

In 2018 the Minnesota Department of Agriculture (MDA):

- Completed 76 anhydrous ammonia (NH<sub>3</sub>) facility inspections
- Investigated 26 NH<sub>3</sub> incidents, some which resulted in exposures, injuries, and evacuations (i.e. endangerment)

Serious and common violations documented in 2018 are listed below. The MDA recommends that self-inspections be conducted, and correction be made of all non-compliance items. **Refer to the MDA's NH<sub>3</sub> program website for additional safety and compliance information ([www.mda.state.mn.us/NH3](http://www.mda.state.mn.us/NH3)).**

Violations		Remedies
1	Failing to immediately report an incident.	<ul style="list-style-type: none"> <li>• Immediately report an incident by contacting the Minnesota Duty Officer at 1-800-422-0798 or (651) 649-5451.</li> <li>• Contact the National Response Center at 1-800-424-8802 if NH<sub>3</sub> release is 100+ pounds.</li> </ul>
2	Safety water of sufficient quantity and accessibility not provided during NH <sub>3</sub> handling or maintenance.	<ul style="list-style-type: none"> <li>• An easily accessible emergency shower and a plumbed eye wash unit or in lieu of these, at least 150 gallons of clean water in an open top container at the NH<sub>3</sub> facility.</li> <li>• At least 5 gallons of accessible, clean water on each nurse tank.</li> </ul>
3	<ul style="list-style-type: none"> <li>• Too long withdrawal (WD) hosing causing damage to hosing, fittings, loosening hose-end valve while in transit, or endangerment.</li> <li>• Hose-end valve(s) comes loose while in transit.</li> <li>• Out of condition hosing - i.e. defects exposing cords/ reinforcement.</li> </ul>	<ul style="list-style-type: none"> <li>• Install proper length of WD hose for specific application assembly, positioned above the nurse tank hitch with no chance of damaging hosing, fittings, or loosening hose-end valve during field application/transport.</li> <li>• Adequately secure hose-end valves while in transit.</li> <li>• Immediately replace hosing that is out of condition.</li> </ul>
4	<ul style="list-style-type: none"> <li>• Incorrectly installed break-away coupling devices (BACD) on toolbar – i.e. not installed per manufacturer's instructions.</li> <li>• Outdated Pioneer BACD - see comments below.</li> <li>• Incorrect, illegible, or missing BACD connection/disconnection instructions displayed in a manner that is not readily visible (fully visible) near the BACD.</li> </ul>	<ul style="list-style-type: none"> <li>• Review and follow BACD manufacturer's instructions for installation, maintenance, and operation.</li> <li>• BACD must not be impeded in any manner by hardware, hosing (i.e. jumper hose is too short).</li> <li>• Install bleed valves as prescribed by the BACD manufacturer in both the male and female sections of the BACD.</li> <li>• The Pioneer break-away couplers have a replacement date stamp and decal. The manufacturer states "Discard and replace the coupler and/ or nipple 3 years after installation or after the date shown on the product, whatever is earlier. Contact Parker Hannifin Corp to recertify outdated/unused Pioneer BACDs.</li> <li>• Make sure that connection/disconnection instructions match the brand/model of BACD installed, fully legible near the BACD. Pioneer BACD: Both aluminum ring and decal instructions are required.</li> <li>• YouTube Videos to review: BACD Parts: <a href="https://youtu.be/Rn1Ro8jWh3M">https://youtu.be/Rn1Ro8jWh3M</a> BACD Installation: <a href="https://youtu.be/OEPNeNZwvCE">https://youtu.be/OEPNeNZwvCE</a></li> </ul>
5	NH <sub>3</sub> rated gloves and goggles not available and worn for NH <sub>3</sub> handling or maintenance.	<ul style="list-style-type: none"> <li>• Make NH<sub>3</sub> rated gloves and goggles available.</li> <li>• Wear NH<sub>3</sub> rated gloves and goggles for NH<sub>3</sub> handling and maintenance.</li> </ul>
6	Failure to bleed off NH <sub>3</sub> prior to connecting/disconnecting hoses/piping, resulting in exposure or injury.	<ul style="list-style-type: none"> <li>• Always assume that hoses/lines contain NH<sub>3</sub>.</li> <li>• Bleeding off NH<sub>3</sub> from hoses/lines before connecting/disconnecting.</li> </ul>
7	Not having required safety items at the permitted storage facility site.	<ul style="list-style-type: none"> <li>• At a minimum, the following safety items must be at the permitted NH<sub>3</sub> storage facility site: <ul style="list-style-type: none"> <li>• Two (2) full-face gas masks</li> <li>• Four (4) currently dated/NH<sub>3</sub> rated canisters (<b>NOT cartridges</b>)</li> <li>• One (1) pair gauntlet-style gloves of sufficient length for cuffing, impervious to NH<sub>3</sub></li> <li>• Chemical splash goggles or chemical splash goggles with full face shield worn over the goggles</li> <li>• One (1) pair boots impervious to NH<sub>3</sub></li> <li>• One (1) slicker or pants/jacket, impervious to NH<sub>3</sub></li> </ul> </li> <li>• An easily accessible emergency shower and a plumbed eye wash unit or in lieu of these, at least 150 gallons of clean water in an open top container</li> </ul>

