weights and scales and the physical inspection of the premises at which the weighing is performed and the monitoring of the discharge of grain into the elevator or conveyance. (The terms "officially weigh" and "officially weighed" shall be construed accordingly).

(16) **Post-loading Survey.** An examination of a carrier and delivery system to assure that all grain weighed for a carrier was entirely delivered to the carrier.

(17) **Post unloading Survey.** An examination of a carrier and delivery system to assure that grain in an identified carrier was properly removed from the carrier and delivered entirely to the scale.

(18) **Pre-loading Survey.** An examination of any carrier for any condition that might affect its ability to transport grain and of the delivery system to assure that all grain weighed for a carrier is delivered to the carrier.

(19) **Pre-unloading Survey.** An examination of a carrier for any condition that may have affected its ability to transport grain and of the delivery system to assure that all grain removed from the carrier is entirely delivered to the scale.

(20) **Regulations.** The official rules as formulated for the purpose of implementing the United States Grain Standards Act (7 CFR 800, 801, and 802).

(21) **Reject and Return (R & R).** Terms used to describe the return of grain to the elevator storage which does not meet load order requirements.

(22) **Scale Official.** An employee of the Service or delegated State official who is responsible for the weighing systems at locations as assigned. He/she should be consulted for any scale problems or possible malfunctions.

(23) **Shift Supervisor.** An individual responsible for the day-to-day weighing and inspection activities of official personnel at locations as assigned.

(24) **Spill.** A loss of grain during loading or unloading of a carrier.

(25) **Spill Estimation Formulas.** Geometric formulas which compute the volume of various shapes, convert that volume to bushels and then to pounds.

(26) **Stowage Examinations.** An examination of the stowage spaces of a carrier conducted by official personnel to determine the suitability of a carrier or container to receive and store grain.

(27) **Sublot.** A proportional amount of a lot collected and examined by official personnel for the purpose of determining the uniformity and quality of the grain.

(28) **Supervision of Weighing.** (Referred to as Class Y Weighing). Such supervision by official personnel of the grain-weighing process as is determined by the Administrator to be adequate to reasonably assure the integrity and accuracy of the weighing and of certificates which set forth the weight of the grain and such physical inspection by such personnel of the premises at which the grain weighing is performed as will reasonably assure that all the grain to be weighed has been weighed and discharged into the elevator or conveyance.

(29) **Test Weight.** The weight in pounds per Winchester bushel as determined on an approved device.

(30) **Trade Weight.** Standard test weights used for estimating quantities of grain when exact test weights are not known.

(31) **United States Grain Standards Act (USGSA).** A law passed by Congress that provides a system by which grain may be marketed in an orderly and timely manner, and trading in grain may be facilitated.

(32) **Official Weigher.** Official personnel who perform or supervise the performance of Class X or Class Y weighing services and certify the results thereof including the weight of the grain.

c. **Scale Systems Terms.**

(1) **Battery Back-up.** A mechanism in electronic weighing systems that allows the information to be retained in the event of a loss of power.

(2) **Bindicator.** A switch in bins that indicates the level of grain. A bindicator may be used in some instances to verify the cleanout of shipping bins.

(3) **Calibration Value.** Some electronic systems are equipped with a calibration button which, when pressed, displays figures in the digital display. The displayed figure is known as the "Calibration Value" and should not vary from the value posted on the console.

(4) **Certified Capacity.** The maximum weight limit that has been approved by the Service for a scale for weighing under the Act. It is posted on the scale's nomenclature plate.

(5) **Control Board.** A scaled down diagram of the facility's grain flow system indicating belts, legs, scales, and distributing areas. It may contain indicating lights and controls for equipment used to direct grain flow.

(6) **Control Room.** Houses consoles, printers, and control boards. It may be located within the facility or removed from it.

(7) **Dead Load.** The fixed force of the weighbridge, platform, and other load supporting structures of the scale. The dead load is permanently balanced or canceled out in the weight indicating or measuring system.

(8) **Digital Instrument.** Receives input from the operator and receives and processes information received from load cells, limit switches, and the printer.

(9) **Draft.** The amount of grain weighed in one weighing cycle.

(10) **Full Electronic Scale.** Uses only load cells (as opposed to load cells and levers) to register the weight of the scale's contents. The load cell converts force into an electrical signal proportional to the weight.

(11) **Gross Weight.** The weight of a quantity of grain including the container or carrier.

(12) **Indicator Lights.** Lights which, when activated, show the position of a slide, gate, belt, or scale (i.e., belt running, slide closed or open). Indicator lights are usually connected to switches.

(13) **Inspection Doors.** Doors which allow access to weigh hoppers, bins, or garners for the purpose of inspecting the area inside.

(14) **Levertronic Scale.** Uses a system of load cell(s) and levers to register the weight of the scale's contents. The load cell(s) converts force into an electrical signal proportional to the weight.

(15) **Limited Access Areas.** Areas in the console and/or printer of electronic systems that allows manipulation of switches and controls that can affect the automatic operation or digital readout.

(16) **Load Cell.** A device which produces an output signal proportional to the applied load. The load cell may utilize any physical principle in the field of, but not limited to, electrical, hydraulics, magnetics, and pneumatics or combination thereof.

(17) **Load Receiving Element.** That element of a scale which is designed to receive the load to be weighed. For example; platform, deck, rail, or hopper.

(18) **Malfunction.** With respect to official weighing, any occurrence that provides inaccurate or unverifiable weight information.

(19) **Minimum Division.** The smallest unit in which a weighing device can register a weight.

(20) **Motion Detection.** The process of sensing a rate of change of applied load to determine when a given weighing system has reached state of equilibrium.

(21) **Net Weight.** The weight of quantity of grain exclusive of the container or carrier.

(22) **Overdraft.** Any draft that exceeds the certified capacity of the scale.

(23) **Preset Tare.** A reference amount that represents an empty scale condition.

(24) **Process Control.** Feature of an electronic weighing system that can, in the automatic mode, control the garner and weigh hopper gates, the digital display, the printing functions, and will repeat in succession without involving the human operator.

(25) **Radio Frequency Interference (RFI).** An electrical disturbance which, when introduced into electronic and electrical circuits, may cause deviations from the normally expected performance.

(26) **Railway Track Scale.** A scale especially designed to weigh railcars.

(27) **Scale Component.** Any part of the unit which weighs grain including levers, load cells, and the weigh hopper itself.

(28) **Scale Tape.** A continuous sheet of paper on which weight information is printed. Scale tapes are part of the documentation used to support official weighing results.

(29) **Settling Time.** The amount of time required for a scale to stop fluctuating prior to printing a gross or tare weight.

(30) **Tare Weight.** The weight of an empty container or vehicle. Also called "light weight" with respect to a container or a vehicle.

(31) **Vehicle/Truck Scale.** A scale designed for use in determining the weight of bulk grain in a motorized vehicle or in a trailer drawn by a motorized vehicle.

(32) **Warmup Period.** When the power supply to an electronic weighing system has been shut off, a warmup period from 1/2 to 1 hour is required before official weighing can begin on the scale or scales.

(33) **Weighment.** A single complete weighing operation.

(34) **Zero-Load Balance.** A representation of zero when there is no load on the load receiving element.

d. **Sacked Grain Terms.**

(1) **Carrier.** A truck, trailer, truck/trailer combination, railroad car, barge, ship, or other container used to transport bulk or sacked grain.

(2) **Checkloading.** Determining that the carrier is suitable to receive grain, counting the containers of grain loaded into the carrier, observing the condition of containers, and monitoring the disposition of grain spilled from torn and leaking sacks.

(3) **Container.** A bin, or other storage space, bag, box, or other receptacle for grain.

(4) **Gross Weight.** The overall weight of the filled container which includes the weight of all packaging components and the grain.

(5) **Lot.** A specific quantity of grain identified as such.

(6) **Lot Size.** The number of containers in the lot.

(7) **Net Weight.** The actual weight of grain minus the container and packaging components.

(8) **Official personnel.** Persons licensed or otherwise authorized by the Administrator pursuant to Section 8 of the Act to perform all or specified functions involved in official inspection, Class X or Class Y weighing, or in the supervision of official inspection, or Class X or Class Y weighing.

(9) **Official Weight Sample.** Sacks of grain obtained at random by or under the complete supervision of official personnel from a lot of sacked grain for the purpose of computing the weight of the grain in the lot.

(10) **Weighing On-Line.** Sacks of grain randomly selected as the lot is being produced and weighed.

(11) **Pallet.** A frame usually made of wood on which sacked grain is stacked and transported to a carrier for shipment.

(12) **Random Sampling.** A process of selecting a weight sample from a lot whereby each unit in the lot has an equal chance of being chosen. Ordinary haphazard choice is generally insufficient to guarantee randomness. Devices, such as tables of random numbers, are used to remove subjective biases inherent in personal choice.

(13) **Warehouse Weighing.** Sacks of grain randomly selected from a warehouse lot and weighed.

1.2 GENERAL EMPLOYEE RESPONSIBILITIES

The integrity of an official weight certificate is essential. Official personnel must avoid or eliminate situations that might affect or raise questions on the accuracy of a weight certificate.

a. **Supervisor Responsibilities.**

(1) **General.** Managers and supervisors[1] must ensure that official personnel[2] perform weighing procedures correctly.

(2) **Specific.**

(a) Ensure official personnel:

1 Follow weighing instructions and procedures;

2 Follow proper security procedures for communication equipment, seals, keys, and certificates; and

3 Complete documentation, such as weight and seal logs, neatly and correctly.

(b) Provide official personnel with applicable weighing equipment, instructions, handbooks, and other required materials.

(c) Make certain at export elevator locations that grain handling systems are tested at least annually using the procedures in Program Directive 9160.4, Grain Handling System Testing, before using for official weighing.

(d) Ensure smooth and complete communication of pertinent information occurs between shifts or work crews.

[1]The term "manager" as used inthis chapter means FGIS Field Office Manager (FOM) or equivalent supervisory position agency manager (AM) at an official agency. The term "supervisor" means FGIS shift supervisor or equivalent supervisory position at an official agency.

[2]Throughout the text, the term"weigher" will beinterchangeable with "official personnel." The weigher's responsibilities may be different in automated weighing systems approved by FGIS.

(e) Solve or direct to responsible personnel all weighing and personnel problems.

(f) Provide technical weight training to personnel as necessary.

(g) Ensure proper communication with elevator management of instructions, complaints, equipment failures, scale malfunctions, delivery system problems, safety hazards, or other pertinent information.

(h) Maintain an up-to-date Facility Handbook.

(i) Inform management of any grain handling or weighing systems changes. (Section 800.46 of the regulations under the United States Grain Standards Act (Act) requires an elevator to notify official agencies).

(j) Oversee the completion, issuance, and proper disposition of all official weight documents. (All unusual situations shall be documented on the weight loading log, scale tapes, or other applicable documents).

(k) Comply with safety requirements, including documentation of safety hazards. Follow applicable instructions.

b. **Weighers Responsibilities.**

(1) **General.** To perform weighing procedures properly, the weigher must:

(a) Prior to each shift, ensure conditions necessary for proper scale(s) operation (see Section 1.5) and operate or supervise operation of scale(s) according to instructions.

(b) Thoroughly document weighing process and be responsible for the issuance of legible, accurate certificates.

1 Maintain and implement current procedures, instructions/directives, and notices for weighing services; possess working knowledge of scales operated or supervised and of grain handling system including diversion points; and recognize and document scale malfunctions.

2 Ensure security of keys, communication equipment, locks, seals, certificates, scale tapes, tickets, certificate software or electronic access, and other records.

3 Provide on-the-job training for assigned personnel.

4 Communicate, if directed, to elevator personnel/management any instructions, complaints, equipment failures, scale malfunctions, safety hazards, or other pertinent information.

5 Perform all other weighing duties as directed by supervisor to ensure accurate certification of weights.

(2) **Specific.** Unless automated methods are in place, the weigher monitors weighing activities of elevator personnel and verifies control board settings, digital weight displays, and printer operation and output. Control board or monitor settings must be physically verified a minimum of once per shift and results documented on export weight loading log. Comparison of the visually checked digital weight indicator to the printout assures proper system operation. Managers determine frequency of printer/visual checks which must be documented on scale tapes. Specifically, the weigher must:

(a) Recognize actual or potential problems with elements in the weighing and/or printing system affecting the accuracy of weights. Noted scale and printer malfunctions must be documented following Chapter 2 of the Weighing Handbook;

(b) Verify seals on the limited access areas of scales used for official weighing or supervision of weighing and document checks on Scale Record Log and Seal Record Log; and

(c) Observe control board or monitor to ensure grain flow security by verifying that the lights, switches, and control board monitors are operating properly and the controlled gates, slides, and valves are in correct alignment. Assistance from the elevator weighman to activate the display switch may be required. Security checks made on the handling and weighing system are documented on the Weight Loading Log.

