

DEPARTMENT OF AGRICULTURE

MDA Agency Bulletins Specific to Golf Course Management

In conjunction with the MGCSA BMP Initiative



This Environmental Stewardship Project is Endorsed and Sponsored by:



PGA
Minnesota Section





Minnesota Golf Course Operations

Table of Contents

Bulletin 1	Inspection Authority and Overview	pages 1 - 2
Bulletin 2	Applicators License and Use Categories	pages 3 - 6
Bulletin 3	Prevent Backflow to Protect Water Supplies	pages 7 - 11
Bulletin 4	Pesticide and Fertilizer Storage and Handling	pages 12 - 19
Bulletin 5	Personal Protective Equipment	pages 20 - 22
Bulletin 6	Incident Response Planning	pages 23 - 25
Bulletin 7	Soil Sampling for Contamination	pages 26 - 28

Bulletin 1 Inspection Authority, Overview, and Future Topics 2017

This outreach effort from the Minnesota Department of Agriculture (MDA) Pesticide and Fertilizer Management Division (PFMD), working with the MGCSA, is to provide an updated series of bulletins published through the MGCSA Holes Notes. This will provide an introduction to the MDA's authority for inspection, an inspection overview, and future topics.

Authority for Inspection:

Inspections and investigations are conducted by the MDA to document compliance under the authority of:

- Minnesota Statutes chapter 18B; Pesticide Control
- Minnesota Statutes chapter 18C; Minnesota Fertilizer, Soil Amendment, and Plant Amendment
- Minnesota Statutes chapter 18D; Agricultural Chemical Liability

Authority for entry, inspection, and sampling is found in:

- Minnesota Statutes, section 18D.201

Minnesota Statutes and Rules can be found on the Minnesota Office of the Revisor of Statutes website: <https://www.revisor.mn.gov/pubs/>

Inspection Overview:

During an inspection, an Agricultural Chemical Investigator (ACI) observes business practices to document compliance with statutes and rules. The following are primary items an ACI will check:

Pesticide Applicator License & Category	Pesticide Container Disposal
Application Records	Pesticide & Fertilizer Mixing and Loading Area(s)
Pesticide Labels	Backflow Prevention Device(s) on Water Supply
Incident Response Plan	Pesticide Rinsate Use
Well Location(s)	

Future Topics:

There are rules and regulations specific to the golf courses. I will highlight one topic in each of the next five bulletins. The following topics were chosen based on compliance concerns documented by the MDA during inspections at golf courses.

1. Applicators' License and Use Categories
2. Backflow Prevention
3. Pesticide and Fertilizer Storage
4. Personal Protective Equipment (PPE)
5. Incident Response Plan

To read about the MDA Pesticide and Fertilizer Management Division's events, programs, policies, and regulations, follow this link to the current issue of the PFMD Update:

<http://www.mda.state.mn.us/chemicals/pfmdupdate>

I am interested to hear your opinions, ideas, and questions about your golf course as it relates to requirements in Minnesota Statutes and/or Rules. Please contact me anytime at the number or email address below.

Thank You,

Corinne du Preez, Agricultural Advisor/ACI
Minnesota Department of Agriculture
Pesticide and Fertilizer Management Division
3555 9th St NW, Suite 350
Rochester, MN 55901
Office (507) 206-2883
Corinne.dupreez@state.mn.us

6 i ``Yhb`&Applicators License and Use Categories 2017

Do you have a license to apply pesticides?

A common violation documented by the Minnesota Department of Agriculture (MDA) is unlicensed pesticide applicators. Improperly licensed and certified individuals can lead to misuse, human exposure, and environmental harm. Complying with Minnesota's requirements will help protect citizens and our resources. This article will describe license types most commonly used by the golf course industry, how to maintain a valid license, enforcement, and statutory authority.

Licenses

Commercial Applicators License: Required for pesticide applicators that receive financial compensation/charge for their service or are for hire.

Non-Commercial Applicators License: Required for golf course employees that apply General Use and Restricted Use Pesticides (RUP) on the golf course as part of their job. Non-golf course employees must have this license type only to apply RUPs on property owned or controlled by their employer.

MDA links that help applicators get started with licensing are:

1. Pesticide and Fertilizer Licenses/Certification [application fees](#)
2. [Online Licensing and Payment Options](#)
3. Pesticide Applicator Licensing: See [License Types](#)

These are the basic steps to obtaining a license: 1) Complete applications accurately; 2) Submit application to MDA and pay license application fees; 3) Schedule and pass the category certification exams; and 4) Keep a copy of your license in your possession. Licensees must pass at least two (2) certification exams: Core and one, or more, categories.

Beginning August 1, 2016, legislative changes removed the requirement for noncommercial golf course employees to hold multiple certifications for application of general use pesticides on golf course property. Golf course employees should seek certification in the category where training best aligns with the work they do or the sites of application where they apply restricted use pesticides. In most situations, individuals will be licensed as a noncommercial applicator with certifications in categories A (core) and E (turf and ornamental).

