**Section 215.65 Transfer of Liquids**

a) If it is found necessary to dispose of anhydrous ammonia, it shall be discharged into a vessel containing water sufficient to absorb it. Sufficient water shall be at least ten parts of water per one part anhydrous ammonia. The anhydrous ammonia shall be injected into the water as near the bottom of the vessel as practical. Provision must be made to prevent bleeding of transport and railroad tank car liquid lines or hoses into the atmosphere when disconnecting. This shall be done through the use of a wet hose with a shutoff valve at each end of the hose, by bleeding into water at no greater rate than one gallon of anhydrous ammonia to 10 gallons of ammonia-free water to prevent discharge of fumes into the atmosphere, or with a recovery system.

b) A certified competent attendant shall supervise the transfer of liquids from the time the connections are first made until the railroad tank car is finally disconnected or the transport truck is completely unloaded and finally disconnected. Any time the site is unattended, the railroad tank car shall not be connected to the unloading riser. During the transfer operations of the transport, chock blocks shall be so placed as to prevent rolling of the vehicle.

c) Containers shall be filled or used only upon authorization of owners.

d) Containers shall be gauged and charged only in the open air or in a building especially provided for that purpose.

e) Pumps used for transferring anhydrous ammonia shall be recommended for anhydrous ammonia service by the manufacturer or documented for such service by the owner/operator using recognized and accepted good engineering methods.

1) Liquid pumps may be piston, rotary, centrifugal or regenerative type for 250 psig working pressure.

2) Positive displacement pumps shall be equipped with a pressure actuated by-pass valve on the discharge side of the pump. This valve shall operate to limit the pressure developed by the pump to the maximum for which the pump is rated. Piping or tubing sized to carry the full capacity of the pump at the actuation pressure of this valve shall connect the discharge of this valve with the container from which ammonia is being pumped. If this line is capable of being closed off by a valve, an additional by-pass device shall be incorporated in the pump to by-pass back to the suction port. The pressure actuated by-pass valve and the return piping or tubing shall be installed in accordance with the pump manufacturer's recommendations or documented for such service by the owner/operator using recognized and generally accepted good engineering methods.

3) A pressure gauge graduated from at least 0 to 400 psig shall be installed before the relief valve line on the discharge side of the pump.

4) Centrifugal or regenerative pumps do not require a bypass valve, but the installation shall incorporate a line from the discharge side of the pump to the vapor space of the supplying tank and a shutoff valve shall be installed in this line.

f) Plant piping shall contain shutoff valves located as close as practical to the pump connections.

g) Compressors used for transferring or refrigerating ammonia shall be recommended for ammonia service by the manufacturer or documented for that service by the owner/operator using recognized and generally accepted good engineering methods.

1) Compressors, except those used for refrigeration, shall be designed for at least 250 psig working pressure. Crank cases of compressors not designed to withstand system pressure shall be protected with a suitable pressure relief valve.

2) Plant piping shall contain shutoff valves located as close as practical to compressor connections.

3) A relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shutoff valve. The discharging pressure of this valve shall not exceed 300 psig and shall be installed so that it will be vented in a safe location if discharged.

4) Compressors, except those used in refrigeration, shall have pressure gauges graduated from 0-400 psig at suction and discharge.

5) Adequate means, such as a drainable liquid trap, shall be provided on the compressor suction to minimize the entry of the liquid into the compressor.

h) Piping shall be designed not to restrict flow rates to the extent that protective devices will not function.

i) Dedicated lines for loading and separate dedicated lines for unloading are recommended. Minimum protection shall be provided as follows:

1) Loading systems shall be protected by properly rated excess flow valves or approved systems to prevent the emptying of the storage containers in the event of severance of the hose or swivel type piping.

2) The liquid unloading line shall be protected by a back check valve located within 5 lineal feet of pipe from the bulkhead.

3) The minimum protection for all bypass lines shall consist of an excess flow valve and a manual shutoff valve. The bypass shall be located at the highest elevation of the storage tank.