(d) Ensure scale operation according to Section 1.5:

1 Verify digital weight indicator to printed weight through monitoring the weighing of drafts, and inspecting weigh hoppers, vehicle scale platforms, lever systems, and load cells for conditions impairing normal scale operations.

2 Inspect scale and garner hopper gates for leaks at least once per shift.

3 Managers determine the frequency of checks between the digital weight indicator and printed weight. Checks must be denoted on the scale tapes.

(3) **Conduct surveys of weighing system:**

(a) Verify elevator's scale and delivery system are clear of grain.

(b) Ensure necessary conditions for proper performance of equipment.

(c) Secure spouts, trippers, distributors, and other diversion points with seals, locks, or electrical lockouts to ensure grain flow security.

(d) Check and record numbers and location of seals and locks on Seal Log.

(e) Check cleanout of shipping bins.

(4) **Examine Carriers.** Obtain carrier identification and, if possible, examine conditions of carrier that would affect quantity of grain shipped or received. For inbound grain, carrier must be checked according to Section 1.2 for cleanout after weighing operation. For shiplot grain, stowage of grain on carrier must be documented.

(5) **Monitor Diversions.** Monitor all diversion points to maintain grain flow security including belts, conveyors, boot pits, elevator legs, shipping bins and other diversion points, and marine legs, clam shells, loading spouts, or other loading/unloading apparatus.

(6) **Observe Weighbacks.** Monitor weighbacks, rejected and returned (R&R) shipping bins, and offloading or discharging of grain from carrier.

(7) **Document.** Thoroughly document all official weighing operations.

1.3 INBOUND MOVEMENT

Inbound grain movements are weighed at the applicant's request. Inbound intercompany barge movements at export elevators must be weighed officially under the Act. Incidents of suspected attempts to avoid these mandatory requirements must be reported as directed in Chapter 2, "Weighing Grain Without Official Supervision."

Weigher's duties are to monitor the efficient transfer of all approved railroad track, vehicle platform or hopper scales; monitor grain weighed in hopper scales; use seals, locks, control board lockouts or other approved means, including FGIS approved automated weighing systems, for Class X weighing; and document spills as instructed in Sections 2.3 and 2.4 of this handbook.

a. **General Unloading Operation Guidelines.**

(1) **Pre-unloading Responsibilities.** FGIS personnel must supervise pre-unloading operations from barge, rail, or truck movements. Specifically, they must:

(a) Record on the weight certificate carrier identification and any factual conditions pertinent to the carrier's ability to transport grain, and if possible, identify type of grain. In the absence of official inspection, use of verified elevator manifests is acceptable. Managers establish verification procedures which may include checking conveyor belts, checking D/T samplers, performing random pre-unloading checks, observing closed-circuit television monitors, or communicating with co-workers in the carrier's vicinity.

(b) Record railcar seal disposition at the applicant's verbal or written request noting the date, requester's name and carrier(s). The verified disposition of each of the lower seals, (i.e., intact, broken, not present or not properly applied), must be recorded in the "Remarks" section of the weight certificate as follows:

1 Individual cars:

"Seals on B-1 and B-2 intact; seal not present or broken on B-3."

2 For unit trains:

"The following carrier compartment seals were broken or not present (e.g. NAHX 40963-B-1 and B-2); all other carrier compartments were properly sealed."

3 Safety reminder:

CRAWLING UNDER HOPPER CARS TO VERIFY SEAL CONDITIONS IS PROHIBITED!

(c) Survey the elevator's scale and delivery system each shift prior to the start of weighing or if a spill is suspected. Document any conditions that might affect performance of the scale or other grain handling equipment.

(2) **Unloading Responsibilities.** During the unloading operation the weigher must:

(a) Follow procedures in Section 1.5 for operating and monitoring scales;

(b) Document inbound carrier supervision with scale tapes or tickets; and

(c) Maintain grain flow security by ensuring delivery to the scale with minimal waste.

(3) **Post-unloading Responsibilities.** Upon completion of unloading, official personnel must:

(a) Ensure removal of all possible grain from carrier and from delivery system. Excluding barges, if possible estimate the grain remaining in the carrier which could reasonably be removed and/or grain that was spilled;

(b) Verify cleanout by visual, mechanical or electronic methods with frequency determined by type of carrier. Barges require continual supervision. Rail and truck carriers require periodic checks, with frequency and documentation procedures determined by the manager as necessary to maintain acceptable results; and

(c) Follow certification procedures in Chapter 2.

(4) **Scale Testing Responsibilities.** Where house grain cannot be used to conduct a build-up on a hopper scale test, the weigher must:

(a) Use inbound carrier's grain to conduct a build-up test on a hopper scale. If the test shows the scale out-of-tolerance or needing adjustment, the scale official determines the correct weight; and

(b) Issue an unqualified certificate and write explanation on scale tape or ticket.

b. **Specific Operations Guidelines.**

(1) **Inbound Trucks Weighed on Platform Scales.**

(a) Establish a consistent policy of either weighing drivers/riders on or off scales.

(b) Obtain tare weight: Weigh empty vehicle exactly as full vehicle was weighed for gross weight (i.e., same riders or accessories.)

(c) Do not use pre-determined tare weights for empty vehicles.

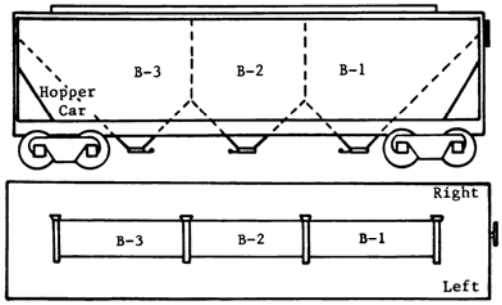
(2) **Local Movements.**

(a) Officially weigh movements of grain within the elevator upon request of elevator management.

(b) Follow all procedures in Chapters 1, 2, and 3, of the Weighing Handbook for operation of scales, monitoring grain flow, documenting facts and certifying results.

(3) **Documentation Terminology.** When documenting carrier condition or grain location on inbound carriers, use the following terms:

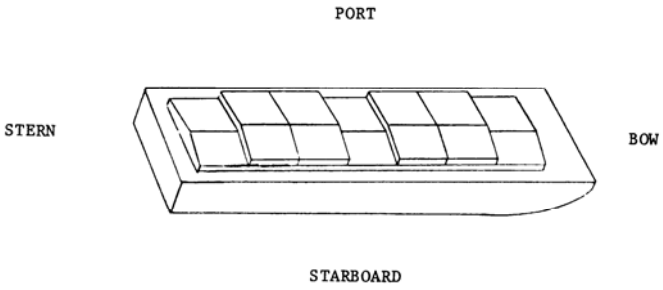
HOPPER CAR DIAGRAM



(a) Hopper Cars.

Identify brake end as "B" end; label hopper nearest brake end "B-1" and remaining hoppers toward opposite end in sequence (e.g.
"B-2" and "B-3".)

BARGE DIAGRAM



(b) Barges.

Term forward end of the barge "bow" and after end the “stern." When facing the bow end, the left side is "port" and right side is "starboard."

1.4 OUTBOUND MOVEMENT

Export shipments require official weighing; other movements are weighed at the applicant's request. Exempted export shipments are identified in FGIS Program Directive 9020.1, Exemptions and Waivers of Official Inspection and Class X Weighing Requirements.

Outbound grain movements must be efficiently delivered to the carrier without avoidable waste or loss. Monitor grain flow from scale to carrier, and for Class X weighing, secure system by use of seals, locks, control board lockouts, or other approved means. Correct for spills and certify according to instructions in Chapter 2 of the Weighing Handbook. Also, dust removed from the grain flow during loading does not need to be deducted from the net weight.

a. **General Loading Operation Guidelines.**

(1) **Pre-loading Responsibilities.**

(a) Secure elevator's scale and delivery system and clear it of all grain prior to weighing operations. Examine seals, locks, and/or gate indicators to verify their working condition. Complete preweighing checks listed in Section 1.5.

(b) Perform a required stowage examination on land and export waterborne carriers, and at the applicant's request, on domestic waterborne carriers. Follow official inspection stowage examination procedures exactly.

(2) **Loading Responsibilities.**

(a) Follow scale operation procedures in Section 1.5 for weighing grain to the carrier.

(b) Maintain grain flow security with methods specified in Section 1.5.

(c) Prevent addition to or removal of material through cleaning, drying, or other processing of the grain enroute to the carrier unless allowed by regulation or applicable instructions.

(3) **Post-loading Responsibilities.**

(a) Examine the grain handling system by visual or electronic methods for the correct distribution of weighed grain.

(b) Document spillage or lost grain as instructed in Chapter 2.

(c) Conduct a survey of the grain handling system at the completion of each export lot.

b. **Vessel Loading Requirements.**

(1) **Sublot Determination and/or Verification.** Determine the exact weight of each sublot or verify the accuracy of the weight as determined by elevator personnel and record on the Weight Loading Log.

(a) When there is direct correlation with the inspection sample (e.g., there are no surge or shipping bins between scales and mechanical samplers), follow these procedures:

1 Confer with elevator management to determine sublot size;

2 Keep a running total of drafts to determine the end of the sublot;

3 Inform both inspection and elevator personnel when a sublot completes; and

4 Document all actions taken on the Weight Loading Log.

(b) When there is no correlation with the inspection sample (e.g., grain is held in surge or shipping bins after the scales but before the mechanical samplers), follow these procedures:

1 Establish a system to accurately determine the designated sublot size;

2 Make sublot determination except when practicality shows elevator personnel can best do this; and

3 Develop and implement a procedure to verify the accuracy of the sublot determination system.

(2) **Shipping Bin Examinations.**

(a) When the grain quality inspection takes place prior to grain being loaded aboard the carrier, examine each shipping bin for cleanout as it empties. Visual or electronic examination is acceptable.

1 Post the time when shipping bins are checked at the beginning and end of each lot, or cutoff for a visual, or electronic examination.

2 Verify accuracy of an electronic indicator and document according to procedures established by the manager and explained in the Facility Handbook.

(b) Deliver to the carrier or weigh back and account for by correction any grain remaining in a shipping bin after the lot is completed.

(c) At facilities where bins do not continually self-clean, and the remaining material does not meet the definition for grain or is substantially below load order quality:

1 Do not allow this material to be loaded;

2 Get bin design corrected or develop a procedure to estimate grain in this material and replace or deduct the amount from the certified weight; and

3 Do not allow the return of contaminated grain to sound grain bins.

(3) **Shipping Bin Reject & Returns.**

(a) Subtract from the total weight the amount of grain rejected and returned to the house because of grade, and record this on the Weight Loading Log.

(b) Draw a red line through the returned amount and show "R&R" on the log.

(c) Adjust and document scale tapes and tickets as "R&R".

(4) **Discharging Grain from an Outbound Carrier.**

(a) Determine grain amount to be removed.

(b) Ensure grain flow system is secure and clear.

(c) Monitor grain flow.

(d) Weigh grain and deduct the weighed amount from the net weight.

(e) Document all discharges and, at the applicant's request, issue a weight certificate for discharged amount (see Chapter 2).

(5) **Weight Cutoff During Loading Operation.**

(a) At the applicant's request, stop weighing, deliver grain to the carrier, and certify the amount delivered.

(b) Include only the amount of grain on the carrier; do not include grain weighed but not delivered (e.g., grain in shipping bins.)

(c) Re-weigh the bins and subtract the amount from the total if the quantity in the shipping bins at the time of cutoff is unknown.

(6) **Sealing Shipping Bins.**

Whenever official personnel leave the elevator, they must secure shipping bins containing weighed grain by using seals, locks, or electronic security methods.[3] If, upon returning to the elevator, they believe the grain security voided and the quantity changed, they must return the grain to the house and follow these procedures:

(a) When the exact amount of grain in the shipping bin is known, subtract that weight amount from the net weight loaded on the vessel;

(b) When the amount of grain in the shipping bin is unknown, subtract the total capacity from the net weight loaded on the vessel; and

(c) Document the Weight Loading Log.