- A. **Core:** Basic principles of pesticide regulation and application; required for all license categories.
- E. **Turf and Ornamentals:** For pesticide applications to non-agricultural areas for ornamental purposes. This includes maintaining plants for aesthetic value on indoor and

outdoor sites such as lawns, parks, athletic fields, golf courses, nurseries, and greenhouse.

- F. **Aquatic:** For pesticide applications to surface water to control aquatic pest organisms.
- J. **Natural Areas, Forests, and Rights-of-Way:** For pesticide applications to treat terrestrial vegetation and some insects and diseases found in natural areas (prairie restoration and buckthorn removal), forests (forest areas and forest plantations), and rights-of-way (including roads, utilities, and ditch banks).
- L. **Mosquito Control:** For pesticide applications made to control mosquitos and black flies.
- P. **Vertebrate Pest Control:** For pesticide applications to control vertebrate pests in the landscape using chemical baits, repellents or toxicants. Examples include liquid fence, dried pig's blood, geese, rabbit, or deer repellants; in addition to underground animals like gophers and moles. This certification is not required for use of traps, unless poison bait is used in the trap.
- S. **Non-Commercial Structural:** For noncommercial use of RUPs in, on, under or around structures.

The MDA issues 20 different certification types. To determine which certification categories are required for the work you do, see additional [License Categories](#).

Valid License

After initial licensure, license holders are responsible for maintaining a valid license. The following conditions must be met to keep a license valid:

- Renewal and recertification dates listed on the card must be current.
- Certify in the correct pesticide use categories for work performed.
- Employer/company information must be listed correctly on the card including an address to conduct business.
- Employers must meet workers compensation and financial responsibility requirements for commercial licenses.

All **Structural, Commercial and NonCommercial** licenses expire on December 31st and must be renewed annually. Renewal forms are mailed to the listed employer near the end of the calendar year as notification that the renewal fee is due.

Applicators must also recertify in each use category in which they are certified. Certifications expire on December 31st. Individuals must attend training or retest in the cycle specific to the

category. Most category certifications require recertification every 2 years. It is the applicator's responsibility to know when they are due for recertification.

Printed on each license identification card is a *Valid* date and *Categories/Recertify-by* date. To check the license status and *Recertify-By* date of an applicator, look on the license identification card or go to [License Lookup](#).



- In order to be qualified to renew, applicators must recertify each category before the recertify-by date.
- Applicators recertify by attending a recertification workshop or by retesting.
- Attendance at a qualifying workshop allows applicators to renew their license without retesting.

If a workshop is missed or is unavailable for that category certification, the applicator must pass the closed-book certification exams and pay a retest fee.

Applicators must notify the MDA immediately when **changing employers** as the license becomes invalid when an applicator leaves an employer. Licensed applicators must notify the MDA of any **change in address, name, change of employer, or change of license type** (i.e. noncommercial to commercial).

An applicator may not perform pesticide application work for a new company without first obtaining a license under that company's name.

To make any of these changes, contact the MDA at 651-201-6615.
Pesticide.Licensing@state.mn.us See [License Changes](#)

Learn more online about pesticide applicator certification requirements: [Recertification Requirements](#)

Enforcement

Due to potential human and environmental risks from lack of proper applicator license and use categories, be advised that documented non-compliance will result in a Notice of Violation ORDER and may include additional enforcement or financial penalties.

Statutory Authority

Minnesota Statute 18B.345 Pesticide Application on Golf Courses.
www.revisor.leg.state.mn.us/statutes/?id=18B.345

Thank you,
Corinne du Preez, Agricultural Advisor/ACI
Minnesota Department of Agriculture
Pesticide and Fertilizer Management Division
3555 9th St NW, Suite 350
Rochester, MN 55901
Office (507) 206-2883
Corinne.dupreez@state.mn.us

Bulletin 3 Prevent Backflow to Protect Water Sources

Backflow prevention

A backflow prevention device is used to protect the water supply from potential contamination due to the unexpected flow of water in the reverse direction. Minnesota Department of Agriculture ([MDA](#)) and Minnesota Department of Health ([MDH](#)) regulations require the use of a backflow prevention device or a fixed air gap when filling pesticide or fertilizer application equipment from a municipal water supply, a private well, or from surface water.

Statutory authority

Minnesota Statute 18B.07, Subd. 5. **Use of water supplies for filling application equipment.** (a) A person may not fill pesticide application equipment directly from a public water supply, as defined in section 144.382, or from public waters, as defined in section 103G.005, subdivision 15, unless the equipment or water supply is equipped with a backflow prevention device that complies with the Minnesota Plumbing Code under Minnesota Rules, parts 4715.2000 to 4715.2280.

Minnesota Statute 18C.201, Subd. 2. **Use of public water supplies for filling equipment.** A person may not fill fertilizer application equipment directly from a public water supply, as defined in section 144.382, unless the outlet from the public water supply is equipped with a backflow prevention device that complies with Minnesota Rules, parts 4715.2000 to 4715.2280.

