**Section 215.110 Systems Mounted on Implements of Husbandry for the Transportation of Anhydrous Ammonia**

All of Section 215.25 shall apply to this Section unless otherwise stated.

a) This Section applies to containers of 3000 gallons water capacity or less and related equipment mounted on nurse tanks that are used for the transportation of ammonia.

1) Any nurse tank that does not have a legible data plate and has not been recertified in conformance with Transportation Regulations (see Section 215.16) shall be removed from service.

2) Any container or combination of containers on a single running gear, greater than 3000 gallons, that are used for the transportation of anhydrous ammonia and to supply the application device shall be prohibited. This shall exclude cargo tanks used for transportation only.

b) Containers shall be constructed in accordance with Section 215.25. The shell or head thickness of any container shall not be less than 3/16 of an inch. All containers over 500 gallons capacity should be equipped with semi-rigid baffle plates.

c) A suitable "stop" or "stops" shall be mounted on the farm wagon or on the container in such a way that the container shall not be dislodged from its mounting due to the farm wagon coming to a sudden stop. Back slippage shall also be prevented by proper methods.

d) A suitable "hold-down" device shall be provided that will anchor the container to the farm wagon at one or more places on each side of the container.

e) When multiple containers are mounted on a running gear, the weight shall be distributed appropriately over the axles. Multiple containers mounted on the same running gear must be of the same capacity. All manual shutoff valves shall be located behind the steel bulkhead or permanently affixed in a secure point to provide equivalent protection of the piping from that point to the front of the tank.

f) When the cradle and the container are not welded together, suitable material shall be used between them to reduce abrasion.

g) All containers shall be equipped with a fixed maximum liquid level gauge.

h) All containers shall be equipped with a pressure gauge having a dial graduated from 0 psi to 400 psi.

i) The filling connection of each container shall comply with the requirements of Section 215.40(j).

j) All containers shall be equipped with an approved vapor-equalizing valve unless equipped for spray loading.

k) All vapor and liquid connections, except pressure relief valves and those specifically exempt in Section 215.40(e) and (f) shall be equipped with approved excess flow valves or may be fitted with quick-closing internal valves that shall remain closed except during operating periods. Every tank withdrawal valve shall be protected by an excess flow valve matched to the designed flow rate. Flow capacity of the excess flow valve shall not exceed 45 GPM for 1¼" tank connections and 60 GPM for 1½" tank connections. When using an open yoke type excess flow withdrawal valve in a tank opening, the opening shall not be reduced with bushings to accommodate the withdrawal valve. Each valve shall be tested through the Nurse Tank Inspection Program (NTIP) or be removed and inspected at an interval not to exceed 5 years. Records of the maintenance and inspections shall be kept at the facility for review. All valves shall be in compliance no later than December 31, 2020. Nurse tanks not meeting compliance shall be removed from service.

l) Fittings shall be protected from physical damage by means of a rigid guard designed to withstand static loading in any direction equal to twice the weight of the container and lading using a safety factor of 4 based upon the ultimate strength of the material used. If the guard encloses the pressure relief valve, the valve shall be properly vented through the guard.

m) If a liquid withdrawal line is installed in the bottom of a container, the connections to that line, including hose, shall not be lower than the lowest horizontal edge of the farm wagon axle. The hose shall be drained and depressurized prior to the container being moved or towed on a public road.

n) Provision shall be made to secure both ends of the hose in transit.

o) All containers shall be painted white or a light reflecting color.

p) All containers shall be marked as follows:

1) Placard: Four diamond type, nonflammable gas, UN 1005, USDOT placards shall be displayed (one on each side and one on each end).

2) Marking: The words ANHYDROUS AMMONIA shall appear on each side and each end in letters no less than 2 inches high.

3) Each container shall be marked with the words INHALATION HAZARD in 2 inch letters on 2 opposing sides.

4) The words LIQUID or VAPOR shall be placed on or within 12 inches of the appropriate valve by means of stencil, tag, decal or color coding with a legible legend ORANGE LIQUID and YELLOW VAPOR on the tank.

5) The container need not be marked or placarded on one end if that end contains valves, fittings, regulators or gauges when those appurtenances prevent the markings and placard from being properly placed and visible.

q) Nurse tanks operating on public roads shall be marked with a slow-moving vehicle (SMV) emblem consisting of a fluorescent orange triangle with a red reflective border. The specifications of the SMV shall be the type recommended by ASAE S276.5. Nurse tanks operating on public roads are to travel at speeds less than 25 mph.

r) All nurse tanks shall be securely attached to the vehicle drawing them by means of drawbars supplemented by suitable hitch pins with clips and safety chains permanently attached to the farm wagon.

s) A nurse tank shall be constructed so that it will follow substantially in the path of the towing vehicle and will prevent the towed farm wagon from whipping or swerving dangerously from side to side.

1) Nurse tanks require two safety chains with a combined breaking strength of at least the weight of the laden nurse tank.

2) All nurse tanks shall be securely attached to the vehicle drawing them by means of drawbars supplemented by suitable hitch pins and safety chains that meet the requirements of ASAE S338.2, Safety Chain for Towed Equipment. Reliable keepers for the hitch pin shall be used to prevent its loss. The hitch pin and keeper shall be permanently attached to the nurse tank towbar.

t) A nurse tank shall not be towed or parked in public places such as school yards, malls or hospital grounds.

u) Each person operating, repairing appurtenances to, or inspecting a nurse tank shall wear protective gloves impervious to ammonia and chemical splash goggles. A full face shield may be worn over the goggles; however, a face shield shall not be worn as a substitute for a primary eye protection device (goggles).

v) For first aid purposes each nurse tank shall be equipped with at least 5 gallons of clean water in a container mounted on top or side of the tank designed to provide ready access to the water for flushing any area of the body contacted by ammonia.

w) Prior to the addition of a chemical additive, its compatibility with system components shall be verified by the manufacturer of the additive.

x) Storage of Containers: When a nurse tank containing 10% or more of anhydrous ammonia is at an unattended approved storage site, the manually controlled valves shall be plugged or capped or locked or the nurse tank shall be stored inside a locked, fenced enclosure. Nurse tanks shall be stored no less than 50 feet from the edge of the adjacent road, 200 feet from place of private or public assembly and 750 feet from place of institutional occupancy. All pressure and liquid gauges must be in working order.

y) A back check valve shall be installed on each inlet of each fitting (including, but not limited to, tees and crosses) to prevent the back feed of anhydrous ammonia from an undamaged line to a damaged/severed line. All multiple tank configurations shall have equally rated liquid withdrawal valves on each tank. An excess flow valve with the same rated flow as the aforementioned valves shall be installed at the junction where the lines meet downstream. A shutoff valve shall be installed downstream of the excess flow valve.

AGENCY NOTE: If tanks are not plumbed together, they shall be treated as single tanks. Tanks with equally rated internal valves with remote actuators are exempt from this requirement. Compliance with these requirements shall be achieved through repairs and modifications on or before December 31, 2025.

z) Excess flow valves shall be designed to close automatically at the rated flows of vapor or liquid as specified by the manufacturer. Excess flow valves shall be selected based on the piping, including valves, fittings and hoses being protected by an excess flow valve, and shall have a greater capacity than the rated flow of the excess flow valve, so the valve will likely close in case of delivery system failure at any point in the line or fittings. Any installation of a device that may cause a reduction in pressure to impede the operation of the excess flow valve is prohibited.

aa) All liquid and vapor service valves shall be protected by a threaded cap that must be affixed to the valve housing.

(Source: Amended at 44 Ill. Reg. 18281, effective October 29, 2020)