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[3]These sealing provisions provide for sealing grain flow to maintain quantity. The sealing of access openings to control the addition of sweepings or other grain is at the manager's discretion. The use of locks on the bottom of shipping bins prevents the grain security from being voided.

c. **Barge and Container Guidelines.**

(1) **Seal Requirements for Outbound to Export Carriers.**

(a) If shippers request an export certificate identifying the ocean carrier at the time of loading, i.e., containers, lash barges, etc.:

1 Seal the inland carrier;

2 Record seal numbers on the weight certificate;

3 Use identification of inland container; and

4 Mark certificate "out" movement.

(b) On loading the domestic carrier aboard the vessel, the local office will:

1 Obtain all certificates—original and copies;

2 Check seals;

3 Re-weigh the carrier if seals are not intact;

4 Checkload the carrier aboard ocean-going vessel; and

5 Issue export certificate with identification of ocean-going vessel and net weight of the carrier loaded, or for a combined-lot certificate, the combined net weight with the other carriers loaded.

(c) When the shipper does not request the identification of an ocean carrier on the export certificate, seals are unnecessary.

(2) **Seal Requirements for Outbound to Domestic Carriers.** When the shipper applies seals and requests they be shown on the weight certificate:

(a) Verify seal numbers;

(b) Record seal numbers on weight certificate;

(c) Documentation for Outbound Barges;

(d) Scale tapes or tickets are required; and

(e) Managers may require additional documentation.

d. **Outbound Railcar Guidelines.**

(1) **Loading Single Railcars, Unit Trains and Combined Lots.**

(a) Weigh individually, collectively as a unit train, or batch-weigh as a combined lot.

(b) Certify following procedures in Chapter 2.

(2) **Recording Seals at Applicant's Request.**

(a) Verify proper application of seals using procedures in 1.2.

(b) List seal numbers in "Remarks" section of weight certificate.

(3) **Documentation Requirements.**

(a) Use scale tapes or tickets.

(b) Obtain list of railcar identification numbers for certification for unit trains and combined lots.

e. **Procedures for Weighed Export (Containers) or Outbound Trucks.**

(1) **Driver's Position.** Establish consistent policy of either weighing drivers/riders on or off scales.

(2) **Tare Weight.** Obtain tare weight: the tare weight must include the material to be used for the bulkhead. The ideal situation is to weigh all of the material to be used for the bulkhead at the time the tare weight is obtained. However, the alternative procedure it to establish the bulkhead weight by weighing all of the material that will be used in one bulkhead and using that predetermined weight for all export containers until one of the materials used in the bulkhead is replaced.

(3) **Gross Weight.** Obtain gross weight: weigh full vehicle exactly as empty vehicle was weighed for tare weight (i.e., same riders or accessories).

(4) **Seals Optional.** Record seals at the applicant's request.

(a) Verify proper application of seals using procedures in 1.2.

(b) List seal numbers in "Remarks" section of weight certificate.

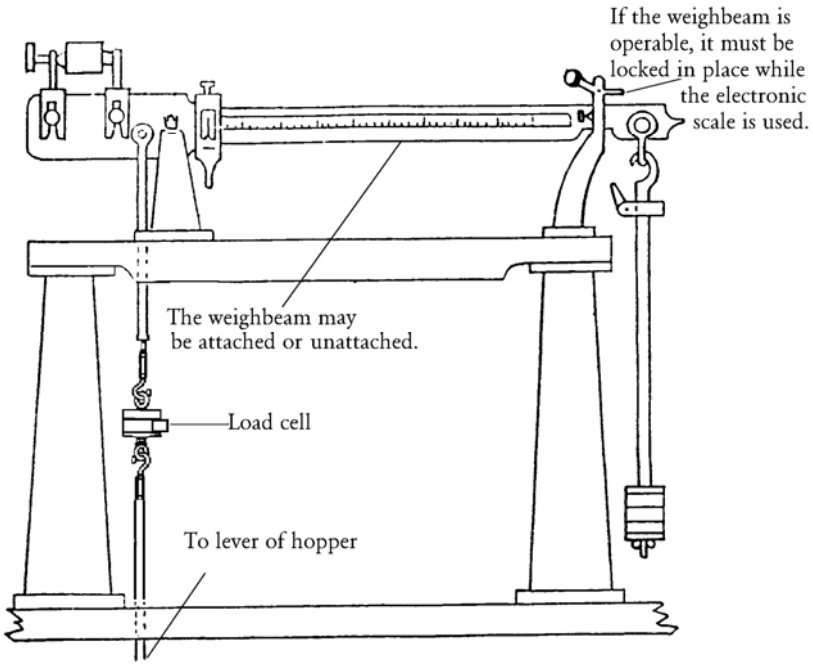
1.5 SCALE OPERATION

Knowledge of weighing systems by official personnel is essential for certification of weights. Specifically, this includes familiarity with the parts of each system, proper use of weighing systems, knowledge of procedures to be followed, and of signs of system breakdowns. If the performance of the scale is questionable, the weigher must notify the supervisor and, if necessary, the scale official.

a. **Electronic Weighing Systems.**

(1) **General Description.** An electronic weighing system includes a load receiving element, and indicating element, a printer, and the associated material handling equipment. The load cell(s) senses the amount of applied load in the load receiving element and produces an output voltage that is sent to the digital instrument. The digital instrument converts the output voltage into a digital display. The tape printer records the digital display to a tape or ticket for a permanent record. Resolve any problems with the supervisor and, if necessary, with the scale specialist.

(a) There are two types of electronic scales.

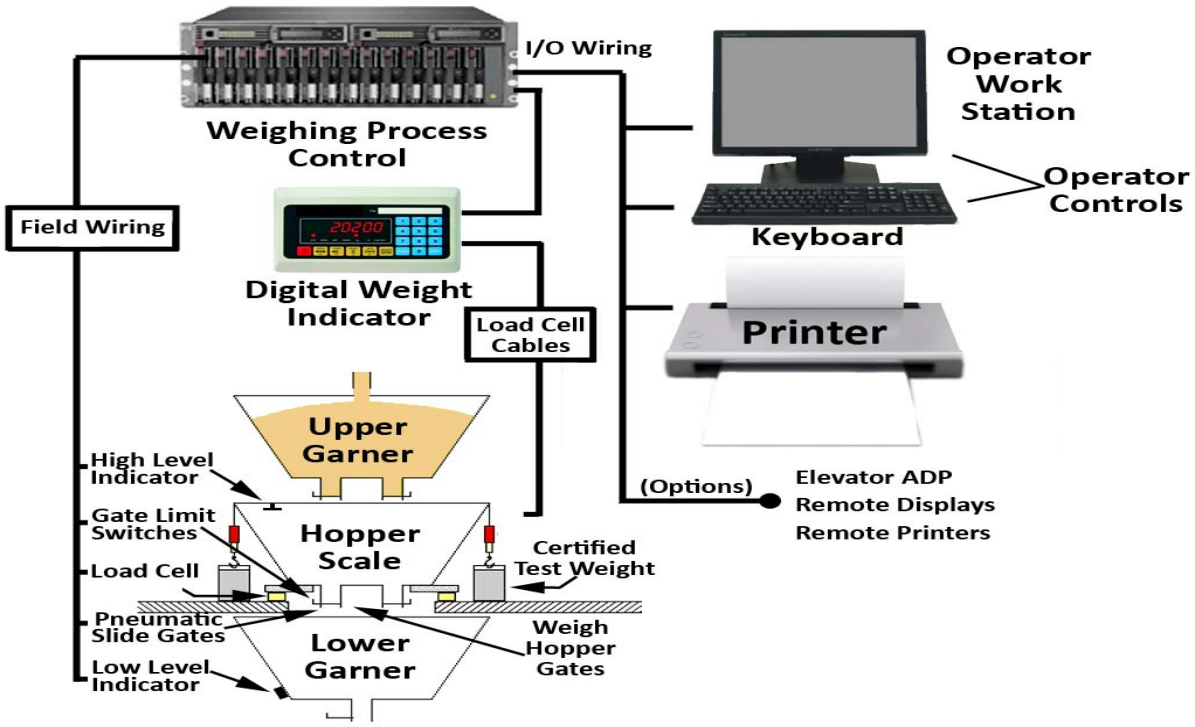


1 Levertronic Scale

Converted from a mechanical scale by the insertion of a load cell into the lever system.

Digital instrument and printer usually replace weighbeam or dial.

FULL ELECTRONIC SCALE
(Automatic Bulk Weighing System)



2 Full Electronic Scale

Full electronic scales have load cells directly supporting the load receiving element.

Personnel control levertronic or full-electronic scales either in or out of the elevator, this area, the control room, contains digital instruments, printers, and control board monitors.

a) Official remote digital instrument displays (CRTs) and printers can be approved.

b) Digital instruments have a process control that allows operators to control grain flow into and out of garners and scales manually or by automatic mode. In the automatic mode, the scale fills and empties (cycles) by itself; manually, the operator controls the cycling of each draft. Operators monitor grain flow from control boards or monitors that designate scaled diagrams of the elevator's grain handling system. Elevator personnel can control bin selection, tripper movement, diversion points, legs, conveyor belts, and slides/gates with switches on the control board.

(2) **Pre-weighing Responsibilities.** At the beginning of each work shift, the weigher must:

(a) Ensure the load receiving elements of the scale components are free from binds, obstruction, and debris; that the load cells and wiring are intact; and that all scale components are free from build-ups of grain;

(b) Ensure that there is a warm-up period for the load cells and electronic units. One-half to one hour is required when power has been shut off to the scale;

(c) Examine the Scale Record Log to determine whether a malfunction occurred in the weighing system during the previous work shift. Resolve any problems with the scale official before using the scale for official weighing;

(d) Observe the digital display in an empty scale condition. If the weight value fluctuates in excess of plus or minus one division, determine if it is the result of a scale malfunction. No-load balance is a condition in which the scale will record a representation of zero load when the scale is empty; and

(e) Establish for reference the operating tare. Tare is the reference amount that represents an empty scale condition; it is usually printed as a negative value on the scale tape, however, there are some scales that if the tare goes below the zero it may be shown as a positive value. If the tare goes below zero:

1 The weighing cycle may stop;

2 The weight display will display below zero and print a positive tare. Net weight is obtained by subtracting (or adding if below zero) the tare weight from the gross weight; and

3 Perform any other tests built into the weighing system which identify equipment problems (e.g., calibration check, printer check, LED display check, etc.), inform the supervisor, and consult the scale official as necessary.

(3) **Electronic System Operating Procedures.**

(a) Ensure proper system operation and detect any printer malfunctions.

(b) Verify that the weight display value on the digital instrument is identical to the printed value on the scale tape or ticket.

(c) Document checks on scale tapes as instructed by manager.

(d) At the end of the sublot or pre-determined interval, total and record the sublot or tape number.

(e) Record the date, time, carrier identification, kind of grain, and scale number.

(f) Show the calculated net weight if it has to be manually calculated from a running total or verify the accuracy of the information.

(g) Initial the tape.

(h) Auxiliary indicting displays (e.g., scoreboards) are not to be used for the official digital weight indication.

(4) **Checks Performed During Each Work Shift.**

(a) Examine the garner gate and weigh hopper gate for leaks. Discontinue the use of the scale if a leak is found until it is corrected. Document on the Weight Loading Log, scale tapes, scale record logs, an event printer, as determined by the manager. Perform the check as follows:

1 With the garner at least 50 percent full, all gates closed, and the scale operation stopped; observe the digital display for a continuing increase in weight. An increase indicates that grain is leaking from the upper garner into the weigh hopper; and

2 With the weigh hopper at least 50 percent full, all gates closed, and the scale operation stopped; observe the digital display for a continuing decrease in weight. A decrease indicates that grain is leaking from the weigh hopper.

(b) Examine the gross weights from previous drafts printed on the scale tapes. If the grain flow to the scale is constant, the gross weights are constant. Large variations during automatic operation must be investigated by the scale official for a possible malfunction in the weighing system.

(c) Observe printed tare weights for consistency (they should not change several divisions when the flow rate is constant or unchanged and while the scale is in automatic mode).