Below are examples of **acceptable** and **unacceptable** backflow prevention practices and devices. Feel free to cross reference them with the MDA's fact sheet, Backflow Prevention Guidelines for Filling and Rinsing Fertilizer or Pesticide Application Tanks at:

<http://www.mda.state.mn.us/~media/Files/chemicals/pesticides/bfprevent.pdf>

Acceptable Backflow Prevention Devices

Air Gap: Maintain a fixed and permanent physical separation from the discharge outlet to the rim of the tank, container, etc. The physical distance from the opening of the application equipment to the end of the water line must be two (2) times the diameter of the water line. An additional device for rinsing containers is required.



Fixed ridged air gap



Removable fixed air gap

Reduced Pressure Principle or Reduced Pressure Zone Device (RPP or RPZ): Installed, tagged, and inspected by a certified plumber.



Pressurized Vacuum Breaker (PVB): Install a PVB twelve (12) inches above the overflow level of equipment that is being filled under continuous pressure with a shutoff valve downstream.



Atmospheric Vacuum Breaker (AVB): Install an AVB on a water line not subject to continuous pressure, six (6) inches above overflow level of equipment being filled, and downstream of a shutoff valve. An additional device is needed to rinse containers.



Rinsing Empty Pesticide Containers/Application Equipment Only

Hose Connection Vacuum Breaker: Attach this breaker on the discharge side of the last control valve. Do not install a hose with a spray control valve following the hose connection vacuum breaker.



Double Check Valve with Intermediate Atmospheric Vent: This valve and vent must be used together on $\frac{1}{2}$ and $\frac{3}{4}$ inch water supplies for inline applications with continuous pressure. This valve is for rinsing containers/equipment only; it is not a substitute for a RPZ or RPP.



Filling hand/backpack sprayers: Fill a water-only service container and transfer the water into your sprayer



Unacceptable Backflow Prevention Practice or Devices

No backflow used

Use of check valve only

RPZ without inspection/tag

Air gap not permanent/fixed

Inadequate separation for air gap (2x the width of the water line is required)

No physical gap for filling backpack sprayers

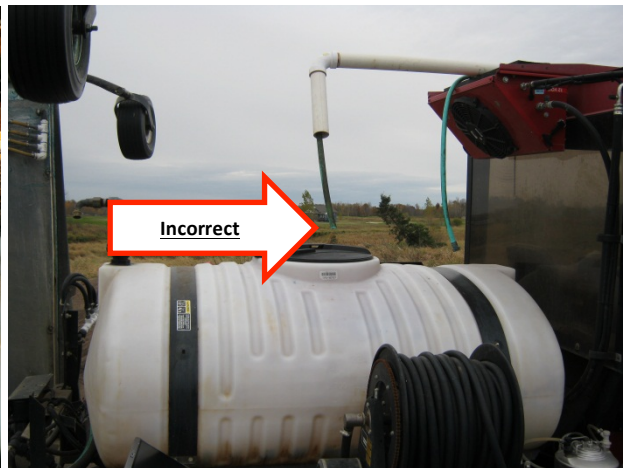
No check valve for rinsing containers

Air gap maintained by a person/not fixed

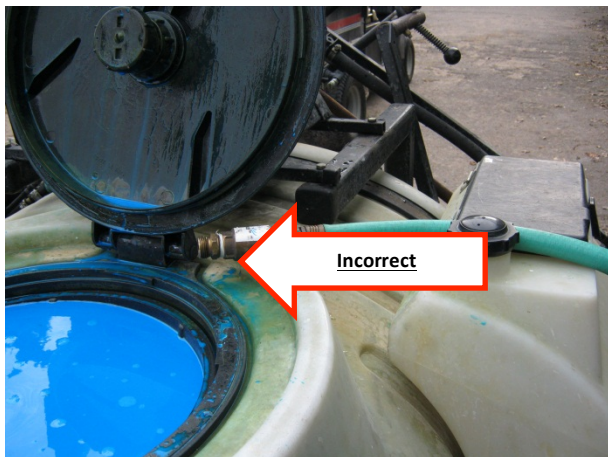
No physical separation in air gap



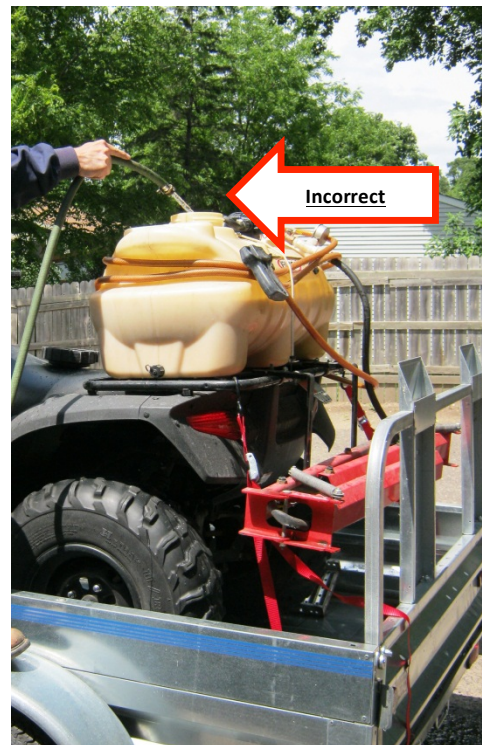
No physical separation in air gap



Air gap is not permanently fixed.