Violations		Remedies
8	All main tank and riser hose end valves not closed and locked when the facility is unattended.	Close and lock all main tank and riser hose end valves when facility is unattended. Riser hose-end valves must be unable to be removed from lockouts and operate when facility is unattended. <ul style="list-style-type: none"> <li>In place of valve locks, lock gates at facility secured by fencing when facility is unattended.</li> </ul>
9	Five-gallon safety water tank/hosing: <ul style="list-style-type: none"> <li>Not on each nurse tank.</li> <li>Damaged (i.e. cracked/broken tank and hosing).</li> <li>Installed in an inaccessible location.</li> </ul>	Each nurse tank must be equipped with at least five gallons of clean water in a container that is designed to provide ready access to the water for flushing any area of the body contacted by ammonia.
10	<ul style="list-style-type: none"> <li>Illegible or missing nurse tank (tank) nameplate.</li> <li>Non-compliant V, T, P test, date (month/year), and unique tank identification markings – i.e. missing, damaged, illegible, incomplete, or expired.</li> </ul>	<ul style="list-style-type: none"> <li>Nurse tank (tank) nameplate must be present and legible. Remove all paint, tape, etc. from tank nameplate.</li> <li>If unable to make tank nameplate legible or the tank nameplate is missing, immediately empty and pressure relieve the tank and follow the requirements in federal regulation 49 CFR, Part 173.315(m)(2) for inspection, testing, marking (i.e. V,T,P, Date, tank ID), and documentation, coinciding with MN NH3 Rules, Part 1513.1030, Subpart 11.</li> </ul>
11	Nurse tanks are not properly anchored.	Each bolt/washer/nut assembly must be tight (does not move), securely anchoring nurse tank to running gear. Maintain the running gear frame free of defects.
12	Riser shut-off/excess flow valve installed/used in nurse tanks.	Replace/install shut-off/excess flow valves specified by the manufacturer for installation/use in nurse tanks.
13	Dual nurse tank assemblies: Additional flow protection (i.e. excess flow valve-EFV or back check flow valve-BCFV) not installed in merged liquid withdrawal, liquid fill, and vapor fill connections	For merged connections, install an additional EFV: <ul style="list-style-type: none"> <li>Withdrawal/fill: Immediately following merged lines.</li> <li>Liquid/vapor fill between nurse tanks: <ul style="list-style-type: none"> <li>Recommend EFV rated at or less than 37 gallons per minute (gpm).</li> <li>EFV in each tank opening (tank EFV).</li> <li>When a tank EFV is rated more than 37 gpm, add to the top of the fill valve: <ul style="list-style-type: none"> <li>BCFV (use only for liquid fill) or</li> <li>EFV (can use for either liquid and vapor fill)</li> </ul> </li> </ul> </li> </ul>
14	<ul style="list-style-type: none"> <li>Pressure relief valve (PRV) installation records not maintained – i.e. accurate and current.</li> <li>Failing to replace PRVs 5 years after date of installation.</li> </ul>	<ul style="list-style-type: none"> <li>PRV installation records must be accurate and current.</li> <li>Have PRV installation records available for inspection.</li> <li>No NH3 applicator/nurse tank or non-refrigerated storage tank pressure relief valve may be used over five years after the date of installation of the pressure relief valve.</li> </ul>
15	Hydrostatic Relief Valves (HRVs): <ul style="list-style-type: none"> <li>Incorrect psi rated HRVs installed (i.e. less than 350 or greater than 400 psi rated).</li> <li>Missing on dual nurse tank crossover hosing for liquid and vapor fill connections.</li> <li>Missing between positive shut-off valves.</li> <li>Missing rain cap.</li> </ul>	Install 350-400 psi NH3 rated HRVs equipped with a rain cap: <ul style="list-style-type: none"> <li>Between each pair of positive shut-off valves in storage and equipment.</li> <li>This includes dual nurse tank fill and withdrawal connections/ lines that are merged together.</li> </ul>
16	Failure to: <ul style="list-style-type: none"> <li>Have an updated Incident Response Plan (IRP);</li> <li>Review IRP with employees at least once per calendar year;</li> <li>Make updated IRP available to local first responders; and</li> <li>Keep IRP at a principal business site or location within the state.</li> </ul>	<ul style="list-style-type: none"> <li>IRP <b>MUST</b> be updated every 3 years or whenever information becomes outdated <b>AND</b> documented accordingly;</li> <li>IRP <b>MUST</b> be reviewed with employees at least once per calendar year <b>AND</b> include documentation of training events;</li> <li>Making the IRP available to local first responders <b>AND</b> documented accordingly.</li> <li>IRP <b>MUST</b> be kept at a principal business site or location within the state. Have IRP available for inspection.</li> </ul>

**Contact the following MDA staff if you have further inquiries or questions.**

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