1 Changes that do not necessarily indicate inaccurate weights:

a) Occasional increases that return to normal may indicate that material was struck in the weigh hopper for a brief period of time. Fluctuations at the start of sublot or at the end of sublot weighing often causes change in the grain flow rate into the weighing system and the reason for tare weights not to remain equal; and

b) Gradual long-term increases may result from build-up on the scale structure or a temperature change. These do not necessarily indicate inaccurate weights;

2 Erratic changes or gradually decreasing tare weights must be investigated.

(d) During the print cycle, when the gates are closed, the digital display must settle to plus or minus one division prior to printing. A motion detection design, approved through the prototype and through initial installation examinations, senses the proper settling of the scale.

(5) **Specific Situations Requiring Caution.**

(a) Design specifications on electronic hopper scales used for inbound weighing require that the tare weight is determined and printed at the beginning of each draft to reflect that the scale was empty when weighing began. Design specifications on scales for outbound weighing require that the tare weight is determined and printed at the end of each draft to reflect that all of the draft was delivered to the carrier.

1 Some scale models can change from one mode to the other simply by selecting the weighing sequence. Changing the weighing sequence while grain is in the weigh hopper and a draft is in progress can cause inaccurate results in the scales total net weight accumulator. For example, when a carrier is being weighed in and is being directly transferred to export, there exists potential for this situation to occur. Often times the whole carrier is not used and many transfers and changes of mode of operation and weighing sequence occur. Weighers are to allow changes in weighing sequence only between carriers or a complete weighing cycle (a tare and gross).

2 Scales to weigh inbound may be used to weigh outbound if the scale is manually cycled while the scale is empty and by printing a tare and gross at the end of the weighing cycle. If scales to weigh outbound are used to weigh inbound, specifically when shipping scales are used to weigh rejected grain back to the house and when shipping scales are used to weigh inbound grain, perform the procedure before the weighing cycle begins.

(b) Certified capacity of a scale is the maximum weight limit that has been approved for that scale and, along with the minimum division size; it must be conspicuously displayed on the front of the digital instrument. If draft weight exceeds certified capacity, do not certify the excess. For overdrafts, follow these procedures:

1 For outbound or export grain, the elevator may option to return grain to the house until the amount in the hopper is at or below certified capacity, or certify the weight of grain up to certified capacity; and

2 For inbound grain, the elevator must discharge grain from the overloaded hopper until the amount in the scale is at or below certified capacity. Weigh the remaining grain in the hopper. Weigh the discharged grain. Add the net weight to the total net weight of the draft. If it is impossible to re-weigh the grain, certify the weight to certified capacity and place a qualified statement on the certificate indicating the number of drafts which exceeded certified capacity (see Chapter 2).

(c) Do not retain grain in the scale hopper beyond the normal operating cycle time except for emergencies, such as trimming a load or carrier cleanout. Consult the scale official if elevator management regularly requests retaining grain in a hopper.

(d) Limited access areas to digital electronic scale instruments, including the manual printer, must always be sealed.

(e) Verify the remote tape with any other printer tapes three to four times per shift when it is the official tape.

1 Where there is no battery backup and a power loss occurs, use one of the following procedures when the power is restored:

2 If an accumulated total is stored in the mechanical printer; weigh any grain remaining in the hopper, clear (total) the tape and add the drafts beginning with the last subtotal before the power loss, verify the total with the accumulated total registered by the printer, notify the supervisor of discrepancies, and document the situation.

3 If the accumulated total is stored in the electronic digital memory: calculate the tape manually to get the total, clear the printer, document the situation, and resume weighing.

(f) Precycling is the interruption of a normal weighing cycle to prevent the scale from completely filling the weigh hopper. Precycling will cause the tare weight to be abnormally high or the gross weight to be abnormally low, depending on when the precycling was initiated. Precycling must not be regularly allowed, but it is infrequently acceptable, during emergency conditions, such as the overfill of the upper hopper. Weighers must initial or explain these instances on the tape. At facilities where the upper garner often fills before the scale is ready to cycle, managers must provide procedures in the Facility Handbook explaining when precycling is condoned. (Such instructions may negate the requirement to initial all precycles).

(6) **Handling Malfunctions.**

(a) Any occurrence resulting in inaccurate or unverifiable weight information is a malfunction. A malfunction in any part of the electronic weighing system, regardless of its location, may adversely affect the entire weighing system.

(b) The weigher is neither responsible for determining the specific cause of a malfunction, nor for trouble-shooting the system, but is responsible for determining the accuracy of the results. Weighers must recognize the malfunction as it occurs, inform personnel responsible for identifying and correcting the malfunction, document the situation, and certify the weight according to Chapter 2.

(c) When the weight of the grain is questionable due to a malfunction, re-weigh the grain if possible. If the grain cannot be re-weighed, carefully consider every factor before certification. If the weigher and supervisor discontinue the use of the scale, the scale official determines when to resume using it. Record on the scale tape, Weight Loading Log, and Scale Record Log the date, time, and nature of the malfunction, and whether use of the scale was discontinued.

(d) Four areas in the weighing system where malfunctions occur are: 1) the operator; 2) the digital instrument; 3) the printer; and 4) the weighing mechanism.

(e) Weighers recognize malfunctions in electronic weighing systems by analyzing and understanding alarm or error messages on weighing system displays and printed messages. Messages vary with systems. Consult supervisors, Facility Handbooks, or manufacturer's operating manuals to be knowledgeable about the terminology. (Customized terminology used in process controls or other grain handling system controllers must be defined and explained in the Facility Handbook.)

(f) Operator errors cause some system malfunctions. Official personnel must know the manufacturer's operating procedures, evaluate the affect of errors on weight information, and make proper corrections. Improper use causes malfunctions that are not evident until after the error has been made. Malfunctions can occur any time during the weighing that involves the operator, and can have varying affects on printed weight totals. Proper observation of elevator operators by official personnel avoids or quickly rectifies operator errors.

(g) Continual use and unfavorable environmental conditions can have a detrimental affect on digital instruments. A breakdown within the instrument may affect the whole system. This instrument may control gates, printers and load cells, and it may receive signals from this equipment, including the first indications of malfunctions in the equipment. Possible cause of the malfunction in this equipment is the digital instrument.

1 When a malfunction occurs and the weigher questions the accuracy of a digital instrument, the weigher must:

a) Inform elevator personnel, supervisor, and scale official immediately;

b) Cease all official weighing on the unit in question; and

c) Thoroughly document on appropriate tapes both the malfunction and subsequent action.

2 Common digital instrument malfunctions.

a) Failure of the system to start, stop, or operate automatically.

b) Printed weight totals, gross weights, and/or tare weights are incorrect or different from digital displays.

c) Indicator lights cease to function or provide false readings.

d) Digital display readout is illegible or incomplete.

e) Control button switches are ineffective or work improperly.

f) Digital display shows the filled or empty hopper is not settling.

g) The printed tape is an official record of all weighing. Discontinue official weighing unless all the printed information is legible and accurate. Corrective action depends on the severity of the malfunction and can range from adjustment to replacement.

3 Common printer malfunctions.

a) Printovers because the paper is not advancing.

b) "Stretched" or illegible information because the paper advances while printing.

c) Lost print because the ribbon or printing element malfunctions.

d) Nonsense characters print.

4 Verify the flow of grain through the scale, when a printer malfunction occurs. The weight must:

(a) The accumulated total can often be used for certification; and (See auto-printing malfunctions in Section 2.4.)

(b) Manually record the gross, tare, and net weight from the digital display on the digital instrument, if the printer stops. The supervisor decides when to allow official weighing in the manual mode for automatic bulk weighing scales. Note the circumstances on the scale tape. (Note: Manual gross or net weight entries for vehicle scales are permitted to correct erroneous tickets only.

(h) Scales are regularly tested to detect weigh system problems and to adjust or modify the equipment. Possible malfunctions in the load receiving element are:

1 Gates cease to function properly allowing scales to exceed capacity or leak;

2 Holes in the garner or weigh hopper allow grain to escape the system without being weighed;

3 Levers bind affecting the weighing accuracy of the scale; or

4 Load cell malfunctions.

(i) Report repair work performed on the system's lever or load cells to the scale official to determine if testing is necessary.

(7) **Weighing Operation Checks – Gate Leaks.** Each work shift examines the garner and weigh hopper for leaks using the following procedure.

(a) Garner check: With the garner at least 50 percent full and all gates closed, take the scale out of the automatic mode to stop the weighing cycle. If the weight on the display continually increases grain from the upper garner is leaking into the weigh hopper.

(b) Weigh Hopper check: With the weigh hopper at least 50 percent full and all gates closed, take the scale out of the automatic mode to stop the weighing cycle. If the weight on the display continually decreases, grain is leaking from the weigh hopper.

(c) If a leak is found do not use the scale until the system has been repaired and document the gate leak check on the Weight Loading Log.

(d) Vehicle scale checks: Inspect the gap around the edges of the scale for any material that could be lodged in the gap. The scale should move freely and return to zero.

(8) **Specific Situations Requiring Caution.**

(a) The maximum weight certified or approved by FGIS for official weighing is the certified capacity and must be conspicuously displayed on the front of the weighbeam shelf. An overdraft occurs when grain fills the weigh hopper beyond its certified capacity. For overdrafts follow these procedures:

1 For Outbound or Export Grain, the elevator at its options may:

a) Return grain to the house until the amount remaining in the hopper is at or below the certified capacity of the scale and then have the remaining grain weighed; or

b) Have the weight certified for only the certified capacity of the scale. Do not certify a weight in excess of the scale's certified capacity.

2 For Inbound Grain:

a) Grain must be discharged from the overload hopper until the amount remaining in the scale is at or below the certified capacity;

b) Weigh the grain remaining in the hopper;

c) Weigh the discharged grain and add the net weight to the total weight of the draft; and

d) Certify the weight to the certified capacity and place a qualified statement on the certificate showing the number of drafts which exceeded the certified capacity, if it is impossible to re-weigh the grain (see Chapter 2).

e) Sources of weighing error include foreign objects or loose material in the form of nuts, bolts, washers, or other material.

(9) **Handling Malfunctions.**

(a) When the accuracy of the amount of grain is questionable, re-weigh the grain if possible.

(b) If the grain cannot be re-weighed, carefully consider every factor before certification.

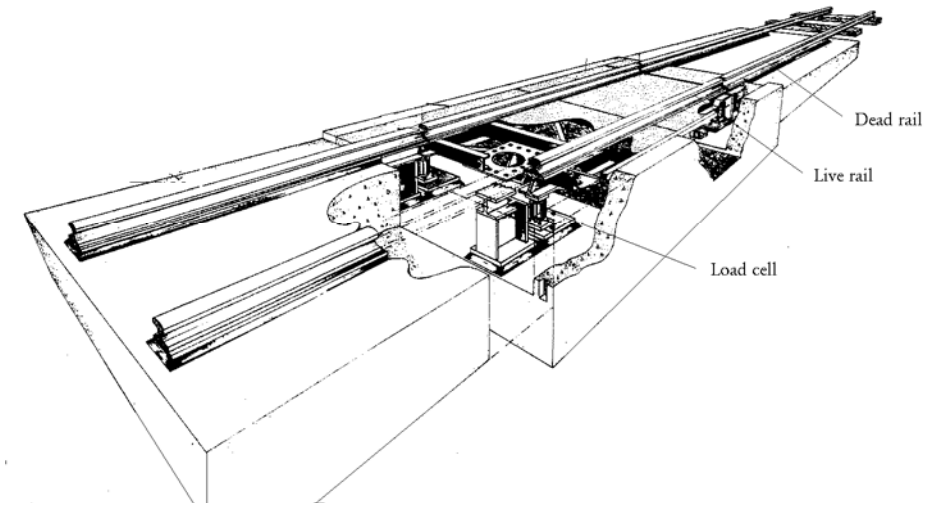
(c) If the weigher and supervisor discontinue the use of the scale, the scale official determines when to resume using it.

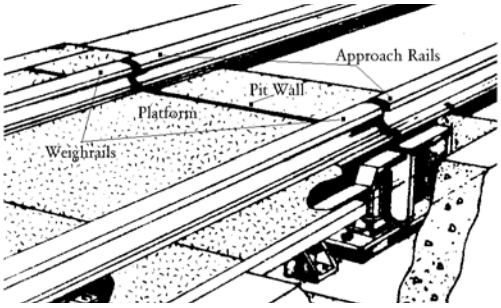
(d) Record on the scale tape, Weight Loading Log, and Scale Record Log, the date, time, and nature of the malfunction and whether the use of the scale was discontinued.

(e) Notify the supervisor or scale official when a scale has been adjusted (other than for zero balance) to determine if the scale requires retesting.

