ammonium sulfate (solution) and ammonium nitrate (solution) from the EPCRA section 313 list, therefore that aspect of the comments will not be addressed further. Eight of the 18 companies that commented on the amended proposal strongly urged EPA to promulgate this final rule prior to July 1, 1995.

As a separate action, taken at the same time as the original proposal, EPA requested comment on the revised guidance for reporting aqueous ammonia under the ammonia listing (55 FR 12148). Several commenters contended that EPA should not require the reporting of aqueous ammonia from ammonium salts or any proportion of total ammonia by revising guidance but rather should do this by rulemaking. As discussed below, EPA believes that total aqueous ammonia is covered by the EPCRA section 313 ammonia listing. EPA also believes that the quantities of aqueous ammonia manufactured by dissolving water dissociable ammonium salts in water are subject to release and threshold determinations under the EPCRA section 313 ammonia listing. However, one of the reasons EPA amended the original proposal was to respond to these comments and concerns by making this position explicit in the listing. EPA is also providing a new guidance document to reflect the requirements of today's final rule; EPA's previous guidance document on ammonia reporting is no longer applicable. Comments received concerning the previous guidance document that are relevant to today's final rule are addressed below and in the response to comment document.

1. *Neither total ammonia nor the ionized form of ammonia is reportable under the ammonia listing.* Several commenters stated that EPA cannot require the reporting of any portion of the ionized form of ammonia under the EPCRA section 313 ammonia listing because they contend that only the un-ionized form of ammonia is covered by that listing. Two commenters contended that aqueous ammonia is ammonium hydroxide and that it is not listed on nor is it reportable under the EPCRA section 313 ammonia listing. One of these commenters also asserted that ammonium hydroxide is the ionized form of ammonia.

EPA believes that the ionized form of ammonia is covered by the EPCRA section 313 listing for ammonia. The EPCRA section 313 listing for ammonia is not limited to anhydrous forms, and, as such, quantities of ammonia in water (i.e., aqueous ammonia) must be applied to threshold and release determinations for this listing. Aqueous ammonia consists of two forms of ammonia, the un-ionized form and the ionized form. These are not two discrete chemicals; rather they are two forms of the same chemical, ammonia. When placed in water, ammonia is not destroyed or converted to a different chemical. It simply exists as an equilibrium mixture of the ionized and un-ionized forms with the concentration of each form mainly dependent on the pH and temperature of the solution.

With regard to the purported chemical ammonium hydroxide (NH_4OH), this is a misnomer. It is a common name used to describe a solution of ammonia in water, typically a concentrated solution of 28 to 30 percent ammonia. Aqueous ammonia is not ammonium hydroxide. The true nature of aqueous ammonia ''deviates appreciably from the simple composite of ammonium and hydroxide ions'' (Ref. 2). In the process of dissolving ammonia in water (H_2O + NH_3 ---> 'A'), 'A' is not ammonium hydroxide. ''There is clear evidence that it is not ammonium hydroxide under two important conditions (1) in aqueous solution (Ref. 3); and (2) as a solid (which exists only at low temperatures) (Refs. 4 and 5)'' (Ref. 6). It is reasonable to conclude, in accord with modern theories of bonding, that 'A' consists of ammonia and water molecules engaged in hydrogen bonding (Refs. 6 and 7). It is clear that dissolving ammonia in water does not result in a new chemical compound, i.e., ammonium hydroxide, but rather results in hydrated ammonia. The pH and temperature dependency of the equilibrium between the un-ionized and ionized forms of ammonia reveal that the 28 to 30 percent solutions of ammonia in water (which, as noted above, are sometimes referred to as ammonium hydroxide) must consist almost entirely of the un-ionized form of ammonia. EPA has consistently responded to questions regarding the reportability of these purported ammonium hydroxide solutions under the EPCRA section 313 ammonia listing by stating that these are 28 to 30 percent solutions of ammonia in water and that the ammonia in this solution is reportable under the ammonia listing.

The issue of what is reportable under the ammonia listing should no longer be a subject of debate since in today's final rule EPA is modifying the ammonia listing to make it clear that 10 percent of total aqueous ammonia from all sources is reportable under the ammonia listing.

2. *Total ammonia should not be reported under the ammonia listing.* All commenters responding to the original proposal stated that EPA should not require the reporting of total aqueous ammonia (i.e., the sum of the un-ionized and ionized forms of ammonia) under the ammonia listing since this drastically overstates the amount of the toxic un-ionized form of ammonia in a facility's releases. Commenters stated that under environmental conditions aqueous ammonia consists mainly of the relatively non-toxic ionized form of ammonia. Commenters stated that reporting total aqueous ammonia would mislead the public as to the volume of toxic chemical released.

EPA believes that the toxicity characteristics of aqueous ammonia do not preclude the reporting of total aqueous ammonia. The consensus of the scientific community is that the toxicity of a solution of aqueous ammonia is dependent on the pH and temperature of the solution. Studies of the pH and temperature dependency of aqueous ammonia toxicity have led to the commonly held opinion that the ionized form of ammonia is relatively less toxic than the un-ionized form, perhaps as much as 100 times less toxic. However, the exact toxicity of each form cannot be independently measured since under conditions that will support most aquatic organisms each form is always present at some level. In addition, the pH and temperature dependency of aqueous ammonia toxicity is not simply a reflection of the amount of the un-ionized form of ammonia present. Therefore, EPA does not believe that reporting total aqueous ammonia in some manner would drastically overstate the amount of toxic chemical released since both forms of ammonia contribute to the toxicity of an aqueous solution of ammonia. In today's final rule EPA is not requiring the reporting of total aqueous ammonia under the ammonia listing. EPA is limiting the reporting of aqueous ammonia to a proportion of total aqueous ammonia in consideration of the fact that the un-ionized form of ammonia is relatively more toxic than the ionized form. EPA believes that this alternative is less burdensome since a smaller number of facilities will meet the reporting thresholds based on 10 percent total aqueous ammonia than would if EPA required the reporting of total aqueous ammonia. In addition, EPA believes that this alternative addresses concerns raised by the regulated community about how reporting total aqueous ammonia would mislead the public as to the volume of the toxic chemical released.

3. *Under EPCRA section 313 reporters are not required to consider chemical conversions that occur in the environment.* Because some commenters contend that ionized ammonia and un-