Air gap is maintained by a person and not permanently fixed.



Backflow Prevention Violations and ORDERS

During an inspection, an Agricultural Chemical Investigator (ACI) will observe the backflow prevention device(s) at your golf course. If non-compliance is documented, one or more of the following Orders will be issued and re-inspection may occur.

1a. Cease and desist the filling of pesticide application equipment until an MDH approved backflow prevention device is properly installed.

1b. Statement of Completion - Properly install a MDH-approved backflow prevention device before filling pesticide application equipment. (Timeline to complete included.)

RPZ specific orders:

2a. Cease and desist the filling of application equipment until the RPZ has been inspected by a certified person.

2b. Statement of Completion - RPZ backflow device must be inspected annually by a certified person. Submission of a copy of the certification tag is considered adequate proof of completion. (Timeline to complete included.)

Financial Penalties

The MDA views the lack of backflow prevention device to be a serious and direct threat to groundwater. Pesticides have been and can be easily directly back siphoned into groundwater. Due to the potential health and environmental risks associated with the lack of adequate backflow prevention, be advised that documented noncompliance may result in additional enforcement, including financial penalties. In fact, this is one of the more common financial penalties levied on golf courses.

As mentioned above, for additional information and/or examples of acceptable backflow prevention devices, refer to MDA's fact sheet, Backflow Prevention Guidelines for Filling and Rinsing Fertilizer or Pesticide Application Tanks at:

<http://www.mda.state.mn.us/~media/Files/chemicals/pesticides/bfprevent.pdf>

Thank You,

Corinne du Preez, Agricultural Advisor/ACI
[Minnesota Department of Agriculture](http://www.mda.state.mn.us)
Pesticide and Fertilizer Management Division
3555 9th St NW, Suite 350
Rochester, MN 55901
Office (507) 206-2883
Corinne.dupreez@state.mn.us

Bulletin 4 Properly Store and Handle Small Packages of Pesticides and Fertilizers 2017

This bulletin by the Minnesota Department of Agriculture (MDA) will provide an explanation of requirements for handling, storing, and managing small package pesticide and fertilizer, which include liquid and dry material, ranging from 55-gallons to 99-pounds (or less). Proper storage of small packages, disposal of rinsates, and handling of containers can significantly reduce environmental contamination or exposure. These proper measures will also prevent inspection violations. This article will describe label requirements, inspection violations commonly found by MDA, how to obtain compliance assistance, enforcement, and statutory authority.

Label language

When handling or storing small package pesticide products, it is required to read and follow the label. Labels provide specific product use, storage, handling, and disposal information. Improper handling of pesticides and fertilizers, or not following label directions, can result in enforceable action due to the potential risk and harm to people and the environment.

Below are some label examples from pesticides commonly used in golf courses:

1. Trimec Classic, herbicide, (EPA Reg. # 2217-543, active ingredients 2, 4-D, MCP, and Dicamba)

The label states in part:

PESTICIDE STORAGE: Store in original container in a locked storage area.

CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

2. Merit 75 WSP, insecticide, (EPA Reg. # 432-1318, active ingredient Imidacloprid)

The label states in part:

PESTICIDE STORAGE: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed.

CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container.

3. Honor Intrinsic, fungicide, (EPA Reg. 7969-255, active ingredients Pyraclostrobin and Boscalid)

The label states in part:

PESTICIDE STORAGE:

DO NOT contaminate water, food, or feed by storage or disposal.

DO NOT store near food or feed.

CONTAINER HANDLING:

Non-refillable Container. DO NOT reuse or refill this container.

MDA Inspections:

During an MDA *Pesticide Facility Inspection* an MDA Inspector will determine if small packaged pesticides are properly stored and managed relating to the requirements described below. These violation examples are commonly documented during routine inspections at golf courses. The MDA enforces regulations with Orders issued in the field and additional enforcement actions may be issued after the inspection is reviewed.

Are pesticides stored separately from food, feed, or seed?

The MDA recommends at least one pallet width, or at least three feet, of separation of pesticides from food, feed, and seed. Unless specified as prohibited on the label, products can be stored within the same room but in a manner to prevent cross contamination or co-mingling.

Violation: Pesticide was stored on top of grass seed bags in stacks; therefore, stored too close to or not separate from food, feed, or seed.

ORDER/Statement of Completion: Store pesticides separately from food, feed, and seed.

Correction: The facility corrected the violation by moving the seed to a different building.

Unacceptable Storage



Is the pesticide storage area free of open drains?

Pesticides must be stored in a manner to prevent their release in the event of an incident. An open drain potentially allows pesticide to escape into the environment and may cause unreasonable adverse effects.

Violation: Open drain in the pesticide storage area.

ORDER: Cease and desist use of storage area until drain is plugged or pesticides are removed from the area or containment is provided.

Statement of Completion: Provide a means of shutoff for drain in pesticide storage area, move pesticide into an adequate containment area, move the pesticide to another area, or plug the drain(s).

