



MDA UPDATE

Anhydrous Ammonia *Special Edition*

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Notes from the Director

By Greg Buzicky, Director, Pesticide and Fertilizer Management Division

This special edition of the MDA Update focuses on anhydrous ammonia (NH3). NH3 provides economic and agronomic benefits to Minnesota agriculture. However, with its use there are risks and over the past several years, numerous injuries and a fatality have occurred. While improved practices have made its use safer, very serious injuries, and releases continue to occur.

MDA is concerned about these incidents, and the frequency of serious violations of applicable laws and regulations. Many facilities comply with laws and utilize tools such as MDA's "Service Status" policy in their routine practice. However, not all facilities are in compliance. This can result in financial penalties and, more importantly, dangerous releases.

- In 1990, a northwest Minnesota man died after being exposed to NH3. The exposure resulted from an improperly installed flex connector that exploded at a storage facility.
- In 2003, a central Minnesota man died as a result a NH3 exposure due to the improper use of a valve and a lack of emergency water.
- In 2007, a person shopping at an auto supply store was exposed to anhydrous ammonia. This exposure was the result of improper handling practices at a nearby NH3 facility. Emergency and long-term medical treatment was necessary.

In this special edition of the MDA Update you will find articles about NH3 programs and regulations. This newsletter contains only a fraction of the NH3 information MDA has to offer. Please read these articles and then visit our website at www.mda.state.mn.us for the more information. Make sure your facility is in compliance and safe as possible. Thanks.

For questions and inquiries
contact Ed Kaiser by phone
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ed.kaiser@state.mn.us

For future reference: MDA NH3
Regulatory Program Web page
[www.mda.state.mn.us/
chemicals/fertilizers/nh3.htm](http://www.mda.state.mn.us/chemicals/fertilizers/nh3.htm)



Recent MDA Enforcement Actions / Anhydrous Ammonia Regulatory Compliance

By Paul Liemandt, Assistant Director – Regulatory & Response Section

July 2008	February 2008	July 2007	September 2004
<i>Mower County</i> NH3 facility failed to perform several NH3 equipment maintenance requirements including: failing to install Slow Moving Vehicle emblems on over 24 nurse tanks, over-filling multiple nurse tanks, and failing to anchor nurse tanks. The facility settled the case with an \$8,900.00 penalty payment and a donation of \$2,800.00 to the local fire department/emergency first responder.	<i>Grant County</i> NH3 facility endangered humans by mishandling a NH3 tank. An employee used a forklift in an attempt to lift a full NH3 nurse tank from its wheels and place it on new wheels. The nurse tank fell to the ground, breaking its liquid withdrawal valve and releasing NH3. The facility settled the case with a \$2,500.00 penalty payment.	<i>Stevens County</i> NH3 company endangered humans by mishandling NH3 storage equipment and caused environmental damage. The employee attempted to remove a plug in a liquid NH3 line without ensuring that a shut-off valve was closed, resulting in a 400 gallon NH3 release. The employee fortunately escaped unharmed because he was wearing required safety equipment. The facility settled the case with a \$1,500.00 penalty payment.	<i>Dakota County</i> A NH3 facility improperly stored and handled NH3, repeatedly endangered humans, and failed to report a NH3 incident in which an employee was injured and needed medical care. The facility settled the case with a \$17,500.00 penalty payment and a donation of \$5,000.00 to the local fire department/first responder.

Storage and Piping Barrier Protection Requirement

By Greg Buzicky, Director, Pesticide and Fertilizer Management Division

There have been changes to regulations in recent years. One of the changes that have caused some questions is the Storage and Piping Barrier Protection Requirement. This requirement is based on a national standard and has been incorporated into our rules since 1996. It is designed to protect the storage tank and the piping from catastrophic damage and release.

In 2007, we reviewed our regulations and recognized that the need to ensure that facilities are following this requirement. We canvassed other Midwest states as to how they administer this provision. We found that while there is some variation most states actively administer this requirement. Two other states, Iowa and Illinois, have the same requirements as Minnesota.

Last year we announced that we were providing a two-year time frame to come into compliance with this provision. That deadline is September 1, 2009. In this issue, you will find some guidance on the requirement along with ways to get more information about how to comply.

MDA Encourages Compliance and Safety

By Paul Liemandt, Assistant Director – Regulatory & Response Section and John Peckham, Supervisor -Inspection & Permitting

Anhydrous ammonia is classified as an “extremely hazardous” substance and exposures can cause blindness, burns, serious and life-long respiratory problems, and death. In light of this risk potential, and the frequency of non-compliance with certain rules and regulations designed to ensure human safety, the MDA has been focusing additional outreach and inspection efforts on anhydrous ammonia (NH3) storage facilities. Our goal is to provide a fair and uniform Minnesota business environment, ensure facility and employee safety, and to avoid possible regulatory enforcement.

On July 15, 2007, MDA NH3 facility inspections implemented an updated compliance policy.