(f) Do not use the scale, if retesting is required, until the scale official approves it for use.

b. **Railway Track Scales**





(1) **General Description.**

Procedures for operating the scale are explained earlier in this section. Procedures specific to the scale design follow. Seek approval from a scales official before weighing loads other than railcars on a railway track scale.

(2) **Specific Requirements.**

(a) Inspect the levers, load cells, and scale pit for excessive grain debris or water build-up. Do not enter scale pits in confined work areas.

(b) Before using the scale, the scale platform must be free from interference or binds.

(c) An adequate clearance not less that 1/8 inch or more than 5/8 inch between the approach rails and weighrails must exist.

(d) No preset tare is used; *the scale must indicate zero* after each weighing.

(e) Obtain the gross weight of a railcar in one weighing.

1 Ensure that the railcar is uncoupled at both ends and that all wheels are on the weighrails when the railcar is weighed.

2 In-motion weighing must be permitted only where scales have been approved for it.

(f) Obtain a correct tare weight of the unloaded railcar by weighing the empty uncoupled car. (Do not use pre-determined or stenciled tare weights for empty railcars).

c. **Vehicle/Truck Scales.**

(1) **General Description.**

Procedures for operating the vehicle scale are explained earlier in this section. Procedures specific to the scale design follow. Seek approval from a scales official before weighing loads other than vehicles on a vehicle scale.

(2) **Specific Requirements.**

(a) Inspect the levers, load cells, and scale pit for excessive grain debris or water build-up. Do not enter scale pits in confined work areas.

(b) Check that there is adequate clearance - 3/8 inches between the scale platform and pit walls.

(c) Periodically re-zero vehicle scales, when the scale does not automatically reset itself to zero.

(d) Do not zero balance the scale during the weighing cycle of a truck.

(e) Obtain the gross weight of a tractor trailer or truck trailer in one weighing using vehicle scales.

(f) Obtain a correct tare weight of the unloaded vehicle by weighing the empty trailer with the same riders and truck accessories on the scale as when the gross weight was obtained.

(g) Do not use pre-determined tare weights for empty vehicles.

(h) Follow a consistent established policy of either weighing drivers or riders on or off the scales.

(i) Where the truck leaves the scale between the gross and tare weights, or the gross and tare weights are taken on different scales:

1 Check the zero balance every 30 minutes;

2 Notify the supervisor and scale official if the scale does not hold the zero balance for two consecutive checks; and

3 Continue to use the scale unless it malfunctions.

1.6 GRAIN FLOW SECURITY

Grain flow security is critical to the grain weight certification process. For official weighing of inbound grain, official personnel must ensure grain security from the unloading of the carrier to the completion of the weighing. For outbound grain movements, official personnel are responsible for correct weighing and for the secured movement of the grain from scale to carrier. A weight certificate attests to a known weight of grain in an identifiable carrier. The certificate must be accurate.

a. **Detecting, Estimating, and Recording Grain Spills.**

(1) **General Responsibilities.**

(a) When grain is spilled during shipping operations, collect and return sound grain to the grain flow, estimate and add a like amount of grain to the flow, or estimate and subtract from the weight credited to the carrier.

(b) Estimate grain spilled during unloading or left in inbound carriers, and record the estimated weight with a qualifying statement in the remarks section of the weight certificate.

(c) Round grain spill estimates to the applicable minimum scale division size.

(d) Follow certification procedures in Chapter 2 for spilled grain and grain left in carriers.

(e) Accurately determine the weight of a spill using one of the following methods which are listed in order of preference.

1 Weigh the grain if possible.

2 Use the grain spill formulas and a calculator for Rectangular, Cone, Cylindrical or Trapezoidal and constant running spills.

3 Analytically estimate spills, i.e., the grain filled ten 100 pound grain sacks or a portable hopper was filled half-full and the hopper's normal capacity was known.

4 Any method which requires action by the elevator before the estimate is made usually requires constant supervision to assure the delivery of the grain, and therefore it is less desirable.

(2) **Specific Responsibilities.**

(a) Use a handheld calculator or for an easy, time-efficient, and reliable method of calculating grain spills. Volumetric spill calculators are available on the GIPSA website too.

1 Use the actual test weight if the spill is from a lot of grain that has been officially inspected. Multiply the volume (bushels or hectoliters) by the test weight, pounds per bushel or kilograms per hectoliter. Use the trade weight if the spill has not been officially inspected. (See Section (c) for trade weights).

2 To measure spills as accurately as possible, estimate irregular shapes by using an average of several measurements taken at different points to calculate a radius, width, or height. Determine the volume of the measurements and record the amount on the documentation. Mentally or physically form irregular spills into a shape that fits one of the formulas.

(b) Use mathematical formulas if it is impossible to weigh the spill.

1 Measure spills using a tape measure or a similar device.

2 Mentally or physically form irregular spills into a shape that fits one of the formulas.

3 Estimate irregular shapes by taking an average of several measurements at different points to calculate a radius, width, or height.

4 Convert any measurements in inches or centimeters to tenths or hundredths of feet or meters for these formulas.

5 The 0.8 bushel per cubic foot and 10 hectoliter per cubic meter constant factors in these formulas converts the cubic feet measurement to bushels, and cubic meters to hectoliters respectively.

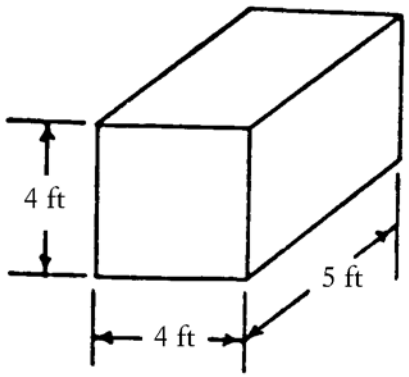
6 Multiply the bushels or hectoliters by the test weight of the grain to obtain the weight of the spill in pounds or kilograms.

7 Specific Formulas.

a) Rectangular or Cube Formula.

Length x Width x Height x 0.8 bu/ft x Test Weight Per Bushel = Pounds

Example: Rectangular corn spill with dimensions as shown.

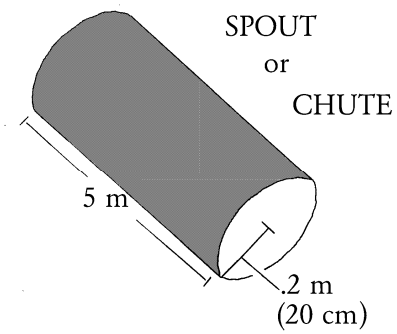


Answer: 5 ft x 4 ft x 4 ft x 0.8 bu/ft x 56 lb/bu = 3,584 lb
Round final weight figure to 3,580 lb.

b) Cylindrical Formula.

(In metric units m = meters, hl = hectoliters)

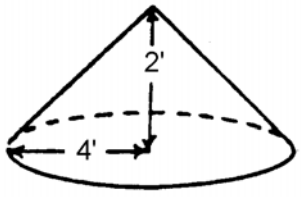
π(3.14) x r^2 x Height x 10 hl/m x Test Weight Per hl = Kilograms (kg)
Example: Cylindrical corn spill with dimensions as shown.



Answer: π x .2 m x .2 m x 5 m x 10 hl/m x 72.1 kg/hl = 4,528 kg.
Round final weight figure to 4,530 kilograms.

c) Cone Formula.

$\frac{\pi \times r^2 \times \text{Height}}{3}$ x 0.8 bu/ft x Test Weight Per Bushel = Pounds



Example: Conical soybean spill with dimensions as shown.
Answer: r^2 = (radius x radius). Radius = diameter.

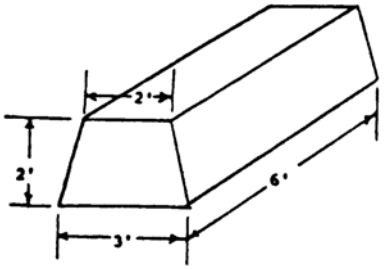
$$\frac{\pi \times 4 \text{ ft} \times 4 \text{ ft} \times 2 \text{ ft}}{3} \times 0.8 \text{ bu/ft} \times 60 \text{ lb/bu} = 1607.7 \text{ lb}$$

Round final weight figure to 1,610 lb.

d) Trapezoid Formula.

(Base + Top Width) x Height x Length x 0.8 bu/ft x Test Weight/bu = Pounds
Example: Trapezoid wheat spill with dimensions as shown (Visualize as an inverted

conveyor belt).



Answer: $\frac{(3\text{ ft} + 2\text{ ft})}{2}$ x 2 ft x 6 ft x 0.8 bu/ft x 60 lb/bu = 1,440 lb

e) Constant Running Formula.

Spills may occur over water from shipping belts or spouts. If a spill is observed from the time it begins until the time it ends, estimate the entire amount of the spill. If only a part of a spill is observed falling into the water, estimate the observed amount. Determine flow rates by estimating or calculating the feed on the shipping belts. Determine the amount of grain that the belt can run at 100 percent feed and calculate the percent at which the belts were running during the spill.

Flow Rate (Pounds/Hour) x Running Time (Fraction of an Hour) = Pounds

Example: Corn spilling into the water for 3 minutes. Flow rate on belt estimated to 50,000 bushels per hour, (2,800,000 Pounds per hour).

Answer: 2,800,000 lb/hr x 0.05 hr = 140,000 pounds
(or)
2,800,000 lb/hr x 3 minutes x 1 hr/60 minutes = 140,000 pounds

(c) Use Trade Weight Table to determine the test weight when the grain spill occurred from a flow of grain that was not officially inspected.

Grain	Pounds/Bushels (Trade Weight)	Kilogram/Hectoliter (Trade Weight)
Corn	56	72
Sorghum	56	72
Flaxseed	56	72
Rye	56	72
Wheat	60	77
Soybeans	60	77
Oats	32	41
Barley	48	62
Triticale	48	62
Sunflower Seed	28	36
Canola	50	64
Mixed Grain	32	41
Corn Screenings	44	57
Cracked Corn	52	67

(d) Pertinent Conversion Factors.

Cubic Meter Conversion Factor

1 cubic meter = 10 hectoliters

Cubic Foot Conversion Factor

1 cubic foot = 0.8 bushel

Conversion of Hectoliters of Grain to Kilograms

Hectoliters x Test Weight kg/hl = Kilograms

Conversion of Bushels of Grain to Pounds

Bushels x Test Weight Per Bushel = Pounds

Conversion of Pounds to Tons

Total Pounds = Short Tons
2,000 Pounds

Total Pounds = Long Tons
2,240 Pounds

Conversion of Pounds to Metric Units

Total Pounds x 0.45359237 = Kilograms

Kilograms = Metric Tons
1,000

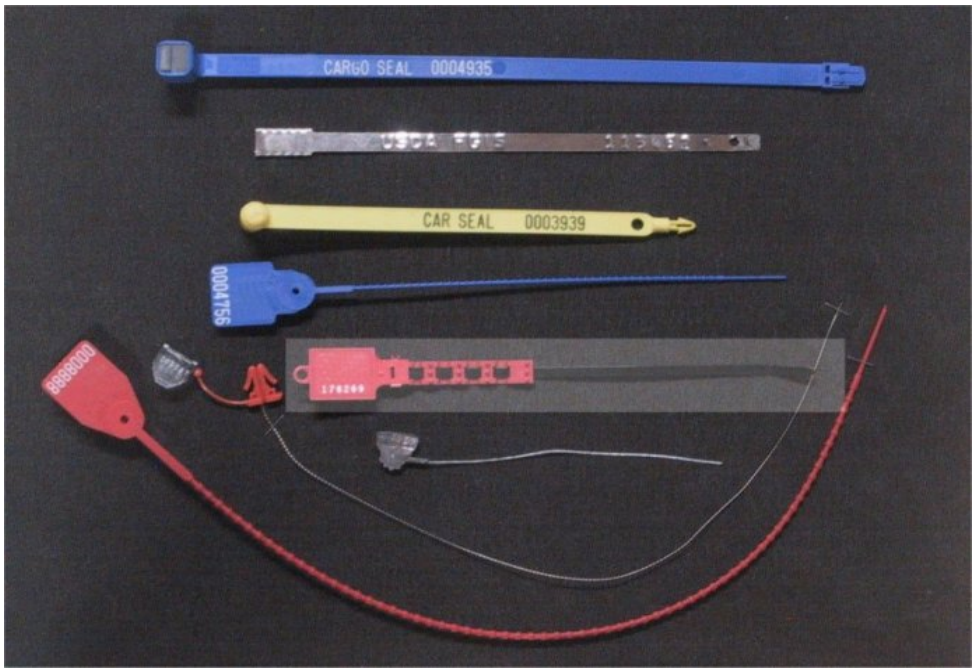
2,204.623 pounds = 1 Metric Ton

b. **Diversion Points Controls to Ensure the Integrity of Grain Flow.**

(1) **General Controls.**

Maintain security by using numbered railway strip seals, numbered padlocks, numbered cable seals, numbered wire seals, and electronic lockout (permissive) control devices. Multiple security devices may be required. Periodically check and record the number and placement of the seals and/or locks whenever any sealing system is used.