Unacceptable Storage



Pesticide stored in a room with an open drain.

Acceptable Storage



Open drain plugged to safeguard environment.

Are small package pesticides safeguarded as required by the label?

Store small package pesticides in a secure area that prevents people, pets, and wildlife from unauthorized access. Some labels have specific storage requirements. For example, many fumigants must be stored in a secure location, i.e. under lock and key, away from areas occupied by people, and may have storage placard requirements.

Violation: Improper storage.

ORDER/Statement of completion: Store pesticides according to label directions.

Unacceptable Storage



Unacceptable Storage



Both photos above show fumigant stored in violation of the label (in a building with people present and without proper placarding).

Acceptable Storage



The MDA determined this facility met the label requirements for storage by being locked and followed best management practices for storing small package pesticides.

Are wells safeguarded from pesticides in storage?

Individual pesticide containers with a capacity of 25 gallons, or 100 pounds or more must be stored at least 150 feet from a well, unless additional safeguards are provided. Information on additional safeguards which may reduce this setback can be obtained from:

Greg Harding, MDA Facility Management Unit

Greg.Harding@state.mn.us

651-201-6274

Pesticide storage areas with a total combined product volume (cumulative total) of 56 gallons, or 100 pounds or more must be located at least fifty (50) feet from a well.

Are wells safeguarded from pesticide mixing and loading sites?

If the total or cumulative volume of small package pesticide containers/application equipment located at the pesticide mix/load site is greater than 25 gallons, the pesticide containers/application equipment must be located at least 150 feet from a well unless additional safeguards are provided. See above question/answer for more information.

For wells not safeguarded from pesticide storage or mixing and loading sites:

Violation: Required setback between pesticide and well is less than required.

ORDER/Statement of completion: Setback of 150 feet or additional containment must be established.

Is pesticide disposal, rinsate use, and container disposal consistent with label directions?

Triple rinse all pesticide containers. Place the rinse water back into your application equipment and apply as directed by the label. **DO NOT** reuse pesticide containers. Dispose of triple rinsed containers according to label directions. To dispose of fertilizer bags properly, shake the bag vigorously and inspect it to be sure there is no residue left. Once **the entire** product has been removed, the fertilizer bag can be disposed of in the trash.

Violation: Improper disposal of pesticide, rinsate, or container.

ORDER to comply: Dispose of pesticides, rinsate, or containers in a manner consistent with label directions.

Acceptable container disposal



Properly rinsed containers stored prior to disposal.

Are empty containers used only for their intended purposes?

According to the label, pesticide containers cannot be used for other purposes. The potential for harm to food, feed, seed, and many other substances can be prevented by properly handling containers.

Violation: Reuse of pesticide container.

ORDER: Cease and desist using pesticide containers in manner inconsistent with label directions.

Unacceptable reuse of pesticide containers



Pesticide container filled with used oil.



Pesticide container used as seed storage.

Compliance Assistance Visits

Compliance Assistance Visits are part of MDA’s regulatory outreach that happens apart from a routine or misuse investigation. Inspectors check how facilities are using, storing, and handling pesticides and fertilizers. They help educate pesticide applicators, dealers, farmers, and ag workers about how to meet state and federal regulations. You can request a [Compliance Assistance Visit](#) with an [MDA inspector in your region](#) anytime.

Fact Sheets

For additional information and/or examples of small package storage requirements and rinsate management, refer to MDA’s fact sheets, [Pesticide and Fertilizer Storage: Small Package Requirements and Pesticide Rinsate Management](#). Additional requirements must be met to store or use mini-bulk containers (greater than 56 gallons). For more details review: [Pesticide Storage: Mini Bulk Requirements](#)

Additional Enforcement

Due to the potential and actual health and environmental risks associated with the lack of proper storage, disposal, and container management, documented noncompliance may result in additional enforcement, including financial penalties.

Statutory Authority

Follow the links below to read:

[Minnesota Statute 18B.07 Pesticide Use, Application, and Equipment Cleaning.](#)

- Minnesota Statute 18B.07, Subd. 2 **Prohibited pesticide use.**
- Minnesota Statute 18B.07, Subd. 4 **Pesticide storage safeguards.**

[Minnesota Statute 18C.201 Prohibited Fertilizer Activities.](#)

- Minnesota Statute 18C.201, Subd. 1 **Storage, handling, distribution, or disposal.**

Thank You,

Corinne du Preez, Agricultural Advisor/ACI
[Minnesota Department of Agriculture](#)
Pesticide and Fertilizer Management Division
3555 9th St NW, Suite 350
Rochester, MN 55901
Office (507) 206-2883
Corinne.dupreez@state.mn.us

Bulletin 5 Personal Protective Equipment and Pesticide Use 2017

Working with pesticides is hazardous. Protect yourself, and your employees, by ensuring any label required personal protective equipment (PPE) is worn during all pesticide applications.

Read the Pesticide Label Before you Apply

The pesticide label, and any associated labeling, provides PPE safety information specific to each product.



