Illinois Department of Agriculture

Proposed Revision to Administrative Rules Safe Handling of Anhydrous Ammonia

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Committee

- IDOA
- IFCA
- Farm Bureau
- Grower
- Anhydrous Ammonia Manufacturer
- Ag Retailers
- Safety Educator
- Equipment Representatives
- Regional Suppliers
- Railroad Terminal
- Contractor

Background

Committee met the last 18 months
Evolving process
Group did reach consensus on a number of issues
GROUP EFFORT!!

Wide array issues

- Public Perception
- Technology
- Field experience (Incident history)

Public Perception - Illinois



Public Perception - Illinois



Storage Tank

- Any tank that does not have a legible data plate or supporting documentation of the information on the data plate shall be removed from service if it is to be reinstalled.
- Railroad car tanks permanently mounted and used for storage shall be removed from service no later than 10 years from the effective date of this rule.



Storage Tank

 Each facility shall provide the minimum protection at each non-refrigerated storage tank opening utilized for the transfer of product as follows:

- 1)The installation of an internal valve in the tank with a manual shutoff valve located immediately outside of the opening, or
- The installation of an approved excess flow valve or a back check valve inside of the tank, a manual shutoff valve located immediately outside of the opening and an approved ESV located within three (3) feet of the opening side of the manual shutoff valve.









The minimum protection for all bypass lines shall consist of an excess flow valve and a manual shutoff valve.



Storage Tank

Approved emergency shutoff valves(s) or internal valve(s) shall incorporate a reliable actuation system that will close all of the emergency shutoff valve(s) or internal valve(s) of the piping system on the first attempt in the event of emergency or testing from a remote location. A minimum of two remote actuation devices shall be located no less than twenty-five (25) feet reasonably opposed to each other.



If using a pressure source for activating the remote shutoff mechanisms of emergency shutoff valve(s) and internal valve(s), nitrogen and compressed air are acceptable pressure sources. If using compressed air as pressure source, the air shall be clean and kept at a moisture level that will not prevent the system from operating. Propane or other flammable materials shall be prohibited for use to activate an ESV or an Internal Valve.



Section 215.65 Bulkhead

- Installation of reinforced concrete and structural steel bulkheads or equivalent anchorage, strong enough not to break and massive enough not to be uprooted by the motor vehicle; and
- A manual shutoff valve shall be installed on the liquid and vapor line and located at the bulkhead; and
- The liquid unloading line shall be protected by a back check valve located within 5 lineal feet of pipe from the bulkhead.

System piping shall be designed to prevent debris from impeding the action of valves and other components of the piping system.



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Bulkhead protection cannot be attached to the container piers



Welding

 All welding for repairs to any pressure vessel or on any piping and associated appurtenances shall be done by a firm that holds a valid certificate of authorization commonly referred to as an R stamp holder.



No Pressure valve shall be used over 5 years past the manufactured date.





Removal & Inspection of Nurse Tank valves every 5 Years.





Nurse Tanks

 Any nurse tank that does not have a legible data plate and has not been re-certified through an approved program shall be removed from service.



Nurse Tanks

- 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 referenced above.
- 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 feeding of anhydrous ammonia from an undamaged line to a damaged/severed line.



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.



Mounting of the coupler shall allow full articulation in all directions as required by the coupler manufacturer.



Multiple breakaway coupling devices mounted on a tool bar shall not interfere with one another in a turn or an unhitching event.



Tool Bar and Connections

• The hose length from the towed implement mechanically secure point to the breakaway coupler on the towing implement shall have sufficient length to allow breakaway couplers to articulate freely but prevent the hose from contact with the nurse tank tongue. This shall be achieved without securing the hose mechanically through the use of chains, elastomeric straps, wire ties or other means. A physical test shall be accomplished by performing a complete turn in both directions with all equipment to be used in the application event. The nurse tank valves shall be kept in the closed position during the test event.







Miscellaneous

• Except for pneumatic pressure testing, all containers shall only be pressured with ammonia vapor except for dual usage involving the storage of liquid propane. Any device used for the introduction of atmospheric air into any part of anhydrous ammonia storage, transportation or application systems is prohibited. Any introduction of any substance other than anhydrous ammonia into the closed loop anhydrous ammonia system shall be approved by the Department prior to implementation.



Contamination of air is the primary cause of Stress Corrosion Cracking in ammonia.



Maintenance Records

 A written record of all inspections and maintenance shall be kept at the facility for a period of 5 years or until sold or removed from service.





When & How Long?

 Each entity with multiple storage tanks shall complete modifications to a minimum of twenty-five percent (25%) of the tanks they own each year beginning one year from the effective date of this rule.

"If you don't have time to do it right, when will you have time to do it over?" - John Wooden