4) System piping shall be designed to prevent the introduction of debris that could impede the action of valves and other components of the piping system. All systems in operation on or before July 1, 2016 shall be in compliance no later than December 1, 2017. Any piping system installed after July 1, 2016 shall comply prior to initiation of any operations.

j) Transport trucks shall not be utilized for bulk storage of anhydrous ammonia. It must be transferred into permanent storage of a capacity equal to or greater than the transport truck.

k) Railway tank cars must be transferred into permanent storage of a capacity equal to 50% of the railway tank car.

l) All storage tank system liquid and vapor valves must be closed and locked during the time the plant is unattended. Either hose end lock boxes or locking caps or chains may be used on the risers. In lieu of locking the valves, a security fence with two gates on opposite sides shall be installed and kept locked during the time the plant is unattended.

m) The transfer of anhydrous ammonia from a tank car or transport to any other unit for the purpose of converting anhydrous ammonia to aqueous ammonia shall only be done upon a railway spur owned or leased to the operator of the transferring facility where the railway tank car can be retained for an indefinite period and where an aqueous converter is installed at a site. The transfer must be done in one continuous operation. The requirements of Section 215.30 must be met before the site and facility will be approved by the Department. Approved anhydrous ammonia installations designed for converting aqueous ammonia must have sufficient permanent storage to permit continuous and uninterrupted unloading from railway tank cars or trucks.

n) Provision must be made to prevent bleeding of transport and rail car liquid lines or hoses into the atmosphere when disconnecting. This shall be done through the use of a wet hose with a shutoff valve at each end of the hose, by bleeding into water at no greater rate than one gallon of anhydrous ammonia to 10 gallons of ammonia-free water to prevent discharge of fumes into the atmosphere, or with a recovery system.

o) A certified statement shall be filed on forms furnished by the Department stating that all the requirements of this Section, safety equipment and requirements of this Part have been met. This statement must be filed with the Department before final approval of the facility will be given by the Department. No operation shall begin until final approval has been issued.

p) The filling of mobile containers with a capacity of 3000 gallons or less with anhydrous ammonia is permissible only at a permanent storage facility approved by the Department for this purpose. Anhydrous ammonia may be transferred from a cargo tank motor vehicle with a maximum capacity of 6000 gallons into containers of 3000 gallons capacity or less mounted on farm vehicles or containers of 6000 gallons mounted on motor-driven applicators. This transfer operation is limited to rural areas and only on the premises of the consignee. This transfer operation must meet all safety requirements of Section 215.20. Department approved anhydrous ammonia meters or on board scales shall be employed for this operation. Meters or on board scales shall conform with the Weights and Measures Act [225 ILCS 470] and 8 Ill. Adm. Code 600. The selling price quotation, actual billing, and reporting to the Department shall be done in pounds or tons.

q) All stationary storage installations with systems for filling nurse tanks or cargo vessels with container capacity of 6000 water gallons or less shall have all vapor and liquid risers protected against any break resulting from a pull-away. Each vapor and liquid hose shall be protected with an individually properly rated excess flow valve, a manual control valve, and a break-away or shear fitting designed to conform with good engineering practices.

r) Meters used for the measurement of liquid anhydrous ammonia shall be recommended for ammonia service by the manufacturer and approved by the Department. When dual purpose meters are used and when changing from LPG to anhydrous ammonia or vice versa, it is necessary to adjust the coefficient of the expansion scale to the proper setting for the product being metered. This adjustment will require the removal of the Illinois Weights and Measures Seal. Section 42 of the Weights and Measures Act requires that the person who breaks such seal be registered pursuant to that Act.

s) Liquid meters shall be designed for a minimum working pressure of 250 psig.

t) The metering system shall incorporate devices that will prevent the inadvertent measurement of vapor.

u) Transferring of anhydrous ammonia from a DOT cargo tank motor vehicle must comply with Transportation Regulations (see Section 215.16).

v) Bulkheads shall provide protection during unloading events and shall be accomplished with the following good engineering practices:

1) All valves shall be protected from any possible pull-away incidents while connected between the mobile container and the transfer station in such a manner that any break resulting from a pull-away will occur on the hose or swivel-type piping side of the connection while retaining intact the valves and piping on the plant side of the connection;

2) Installation of reinforced concrete and structural steel bulkheads or equivalent anchorage, strong enough not to break and sufficiently massive not to be uprooted by the motor vehicle;

3) A manual shutoff valve shall be installed on the liquid and vapor line and located at the bulkhead;

4) The use of approved breakaway devices, specifically designed for this purpose;

5) Bulkhead protection shall not be attached to the container piers; and

6) At least one caution sign at the bulk heads shall be permanently displayed instructing the cargo tank driver to chock the cargo tanks wheels prior to loading or unloading. The signs shall be of metal or other comparable material, at least 8½ inches high by 11 inches wide, and shall state:

CAUTION

DRIVER MUST CHOCK WHEELS

The signs shall have a yellow background and the letters shall be at least 1½ inches in height.

(Source: Amended at 40 Ill. Reg. 8704, effective July 1, 2016)