Example: The label information for

Trimec Classic (EPA Reg. # 2217-543)

Personal Protective Equipment (PPE)

All mixers, loaders, applicators and other handlers must wear*:

- protective eyewear,
- long-sleeved shirt and long pants,
- shoes and socks,
- chemical-resistant gloves and
- chemical-resistant apron when mixing and loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

*Applicators may choose not to wear protective eyewear with dilution rates greater (higher) than 5:1 or greater (higher) than 5 parts water to 1 part product.

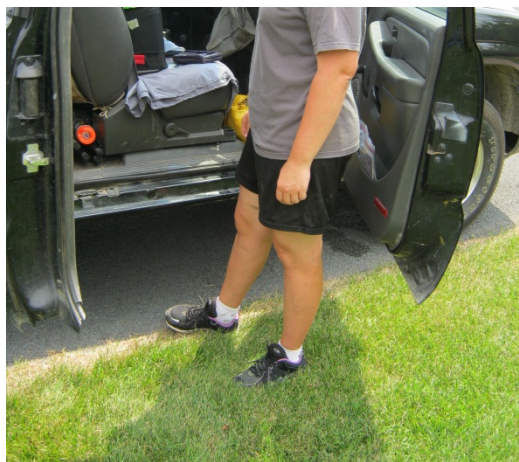
Remember, it is a violation of both federal and state laws to use any pesticide product inconsistent with the label.

MDA Inspections

During an MDA *Use Inspection*, an MDA inspector will stop to observe your pesticide application. If you are not wearing the required PPE specified on the label of the pesticide you are applying, you will be issued an Order to cease and desist the application until the proper PPE is obtained. Examples are noted below.

PPE Violations and corresponding ORDERS

Order to Comply: A person applying pesticide must obtain the PPE required by the label, before applying pesticides (and for this reason before resuming a pesticide application).



Violations: Missing pants, gloves and long sleeves



Violation: Missing gloves and long sleeves



Verified applicator meets all PPE requirements; pants, long sleeves, safety glasses and gloves



Safety glasses: Must include brow and temple protection

Additional Enforcement

Due to potential and actual safety hazards and health risks associated with the lack of proper PPE, documented noncompliance may result in additional enforcement, including financial penalties.

Statutory authority

Follow the link below to read:

[Minnesota Statute 18B.07, Subd. 2. \(a\) \(1\)](#)

Thank you,

Corinne du Preez, Agricultural Advisor/ACI
[Minnesota Department of Agriculture](#)
Pesticide and Fertilizer Management Division
3555 9th St NW, Suite 350
Rochester, MN 55901
Office (507) 206-2883
Corinne.dupreez@state.mn.us

Bulletin 6 Incident Response Plan or Release Response Planning 2017

What would you do if you had a [release or incident](#) at your facility? By pre-planning and practicing for a release or incident you will be better equipped to handle a spill or emergency. New legislative changes to Incident Response Plan requirements were enacted in 2015. These requirements are highlighted below.

What is an incident?

An incident is an event where a threat or actual agricultural chemical (pesticide and/or fertilizer) spill may adversely impact the environment or threaten public safety.



Leak from application equipment



Spill in shop/storage area



Fire



Flood

What to do if an incident or release occurs:

- Immediately report the incident to the Minnesota Department of Agriculture (MDA) by phoning the Minnesota Duty Officer at (800) 422-0798.
- Minimize risks and ensure safety while trying to abate the spill or leak.
- Recover any agricultural chemicals involved in the incident and follow these [clean up tips](#).

Under state law, anyone who has control of, custody of, or responsibility for an agricultural chemical is considered to be a responsible party and must notify the Minnesota Department of Agriculture (MDA) immediately when an incident involving that agricultural chemical occurs. Notify MDA of an incident as soon as possible by calling the 24-hour duty officer at 651-649-5451 (metro) or 1-800-422-0798 (non-metro). The MDA staff person on call will promptly call you back to explain what steps to take to minimize the impact of the release. Generally, these will include the following actions:

1. Secure Site

- Secure a perimeter and keep all non-essential people out of the incident area;
- Do not allow smoking in area;
- Alert firefighters and/or other emergency personnel of precautions as advised by material safety data sheets;
- Arrange off-site evacuation if necessary (this should be done through working with the local officials); and,
- If the leak or spill is indoors, ventilate the area as thoroughly as possible.

2. Abatement

- If it can be done safely, stop further leakage from damaged containers;
- Contain above-ground runoff by placing absorbent pillows, clay, other heavy soil, etc., around liquid spills to limit further spread of spilled ag chemical; and,
- Plug or berm underground waterways (storm sewers, sanitary sewers, etc.).

3. Recovery

- Transfer the remaining contents of each leaking container into a clean empty container of the same type and remove the salvaged container from the contaminated area;
- Separate any containers that have not been affected by the spill; and,
- Arrange to remove, hold, or dispose of pooled contaminated water, soil, etc.