(2) **Specific Controls.**



Examples of Numbered Seals

(a) Any type of seal (metal, plastic, wire) are acceptable (any length suitable for purpose) but must permanently lock when one end is inserted into the opposite end and tighten suitably for security. Seals must be permanently impressed, engraved, etched, or stamped with previously assigned numbers or ID and/or letters, which create an accountable record to prevent unauthorized breakage and unauthorized application of another seal. Although easily broken, numbered seals provide a means of securing grain flow.

(b) Use padlocks in areas where greater physical security is needed, where security systems are frequently broken or tampered with, or when the reusability of security systems is advantageous. Permanently identify security padlocks with letters and numbers to create a unique identity for each padlock and record it in the Seal Log when a lock is either applied or removed.

1 Master keying systems can be established. One key opens a series of padlocks at a particular elevator and change keys open individual locks only. This system of keying provides security, flexibility, and ease.

2 Develop a system of key control to maintain the security of any padlock program.

(c) Use cable seals in areas where grain flow security is established on a permanent basis; they can only be removed by extreme force (e.g., hack saw, bolt cutters).

(d) Lockouts are incorporated in many control boards and can be used for maintaining grain flow security. Official personnel must:

1 Control the keys that operate the lockouts; and

2 Verify export grain flow integrity on the Weight Loading Log every shift using an established facility checklist.

(e) Electronic lockout (permissive) control devices are provided at many facilities to monitor and ensure system security and grain flow integrity. In some facilities, these lockouts are not electric panels and switches, but are programmable controllers or computers with visual displays. Lockout devices designate a switch or keyboard directly controlled by official personnel which, when activated, permit the movement of an elevator materials handling device, such as a gate or turnhead, from one position to another. Permissive devices ensure that grain flow patterns cannot be changed without official authorization. All critical monitoring points shall be inspected; during the initial facility review, after a major renovation of the facility or its control system or during the six-month acceptance test of an automated weights monitoring system (FGIS Program Directive 9160.3). All critical monitoring points shall be inspected at least once per year or more frequently at the discretion of the field office manager. To minimize any hampering of facility operations, the inspection should proceed incrementally, with only a small number of points being checked at any one time.

(3) **Unauthorized Seal or lock Breakage Procedures.**

When a seal or lock is found broken while grain is being officially weighed, the supervisor and the person having the most knowledge of the situation must find the cause of the problem. This includes the unauthorized tempering with limit switches and shipping bin empty indicators.

(a) Answer the following questions:

1 When was the seal or lock last checked and found intact? Use the Seal Log to estimate the length of time that the seal or lock has been broken.

2 Can it be determined whether the breakage was accidental or deliberate, and did the grain flow remain secure during that time the seal or lock was broken?

3 Is this a constant problem at this grain elevator?

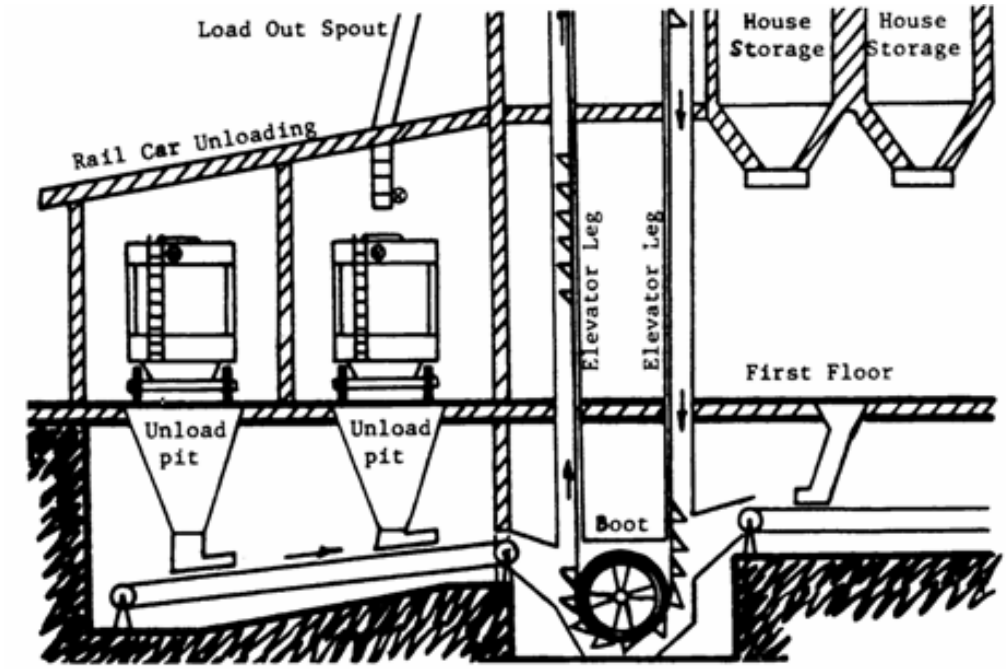
4 Can the amount of grain weighed during the time that the seal or lock was broken be certified on the weight certificate?

(b) Notify the FOM.

(c) Correct the problem and ensure against future breakages.

(d) Make proper notations on the Seal Log and the Weight Loading Log.

RAILCAR UNLOADING AREA DIAGRAM



c. Inbound Grain Flow Operations.

Grain is generally received by railcar, truck, or barge and weighed either on vehicle/truck scales, railway track scales, or is elevated to be weighed on hopper scales in the house.

(1) **Inbound Carrier Unloading Area.**

(a) The railcar unloading area consists of unloading pits that receive grain from cars. Grain is usually moved by conveyor belts into the boot of an elevator leg which lifts the grain through the elevator and deposits it into a holding garner above the scale.

1 The railcar unloading pit is a rectangular shaped bin that funnels grain from railcars to conveyor belts located underneath the pit. Grain frequently overflows the unloading pit and spills out onto the track area. If uncontaminated, push this grain back into the pit upon completion of each railcar or unit train (however the lot is being certified). The pit itself must be completely free of grain when the lot is

finished. Carefully monitor the area beside the conveyor belt for grain spills (especially the area below the unloading pit).

2 A railway track scale weighs the railcar prior to (gross weight) and after (tare weight) unloading. When obtaining the weight of grain from an inbound railcar on a railway track scale, the grain flow does not have to be monitored by official personnel.

(b) The truck unloading area consists of the truck dump pit and/or the truck platform scale. In many locations, the platform scale also functions as a hydraulic truck dumper.

1 The truck unloading pit is a small bin used to funnel grain to the conveyor belt or boot of an elevator leg.

a) The elevator leg lifts the grain through the elevator to deposit in a garner above a scale for weighing.

b) If the weight of the grain from a truck is obtained on a vehicle/truck scale: 1) grain flow does not have to be monitored; and 2) spills along basement conveyor belts need not be recorded (unless they pose a safety hazard).

c) If grain from the truck is weighed in the elevator on its house scales: 1) spills must be recorded; and 2) the unloading pit must be emptied between each lot.

2 A vehicle/truck scale is used to weigh the truck prior to (gross weight) and after (tare weight) unloading.

(c) The barge unloading area consists of a marine leg (or a similar unloading device) and a conveyor belt that transports grain into the elevator facility to a leg and then to a scale for weighing. In some areas, inclined belts are used to elevate the grain from the barge to the house scales.

1 A marine leg is similar to an elevator leg except smaller, movable, and positioned to remove grain from waterborne carriers.

a) The leg is lowered into a barge or vessel hold.

b) The marine leg's lower pulley is exposed to allow grain to be removed from the carrier.

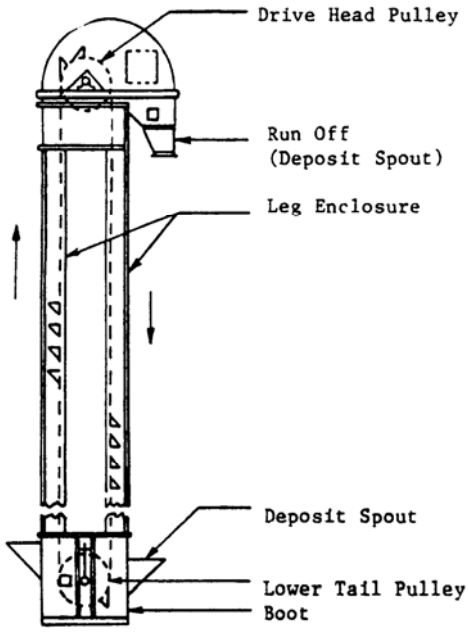
2 Monitor the entire route the grain travels from the barge unloading area to the scale(s) for spills, leaks, and diversion points.

(2) **Movement of Inbound Grain Within the Elevator.**

(a) The basement contains conveyor belts that carry grain from storage bins, truck receiving pits, and car receiving pits to the boots of elevator legs.

(b) The boot encloses the tail pulley of an elevator leg. Grain is deposited into the boot by spouts or belts. The grain is picked up by the elevator leg to travel to the head floor. Many boots are surrounded by a pit area. This is a prime location for spilled grain because constantly moving grain can wear holes in the metal. Grain leaks out through the holes and accumulates in the boot pit or the area surrounding the leg.

ELEVATOR LEG



(c) An elevator leg raises grain by the use of buckets attached to a vertical belt which moves around a drive (head) pulley located at the top (head floor) and a pulley (tail) at the bottom. As the belt moves around the lower pulley, each bucket scoops up grain and carries it to the head floor where it is usually deposited into the upper garner. The elevator leg is completely enclosed by tin or steel plates.

Grain elevators may have several legs and official personnel must know the following:

1 The locations of all legs;

2 What belts or spouts supply them with grain; and

3 Where the legs can deliver the grain.

Moving grain can cause holes to wear in the leg encasement, resulting in leaks and spills on any floor in the facility. Emergency release doors exist in the run-off spouts of some legs to prevent "choking" the leg when the upper garner of a scale system overfills. This allows grain to escape the delivery system and, on inbound grain that has not been officially weighed, requires recording the grain as a spill.

Slipping drive belts and loose or separated buckets are safety hazards. Report them immediately to the supervisor.

Incline Belts

Incline belts are used by some elevators to elevate the grain. Instead of elevator legs the grain is elevated on conveyor belts which are inclined at about 30-45 degrees. Some elevators use these belts to carry grain to and from the wharf, while others completely replace the elevator legs and exclusively use incline belts to elevate grain.

(d) The Head Floor is the top floor in the elevator. It houses the head pulleys of the elevator legs, the upper garner inspection doors, and possible diversion points in the grain flow, grain cleaning devices, and sampling equipment. In some elevators, grain can be diverted immediately after elevation. Secure this area and monitor for inbound grain.

(e) Grain cleaning apparatus separate large nongrain materials, such as pieces of wood, stones, cans, etc., from the grain or are used to separate screenings (dust or broken kernels) from whole grain. A cleaner can be located anywhere within the grain flow system. Inbound grain must not be cleaned before it is weighed.

(f) A Diverter-Type (D/T) Mechanical Sampling, an inspection device located in the path of grain flow, is used to obtain grain samples for determining grain quality and may be found in many locations throughout the elevator. Refer to the Mechanical Sampling Systems Handbook for specifics and requirements.

(g) Inspection doors of the upper garner allow access to the upper garner for cleaning or inspection and also allow the introduction into the upper garner of sweepings or materials other than grain to be officially weighed. The weight of this material affects the quality and the accuracy of the officially weighed lot and is prohibited. Sealing these doors is at the discretion of the manager.

(h) Located below the head floor, the scale floor houses the upper garner, weigh hopper, and bulk weighing equipment (mechanical, electronic, or both), and may contain lower garners and turnheads.

1 The upper garner is located above each weigh hopper to serve as a holding bin during the movement of grain prior to weighing. Upper garners are essential to the efficient operation of any grain weighing system; without them, the entire grain supply would have to be shut down during scale discharge.