Key to the MDA inspection program was a shift in emphasis from the past *compliance assistance* policy to a *regulatory/enforcement* mode. Violations documented during inspections now result in possible enforcement response, including assessment of monetary penalties.

Over the past year, almost 60 percent of NH3 facilities under the new compliance program have received penalty notices as a result of facility non-compliance. This is despite extensive MDA education and outreach over the past five years.

Countdown to Storage and Piping Barrier Protection Requirements

By Ed Kaiser, Agricultural Chemical Consultant, Inspection & Permitting

The Minnesota Fertilizer Law and MDA policy requires that proper and effective traffic protection barriers around Minnesota NH₃ storage tanks and piping be constructed and in place by September 1, 2009.

- **What kind and size of traffic passes near your NH₃ storage tanks and piping?**
More protection needed for large equipment traffic.
- **What are effective barriers?**
Curbs, posts, and guardrails provide protection.
- **What are construction material options?**
Options include concrete, steel or wood.
- **What about the liquid/vapor piping (riser piping) located in the nurse tank loading area?**
Barriers prevent movement of the riser platform(s) and possible damage to riser piping.

The following examples from Indiana illustrate how installed barriers can prevent a dangerous and even fatal scenario from happening.

- A pick-up truck driven by a facility worker crashed into a 30,000 gallon NH₃ storage tank causing broken valves and NH₃ release.
- A snowmobile collided with the exposed piping of a full 12,000 gallon NH₃ storage tank, causing a 3/8" - 1/2" crack in the main piping and making the flow control devices useless.

Photos Showing Proper and Effective Barrier Protection



DOT approved guardrail attached to posts at a height of at least 3 feet. Each post is positioned every 10 feet and is anchored into the ground by a 12 X 48 inch concrete foundation.



Steel posts at least 3 feet high, positioned every 4 feet. Each post is anchored into the ground by a 12 X 48 inch concrete foundation.



Anchored/stabilized concrete barriers with access gaps of no more than 3 feet. Warning markers to a height of 3 feet are required for barriers that are less than 3 feet in height.

Federal Rules Require Change in NH₃ Nurse Tank Certification

By Ed Kaiser, Agricultural Chemical Consultant, Inspection & Permitting

Last year, the U.S. Department of Transportation's, Pipeline and Hazardous Materials Safety Administration (DOT) denied the use of nurse tanks MDA previously permitted under its NH₃ "Special Program." The DOT denial was asserted despite MDA's repeated requests to DOT.

Shortly after the DOT denial and federal rejection of MDA's appeal of that denial, the MDA was forced to issue compliance notices to Minnesota NH₃ nurse tank owners, which instructed them to either empty or permanently remove "state certified nurse tanks" from NH₃ service, or alternatively certify the nurse tanks under DOT regulations.

The MDA is now compelled to issue an Order to Cease/Desist/Stop Use for nurse tanks out of federal compliance. The MDA may also issue enforcement action/monetary penalties whenever NH₃ nurse tanks in service are found without having either a legible original manufacturer name plate, are not certified and/or marked in accordance with the DOT Special Permit regulations.

Questions about DOT Special Permit regulations (DOT-SP 13554): Contact Michael Ritchie, MN DOT HazMat Specialist, at (651) 366-3697 or michael.ritchie@mndot.state.mn.us

Anhydrous Ammonia Facility “Service Status” Policy

By Paul Liemandt, Assistant Director – Regulatory & Response Section

Following numerous consultations with NH3 industry representatives, MDA developed a “Service Status” policy.

The “Service Status” policy specifies conditions under which NH3 equipment and storage systems are considered to be “In Service” (in use) or “Out of Service” (not in use). Additionally, the policy allows for equipment and tanks to be identified as “Zero Product / Pressure Out of Service”. This third status provides a means for facility owners and managers to easily, safely, and clearly remove equipment from any present or future intended or scheduled use.

- Equipment and storage systems that are “In Service” are subject to full MDA regulatory compliance inspections and enforcement.
- Equipment that is tagged “Out of Service” is subject to very limited MDA inspection. *“Out of Service” status does not apply to storage systems.*
- Equipment and storage systems that are in “Zero Product/Pressure Out of Service” status are not subject to MDA inspection.

Facility managers are reminded to also completely empty, in a safe manner, all hoses and lines to avoid injury.

MDA’s NH3 compliance program changes took effect on July 15, 2007. Prior to that date, all Minnesota NH3 facilities were notified via department correspondence (August 2006) and provided full details, including explanation of the new “Service Status” policy, as well as implementation dates. Additional outreach via MDA Update newsletters was provided in November 2006, April 2007, and November 2007 editions. Finally, additional outreach, education, and information regarding MDAs new NH3 compliance strategy and the new “Service Status Policy” was offered numerous times at NH3 industry meetings statewide in early 2005 and 2007.

Self-inspections and clear status-tagging will greatly help to reduce the potential high-risk hazards associated with NH3 and prevent issuance of MDA enforcement actions, including financial penalties, for violations found during MDA inspections

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