4. Remediation****

- Determine the extent and degree of contamination;
- Develop steps for the final clean-up of the incident;
- Reuse or dispose of the recovered chemicals and/or contaminated materials; and,
- Determine the effectiveness of the clean-up through the collection & analysis of samples

**** Each step of the proposal must receive MDA approval before being implemented

A/so, notify MDA of suspected incidents including the discovery of product-contaminated soils, contaminated wells or surface water, product inventory loss and failed tank or pipeline tests.

Who is required to have a plan?

Some businesses are legally required to develop and maintain an incident response plan. If your business is engaged in one or more of the following, it must establish and maintain an incident response plan:

- Pesticide Dealers;
- Agricultural pesticide dealers;
- Commercial pesticide application;

- Noncommercial pesticide application;
- Structural pest control;
- Storage of (bulk) pesticides that are held in an individual container with more than 55 gallons or 99 pounds;
- Storage of (bulk) fertilizers that are neither packaged nor labelled by a manufacturer.

What is an incident response plan?

- A document you develop to prepare for dealing with pesticide and fertilizer incidents quickly and effectively.
- Describes fertilizer and pesticide storage, handling, disposal, and incident handling practices of your business.

A [Sample Plan](#) is available on the MDA website.

Additional requirements:

The plan must be:

- Updated every three (3) years, or whenever information in the plan becomes out of date, whichever is earlier;
- Reviewed with employees at least once per calendar year and include documentation of training events; and
- Made available to local first responders and documented accordingly.

Additional Enforcement

Due to potential and actual safety hazards and health risks associated with the lack of an incident response plan, documented noncompliance may result in additional enforcement action, including financial penalties.

Statutory authority

Follow the link below to read:

[Minnesota Statute 18B.37, Subd. 4. Incident response plan.](#)

For additional information and/or a short version of an incident response plan, refer to the MDA's fact sheet, [Developing and Maintaining Your Incident Response Plan](#).

Thank you,

Corinne du Preez, Agricultural Advisor/ACI
 Minnesota Department of Agriculture
 Pesticide and Fertilizer Management Division
 3555 9th St NW, Suite 350
 Rochester, MN 55901
 Office (507) 206-2883
Corinne.dupreez@state.mn.us



Bulletin 7 Soil Sampling at Golf Courses for Contamination

Guidance Document 30

The following is Minnesota Department of Agriculture's (MDA) recommended guidance for collection of soil samples at golf courses for potential contamination from past pesticide use and from past storage and handling of pesticides and fertilizers. This guidance is suitable only for sampling at golf courses. Please consult Guidance Document 11, Soil Sampling Guidance, for sampling procedures for all other agricultural chemical contamination.

SAMPLE COLLECTION PROCEDURES

Soil sampling at golf courses for potential contamination from past pesticide use should minimally occur on greens, tee boxes, pesticide mixing, loading and storage areas, and areas used for disposal of grass clippings.

I. COMPOSITE SAMPLES

A. Subsample Collection

During an investigation of potential pesticide contamination from past pesticide use, the MDA usually requires collection of composite samples to characterize a large area or volume of near-surface soil in likely contaminated areas. A composite soil sample consists of several subsamples that are thoroughly mixed together to create one sample for analysis. For investigating potential agricultural chemical contamination, the MDA requests that composite samples be created from equal volume subsamples collected from three to six equally spaced locations within a 15 foot diameter sampling area.

1. For areas potentially impacted from past pesticide use, samples should be collected at three different depths:
 - A. 0– 6 inches;
 - B. 6 inches to 1 foot, and
 - C. 1-2 feet.
2. For mixing, loading and storage areas, samples should be collected at these three different depths:
 - A. 0– 6 inches;
 - B. 2 to 2.5 feet and,
 - C. 4.5 to 5 feet

The exact size and shape of the sampling area may be adjusted to meet site specific conditions.

In general, it will likely be appropriate to composite subsamples from each green and each tee box separately. The exact size and shape of each sampling area should be discussed in a work plan. Regardless of sampling area shape and size, exact subsample locations must be well-documented (see the following section discussing documentation).

All subsamples used to create a given composite sample must be collected from the same corresponding 6 inch to 1 foot depth interval. Do not create a composite sample from subsamples collected over different vertical intervals or a long vertical depth interval (e.g., 0 to 2 feet or 1 to 4 feet, etc.). The MDA requests that surficial composite samples in non-graveled high risk areas be collected from the surface to a depth of 6 inches, and in loose graveled areas from a depth interval of 0 to 6 inches below the base of the gravel. All sample depths must be referenced from the ground surface for sample identification purposes.

B. Creating a Composite Sample

Use a new pair of disposable gloves during creation of each composite sample to prevent cross contamination of the sample. Create a composite sample from the subsamples using the following procedure:

1. combine all of the subsamples in a large clean stainless steel mixing bowl or disposable aluminum pan;
2. decant or drain away any liquids;
3. remove large stones, sticks and vegetation;
4. thoroughly mix the subsamples together with a clean stainless steel or disposable spoon;
5. transfer an adequate volume of the composite sample to a lab clean amber glass jar with a

In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651/201-6000. TTY users can call the Minnesota Relay Service at 711 or 1-800-627-3529. The MDA is an equal opportunity employer and provider.