2 The upper garner gate(s) regulates the flow of grain into the weigh hopper. The gates are controlled by electric motors, air pressure, hydraulically controlled cylinders, or manually operated levers.

3 The weigh hopper is a bin that is independently suspended from or supported by levers or load cells. The weigh hopper temporarily holds grain until a weight can be obtained. Weigh hopper access doors and observation ports must be closed securely to prevent the escape of grain resulting in spills. The weigh hopper lever system must be kept clean of grain and dust to ensure free movement of the lever system.

4 The weigh hopper gate(s) regulates the flow of grain out of the weigh hopper. Control mechanisms are similar to those used for the upper garner gates.

d. **Outbound Grain Movement.**

Outbound grain movement begins immediately upon weighing. Once weighed, the identity of a lot of grain changes. For example, if grain from a unit train is weighed and then conveyed to an export vessel, after the grain has been weighed, the identity of the grain will be that of the vessel. Grain weighed and loaded into other carriers, regardless of its original source, is outbound grain.

(1) **Scale Floor Description.** (See the section 1.5 c. (h)).

(2) **Lower Garner or Surge Bins.** Additionally, some elevators have a lower garner or surge bins which are located beneath the weigh hopper to regulate the flow of grain. While they are not as essential as upper garners and many elevators do not have them, they do allow for a quick and even scale discharge, and therefore, a more efficient weighing operation.

(3) **Distributor Floor Description and Functions.** Usually located below the scale floor, its main function is to give the elevator versatility in moving grain through the elevator to a loading or storage area. Many types of mechanisms are found here including turnheads, trolley spouts, tripper/belt combinations, and permanent or movable spouting.

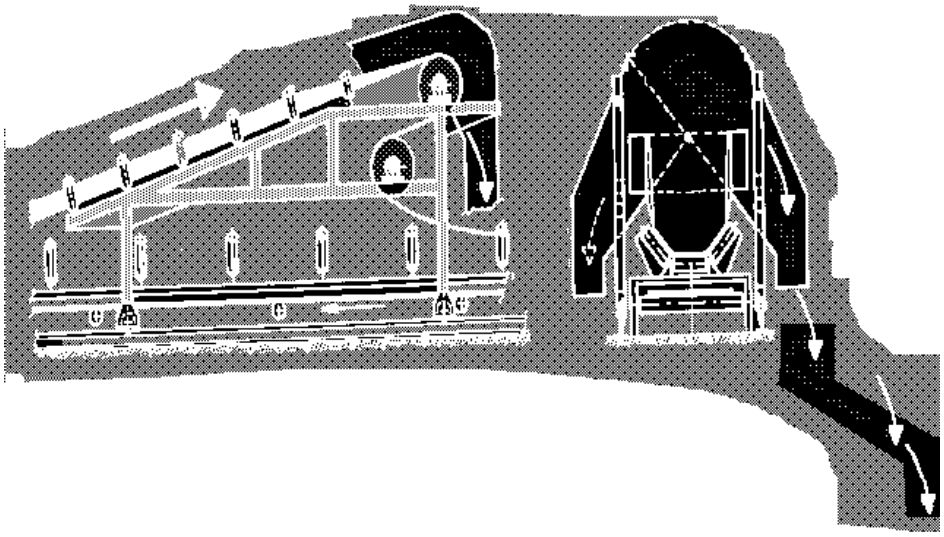
Spills occur on the distributor floor during changes in grain flow direction and as a result of wear in spouts caused by moving grain. When spills occur, the intended destination of the grain must be known to correctly account for spills. The distributor floor, the most concentrated area of diversion points in the elevator, must be particularly well monitored to ensure correct weights.

DISTRIBUTOR

Distributors (rotary pictured) are movable spouts or mechanical devices located outside or inside the elevator and positioned to revolve over permanent spouting. Distributors (turnheads) control distribution of grain to bins or to carriers.

(4) **Bin Floor Description.** The bin floor houses cleaner machines, screw conveyors, conveyor belts, overhead access to shipping bins, house storage bins, screening bins, and spouts.

(a) Valves direct, limit, or seal off the flow of grain at any given point. Official personnel must know the different types (see glossary);



their capabilities, and control (e.g., manual or hydraulic).

CONVEYOR BELT WITH TRIPPER

(b) A conveyor belt travels between two pulleys to carry grain.

(c) A tripper is a mechanical device for directing the flow of grain off of a conveyor belt into a spout or bin. More than one tripper on a conveyor belt is possible and most are movable. Some trippers can direct grain off either side of a conveyor belt; the weigher must ensure proper direction so that the grain flow is not misdirected.

(d) The shipping bin area houses shipping belts and bins. Spills at any point along this path must be recorded or else immediately returned to the flow of grain. Spills are found most often where the path of grain makes an abrupt change in direction (i.e., out of a spout and onto a conveyor belt, belt junctions, and trippers).

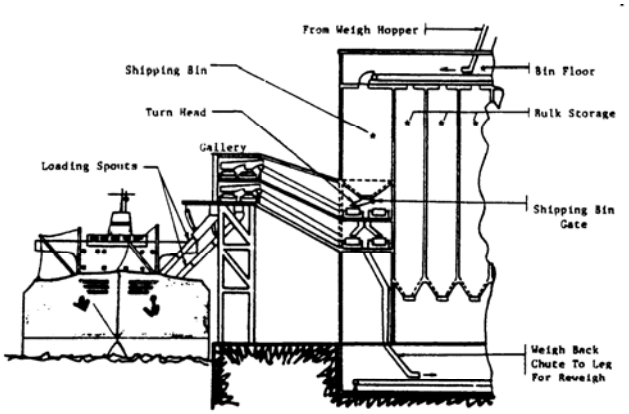
(e) Shipping bins are used to hold grain prior to carrier loading and add to the responsibilities of official personnel.

(f) Access openings to the bins for cleaning and inspection are located on the bin floor.

1 Sealing these openings is at the discretion of managers.

2 Use of shipping bins varies from elevator to elevator. 1) Facilities that sample grain before it is loaded into shipping bins often completely fill and empty the bins for each sublot. 2) Other facilities use shipping bins to control the flow of grain and for mixing purposes, and will continuously run grain into and out of them.

SHIPPING BIN AREA DIAGRAM



3 Shipping bin gates regulate the flow of grain from the shipping bins. Their use is restricted by the grain flow security system. Shipping bin gates must be secured in the absence of official personnel.

(g) Shipping belts carry grain to the loading spouts.

SHIPLOADING AREA

(h) Weighback spouts return grain from the shipping bins to be elevated and re-weighed, can be movable or permanently fixed, and must be secured when not in use.

(i) Waterborne carriers are loaded and unloaded in the shiploading area. The gallery, loading spouts, and marine legs are located here.

1 The gallery is an extension of the shipping bin area. Conveyor belts and/or chain drags located here direct grain to the loading spouts. This is another location where trippers are found on conveyor belts. Some elevators may have D/T mechanical samplers located in the gallery.

2 Loading spouts direct grain into the vessel's stowage area. Moving grain often wears holes in the metal loading spouts resulting in grain spill and leaks. Monitor the delivery system, report damage immediately, and account for all grain spills and leaks.

3 Monitor the vessel area and account for spills on the deck, on the dock, and into the water.

1.7 SUPERVISION OF WEIGHING (CLASS Y)

FGIS and agencies, upon request, provide Class Y weighing service under the authority of the United States Grain Standards Act (USGSA). Weighing facility operators may request Class Y weighing service for grain shipments not requiring mandatory Class X weighing service as prescribed in Section 5 (a) (2) of the USGSA (i.e., export shipments and inbound intercompany barge shipments at export port locations). Approved weighing personnel under FGIS or agency supervision provide the Class Y weighing service using approved weighing equipment.

a. **Procedures for Requesting Service.** A written request for Class Y weighing service must be filed with official personnel responsible for the area where the service will be provided. It must include: 1) The applicants name and mailing address; 2) if applicable, a request for Form FGIS-1001, "Application for Approval to Operate as a Weighing Facility"; 3) the scope and effective date of Class Y weighing service desired; and 4) other pertinent information requested by official personnel.

To qualify for Class Y weighing services, the applicant must comply with applicable requirements of the regulations and instructions under the Act.

(1) **Equipment.**

The applicant has and maintains suitable grain handling equipment and accurate scales as required in Part 802 of the regulations (7 CFR Part 802 et seq.) and Chapter 3 of the Weighing Handbook.

(2) **Personnel.**

The applicant permits only competent, approved weighers to operate the scales and handle grain in connection with Class Y weighing.

(3) **Procedures.**

The applicant requires approved weighers to operate the scale(s) in accordance with regulations and instructions issued under the Act and requires each lot of grain be delivered from the carrier to the scale or from the scale to the carrier in its entirety without avoidable waste or loss.

b. **Facility Approval by Official Personnel.** Prior to commencement of Class Y weighing services, the scale and grain handling system as it pertains to the Class Y weighing service must be approved by official personnel. Upon applicant request, official personnel provide Form FGIS-1001, which requests facility information and requires the facility management's list of competent weighers trained to operate the weighing systems under regulations and instructions issued under the Act. Official personnel must perform a site visit to determine that the equipment and personnel requirements for providing Class Y weighing services have been met.

c. **Form FGIS-964, "Supervision of Grain Weight Certificate.** The Class Y weighing certificate, form FGIS-964, shows "Class Y Weighing" screened across the front. Printed on the certificate are statements indicating the conditions under which the service is performed. Applicants may request that "special design" Class Y weighing certificates be printed at their expense. Requests are handled according to existing regulations and instructions.

(1) **Official Personnel Responsibilities.**

(a) Supply Chapters 1, 2, and 3 of the Weighing Handbook to the facility operator.

(b) Maintain accountability records for all certificates provided.

(c) Monitor certificate accuracy.

(2) **Grain Facility Operator Responsibilities.**

(a) Issue certificates sequentially.

(b) Inform official personnel of missing certificate numbers.

(c) Maintain a copy of each certificate issued for review by official personnel.

(d) Ensure only approved weighers perform Class Y weighing and official personnel have a current list of approved weighers.

d. **Class Y Weighing Documentation.** Facility managers must retain copies of Class Y certificates, original scale tapes or tickets, and other supporting documents for 5 years. Scale tapes and tickets, in addition to the recorded weights, must show the date, the approved weighers name or initials, carrier identification, kind of grain, and scale number. Whenever a certificate is voided, mark the original "VOID" and retain at the facility, and destroy copies of voided certificates.

e. **Approved Weighers.** Only approved weighers listed on the form FGIS-1001 may perform and certificate Class Y weighing services. If the facility's personnel fluctuates because personnel are hired from employment pools, such as longshore personnel, the individuals who directly supervise these individuals (facility) or "key" longshore personnel are listed.

Approved weighers must obtain accurate weights on all grain weighed; certify that weights are obtained according to the Weighing Handbook; and document following procedures in the Weighing Handbook any unusual events that occur during the weighing operation (i.e., power failures, scale malfunctions, spills, and other events pertinent to the weighing operation). Prior to Class Y weighing, the applicant must notify the supervising office following established procedures.

f. **Supervision Method.** The supervising office establishes with the applicant a notification process for Class Y weighing activity. Official personnel must supervise a minimum of 25 percent of Class Y weighing or more as determined by the supervising agency. Support increased supervision with adequate documentation.

(1) Export Location Supervision Official personnel stationed at the facility providing inspection and Class X weighing services normally supervise the Class Y weighing. Where there is a large physical distance between the Class X and Class Y weighing operations, extra personnel may be required. GIPSA charges a tonnage fee for Class Y weighing when this is the only service being provided on the grain.

(2) **Interior Location Supervision.** Supervision is provided by official personnel stationed at the facility providing inspection and/or Class X weighing services or by periodic trips to the facility.

g. **Official Personnel Responsibilities.** Official supervision personnel must observe the approved weighers doing their duties. The entire weighing process, including scale operations and grain weight certification, must be supervised.

(1) **Question Whether Grain Handling System Monitored for Spills.** Determine that the grain handling system is adequately monitored for spills and leaks.

(2) Determine proper documentation by approved weighers of; 1) leaking or damaged carriers; 2) grain left in the carrier; 3) spills; and 4) any other situation affecting the certificated weight. Ensure this information is recorded on the scale tape or ticket for the carrier (or on a supplemental information sheet attached to the scale tape or ticket) and initialed by the approved weigher.

