**Section 215.200 General**

a) Nitrogen fertilizer solutions are divided into subcategories as follows:

1) Aqua ammonia solution (Ammonium Hydroxide) is an aqueous solution of anhydrous ammonia generally containing from 18 to 30 percent of ammonia (NH3) by weight and having a vapor pressure usually varying from 0 to 10 psig at 104 degrees Fahrenheit (F). Aqua ammonia may be handled in free-vented nurse and applicator tanks provided the time between filling and application into the ground is held to a minimum. Freezing point of a 25 percent aqua ammonia solution is approximately -67 degrees F. while higher percentages will have lower freezing points. Specific gravity usually ranges from .89 to about .93 depending upon temperature and concentration.

2) Low pressure nitrogen fertilizer solution is an aqueous solution of ammonia nitrate and/or urea and/or sodium nitrate and/or other nitrogen carriers, containing various quantities of free ammonia exceeding 2 percent by weight. Vapor pressure usually ranges from 0 to 30 psig at 104 degrees F. although for direct application the range is usually from 0 to less than 20 psig. These solutions shall be stored in pressure-vented tanks equipped with safety pressure relief and vacuum relief valves. Application and nurse tank equipment may be free vented for some of these solutions provided the time between filling and application is held to a minimum. Saturation temperature usually ranges from below -40 degrees F. to +65 degrees F. Specific gravity usually varies from 0.90 to 1.20.

b) In the interest of safety, personnel storing and handling nitrogen fertilizer solutions should be knowledgeable in the safe control and handling of these solutions. The Department conducts a training program in nitrogen safety procedures.

c) Ammonia vapor has a pungent odor which serves as its own warning agent. Ammonia vapor is lighter than air. Out-of-doors handling and adequate ventilation are best means of preventing accumulation. The flammable limits to free ammonia are from 16 to 25 percent by volume in air. Experience has shown that ammonia is extremely hard to ignite in spite of these theoretical limits and is generally considered to be a non-flammable gas. Ammonium nitrate starts to decompose at temperatures above 410 degrees F. Welding should not be attempted on any system which has contained nitrogen fertilizer solutions without proper preparation (see 8 Ill. Adm. Code Section 215.Table D).