1.8 SPECIAL PROCEDURES

a. **Information Requested by Interested Persons.**

(1) **Definition of "Interested Person".** As defined in the Act, the term "interested person" means any person having a contract or other financial interest in grain as the owner, seller, purchaser, warehouseman, carrier, or otherwise. Persons who are employed by or represent carriers in the capacity of investigating claims against the carrier regarding the weight are considered "interested persons." When a properly identified interested person requests information pertaining to the official weighing of a carrier or other information routinely recorded on logs, tapes, and certificates, provide this information.

(2) **Deny Blanket Requests.** Do not honor blanket requests such as requests for information on all carriers weighed over a period of time. A request must identify the specific carrier(s) involved.

b. **Facility Handbook Requirements.** Field offices and agencies must maintain an up-to-date elevator Facility Handbook for each location where official personnel provide Class X or Class Y weighing services. The length and scope of the handbook depends upon the complexity of the facility and the extent of the agency or field office involvement in providing official weighing service.

Facility handbooks are used in conjunction with and as a supplement to the Weighing Handbook. Up-to-date copies of the handbook are kept at the inspection laboratory and at the scale floor or control room of the referenced grain elevator for use by official personnel. Keep the original of each handbook in the office of the issuing agency. AM's must forward copies of each Facility Handbook and subsequent revised handbooks to their respective field office. FOM's must send a copy of each handbook and subsequent revised handbooks to the Policies, Procedures, and Market Analysis Branch.

(1) **Safety Requirements.** This includes specific elevator safety rules; minimum information requirements follow.

(a) Location of smoking and non-smoking areas.

(b) Location of hardhat areas.

(c) Diagrams of emergency evacuation routes.

(d) Emergency evacuation phone numbers for reporting fires, explosions, hazardous conditions, and missing personnel. (See 29 CFR 1910.272 (d) (e).)

(2) **General Elevator Layout Description.**

(a) Describe the elevator's entire grain handling system: the location of the dock, elevator, headhouse, and FGIS and/or agency office space.

(b) Illustrate the elevator layout using detailed, labeled diagrams of all floors in the facility. (The floors may be illustrated separately or collectively as a cross section of the facility).

(c) At facilities where official weighing activities are limited, only the description or illustration of official weighing areas is required.

(3) **Grain Flow System Descriptions.**

(a) Specify weighing procedures and official personnel responsibilities at the facility i.e., procedures and frequency for checking shipping bin indicators are outlined in Program Directive 9160.4, Grain Handling System Testing.

(b) Provide grain flow diagrams and/or photographs that identify <u>all</u> diversion and seal points. (Grain flow diagrams and elevator layout diagrams may be illustrated together). Include a description of security measures and surveillance procedures for ensuring the integrity of the grain flow.

(c) Describe all weighing systems (include scale capacities, minimum divisions, and model numbers), printers (with the type of information they record), auxiliary power scale accessories, sealed or locked limited access areas of the scales and their accessories, and any other pertinent information to aid in recognizing scale and printer malfunctions.

(d) Describe the elevator's control panel(s)/monitor(s) that bear official services, and explain terminology used if the controls have customized programming.

(4) **Certification and Documentation Requirements.**

(a) Include copies of locally generated documentation and examples of correct documentation procedures.

(b) A checklist of the critical diversion points, shipping bin permissives, and all critical monitoring points must be submitted annually. This verification may take a period of time to complete, during that time the checklist shall be maintained at the facility along with any other documentation needed. If new points are added, include these checklists as attachments. At the end of each cycle, the completed checklists are to be filed in the field office. Delegated States will file their records and forward a copy to the supervising field office. Field offices will provide the Policy, Procedures, and Market Analysis Branch with an annual summary that notes that each export weighing within their circuit and the date the check was completed. (See Directive 9160.4, Grain Handling System Testing for more information). Include a checklist or means of documenting required periodic checks of grain flow security, (e.g., carrier clean out, and the pre-weighing and postweighing checks).

(5) **Specialized Equipment Standard Operation Procedures.** Attach or include standard operating procedures for closed-circuit television systems or automated weighing systems used in official weighing systems.

(6) **Unusual Procedure Explanations.** Explain any procedures seemingly contradictory to normal handbook instructions, but approved by scale officials, managers, or area chiefs, such as unusual precycling requirements and also procedures unique to that facility.

c. **Bulk Commodity Certification.** Service personnel may officially weigh bulk commodities for certification under the Agricultural Marketing Act of 1946 (AMA).

(1) **Bulk Defined.** "Bulk" commodities are those commodities contained in other than primary containers such as bags, boxes, barrels, etc.

(2) **Where Procedures Found.** See Chapter 2 for instructions on certifying bulk commodities.

(3) **Cooperator's Authority.** Federal cooperators may certify the weight of commodities under the AMA if authorized by FGIS and licensed under the AMA.

d. **Review of Weighing Service.** A review of weighing service is a formal review of weighing documentation pertaining to a specific weight certificate. The review includes a detailed evaluation of weight logs, scale tapes, scale history, and other documentation and, if necessary, consultation with individuals involved with the actual weighing. A scale testing official does this review if possible.

The review of weighing service, as covered in this section, is performed when requested by an interested person on domestic shipments. Forward export weight inquiries to the Office of Departmental Initiatives and International Affairs.

(1) **Request for Review of Weighing.**

(a) Requests must be filed within 90 days after the date of the Class X or Class Y weighing service with the FGIS field office or agency that conducted the original service.

(b) The request is considered filed when the oral or written request is received by the field office or agency.

(c) The review of weighing is conducted by the office that performed the official service.

(2) A**pplication Requirements.**

(a) When required by FOM, use Form FGIS-907, "Application for Inspection and Weighing Services."

(b) When required by AM, a customized application form which includes the following may be used.

1 Name and mailing address of applicant.

2 Name(s) and address (es) of interested persons.

3 Carrier identification, quantity, and the official service location.

4 Copy of original weight certificate.

5 Any additional pertinent information required by the field office or agency to complete the review.

(3) **Required Review Information.**

(a) Review all pertinent documentation, such as certificates, logs, and scale test reports.

(b) Identify the kind (hopper, vehicle, or railway track) and type (mechanical, dial, or full electronic) of scale.

(c) Analyze other available information, such as scale history and past facility weight performance history.

(d) Thoroughly review the scale tests before and after the time under review.

(e) Additional scale test and travel to the facility for onsite review may be required.

(4) **Methods and Content of Response.**

(a) If the review of weighing service indicates that the results of the original weighing service were correct, notify the applicant in writing.

1 Explain the review process for tapes, logs, and scale tests, or any other documentation and the results.

2 Detail the observation of weight quantities of lots loaded/unloaded before and after the carrier(s) in question.

3 State the grain handling system security used.

(b) If the review of weighing service indicated that the results of the original weighing service were incorrect, issue a corrected certificate.

(5) **Guidelines for Handling Service Requests.**

(a) Only one review of weighing service is allowed on any original Class X or Class Y weighing service.

(b) Report any additional inquiries to the Policies and Procedures Branch.

(c) Notify headquarters through appropriate channels of any review of weighing that has the potential for 1) resulting in Congressional inquiries; 2) causing adverse action by trade groups; 3) setting a trend; or 4) requiring action by FGIS headquarters.

(d) Send a copy of all requests for review of weighing service and the response to the Policies, Procedures, and Market Analysis Branch through the appropriate channels.

e. **Official and Unofficial Weighing.** Official and unofficial weighing may not be performed concurrently by official weighing agencies at an elevator within its assigned area of responsibility. For the purposes of this section, each mode of conveyance for carriers is considered separately in the facility's weighing approval (i.e., rail, vehicle, and barge).

If a facility wishes an agency to change from official to unofficial service, the supervising office must receive written notification from the facility to terminate its official weighing status. Facilities must reapply to the responsible agency to resume official service by completing Form FGIS-1001, "Application for Approval to Operate as a Weighing Facility." (See Chapter 2 for instructions.) The supervising field office must reevaluate the request for changes in the weighing system before allowing official service to resume. Field offices must notify the Compliance Division of changes in approved weighing facilities status so that the agency's designation documents (Appendix B) are kept current.

1.9 APPROVAL AND USE OF OFFICIAL MONITORING AND CONTROL SYSTEMS

Responsible officials must follow proper procedures in handling proposals for elevator-provided electronic control and monitoring systems. This assures official supervision is properly maintained when automating a system to change functions normally performed by official personnel.

a. **Field Management Division (FMD) Responsibilities.**

(1) **Maintain Standards.** Provide parameters for use as guidelines in developing automation systems proposals.

(2) **Review Policy.** Review automation proposals from the grain industry.

(3) **Accept or Reject Proposal.** Approve/disapprove initial automation proposals.

(4) **Notify Field Offices On Applicant's Plans.** Provide official personnel with information on the intentions of the grain industry to automate elevators within their area.

(5) **Keep Current on Technology and Methods.** Update the automation parameters to reflect changes in technology and industry practices.

(6) **Oversee Installation.** Oversee installations and provide technical guidance to facilitate the installation, approval, and operation of automated weighing and material handling systems.

(7) **Appraise Fraud Potential in Practice.** Provide security guidance for automated weighing and material handling systems and update security measures in response to changes in technology and industry practices.

(8) **Help Draft SOPs.** Provide an outline for Standard Operating Procedures (SOP) and assist in developing these procedures.

(9) **Evaluate Changes.** Approve/disapprove revisions and/or modifications to already approved automated systems.

b. **FGIS Field Offices and Agency Manager Responsibilities.**

(1) **Make Initial Survey.** Make initial survey of automated weighing sites and evaluate official equipment and staffing needs.

(2) **Notify Bargaining Unit.** Inform employee representatives of industry and agency intentions regarding use of automation.

(3) **Select Project Lead.** Designate an "Automation Project Leader" whose duties include but are not limited to the, following functions.

(a) Provide liaison between the Policies, Procedures, and Market Analysis Branch (PPMAB), field office, and the elevator during the installation of automated equipment.

(b) Write and publish a SOP using the outline provided by PPMAB's engineering staff.

(c) Assist in developing training aids for field office personnel and perform approval testing of equipment and software.

(d) Provide training in the operation of automated systems with technical assistance from PPMAB's engineering staff.

(e) Offer suggestions to improve the installation, operation, or security of automated official equipment.

(4) **Check and Maintain Security of the Systems.** Including but not limited to:

(a) hardware locks and seals;

(b) software modifications;

(c) password security and revisions; and

(d) approve, document, and monitor any changes made to the scales or material handling systems.

(5) **Periodically Check**. Perform periodic system tests to assure system integrity, security, and correct operation (6 month check).

(6) **Confirmed Project Finished.** Provide final approval that the automated system meets the needs of the field office for providing official service.

c. **Facility Responsibilities.**

(1) **Make Proposal.** Provide FGIS with a detailed initial automation proposal.

(2) **Supply Control Design Specifications.** Provide FGIS with a complete hardware and software design specification.

(3) **Supply Documentation.** Provide complete documentation on any changes to hardware, software, and operations from the original proposal.

(4) **Check Compliance.** Assure all automation hardware and software complies with FGIS requirements.

(5) **Turnover Final Listing.** Provide FGIS with a complete final hardware and final software design specification.

(6) **Assist in Training.** Provide assistance in training of official personnel by making the system and all necessary equipment available for initial and ongoing training as determined by FGIS.

d. **Recommended Project Outline for Automation Approval.**

(1) **Official Proposal from Elevator.**

(a) Initial contact made with local field office.

(b) Review and evaluation by PPMAB.

(c) Written approval/disapproval of proposal from PPMAB.

(d) Information to field office from PPMAB.

(2) **Technical Oversight Provided by PPMAB.**

(a) Checks of proposed security measures.

(b) Instruction to field office on system parameters.

(c) Guidance to facility on system installation (aided by field office).

(d) Initial system inspections (aided by field office).

(3) **Hardware and Software Installation by Elevator.**

(4) **Final Testing and Approval by Field Office and PPMAB.**

(a) Six-month evaluation testing monitored by field office.

(b) Training of FGIS inspectors provided by field office and PPMAB.

(c) Errors in the system recorded and reported by field office.

(d) All reported system problems corrected by elevator.

(e) System approval given by field office and PPMAB.

(f) Final approval for official weighing given by FOM.

(g) Written final acceptance from FMD to elevator.

(5) **Completion of All Documentation.**

(a) Necessary documentation from all parties - elevator, field office, and PPMAB.

(b) For future use in evaluation and testing.