- Teflon lined lid or other laboratory supplied sample container; and
6. wipe the threads, then cover, label and seal the container.

II. DUPLICATE SAMPLES

The MDA generally requires collection of duplicate samples: one for every ten samples or less submitted for laboratory analysis. A duplicate sample must be submitted to the laboratory as a "blind" sample and be reported to the MDA as a duplicate sample. Also, the MDA will occasionally request split samples so that independent or additional analyses can be conducted by the MDA.

A duplicate sample may be created by splitting, collecting a field duplicate, or cutting a core down the vertical axis. Split samples are created by sieving the soil through a laboratory cleaned number ten (#10) slot sieve and thoroughly mixing the sieved soil prior to splitting. Duplicate soil samples created from soil that has been mixed but not sieved must be identified as "field duplicates" and are useful as an analytical confirmation method and should provide similar analytical results. It is often difficult to create totally homogeneous split soil samples in the field, particularly for wet or fine grained soil and it may not be possible to split cohesive soils (clay) in the field. As an analytical confirmation method, cut clay cores down the vertical axis into halves for separate analysis. Core halves are not considered split samples.

III. EQUIPMENT AND DECONTAMINATION

Re-usable sampling equipment must be made of glass, stainless steel, Teflon, or other inert material. Clean re-usable, shovels, picks, hand augers, split tube samplers, stainless steel bowls or spoons and any other equipment that comes in direct contact with the sample, between each sample. All subsamples collected for a single composite sample are considered one sample unless the subsamples are used for both discrete and composite samples. Clean sampling equipment using the following procedure:

1. using a non-phosphate soap and clean potable water solution, wash the equipment to remove all visible soil particles, changing the wash water at regular intervals or between borings when using a drill rig. Do not use water from contaminated or onsite wells. The wash basin must be steel or another inert material, not plastic;
2. rinse with potable water to remove all soap;
3. rinse with acetone (preferred) or methanol. Wiping the equipment with an acetone or methanol saturated towel is acceptable but dispose of the towel after each use;

4. triple rinse with deionized water. Deionized water can usually be obtained from the laboratory. If deionized water is not available, distilled water may be used;
5. if time allows air dry; and
6. wrap in aluminum foil or other suitable material, or store on a clean surface in a protected area until used.

Alternatively, disposable plastic and PVC materials may be used. Replace disposable equipment between samples.

For drilling equipment, clean all downhole sampling equipment (e.g., split-spoon) as described above, between samples. Other downhole drilling tools and auger flights must be cleaned as described above, or by steam cleaning or high pressure hot water wash between each boring.

Laboratories can provide guidance on method appropriate sampling containers. Sampling containers may be purchased directly from laboratory equipment and supply vendors. However, most commercial laboratories will provide them when they are conducting the analyses. In general, canning jars, plastic jugs, paper bags, plastic bags, etc. purchased at local grocery stores, hardware stores, etc., are not considered appropriate sampling containers.

IV. DOCUMENTATION, PACKAGING AND SHIPPING

Keep a precise record of the distance from each sample location (including individual subsample locations within each composite sampling area) to two permanent immobile objects so that sampling areas can be easily and exactly relocated. In addition, photographs - annotated with the date, photographer, sample number and orientation - of the sample area, taken after the samples have been collected, are recommended.

Include the following information on the sample label:

1. the site name;
2. sample location and depth;
3. date collected;
4. analysis requested; and
5. name of the person collecting the sample.

For samples that will be submitted to an MDA approved commercial laboratory, MDA staff will usually approve a procedure whereby individual sample bottles are stored and transported to the laboratory in a second sealed container such as a cooler. Use a chain of custody procedure for all samples. Include the sample number, location and depth for all samples on the chain of custody form.

Submit the chain of custody form to the laboratory with the samples.

Keep the samples cool. Clean freezer packs are recommended. If ice is used it must be double wrapped in plastic to keep the sample labels and seals from getting wet. For short travel times in moderate temperatures cooling is not required, however, the samples must not be allowed to overheat.

Soil samples which are not analyzed immediately, (i.e., within a few days), may be stored frozen for up to six months under proper chain of custody. Do not dispose of stored samples without MDA staff approval, including the portions of samples remaining after analysis.

All samples must be collected, transported and stored in accordance with all federal and state applicable rules, statutes or regulations. Any sample being shipped by common carrier or through the mail must comply with the United States Department of Transportation Hazardous Materials Regulation (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring compliance with applicable regulations.

V. ANALYTICAL PARAMETERS

Soil should be tested for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver and other pesticides applied to the greens and tee boxes including older organochlorine pesticides such as DDT, heptachlor and chlordane. Historical pesticide application records should be compiled, reviewed and used as a guide to select analytical parameters.

Commercial laboratories proposed for these analyses should have Quality Assurance/Quality Control (QA/QC) plans and analytical methods that are pre-approved by MDA (see Guidance Document 24 Fixed Base Laboratories Quality Assurance/Quality Control Plans). A List of commercial laboratories that have approved QA/QC Plans and analytical methods on file with the MDA is available ([GD23 Pre-approved Commercial Laboratories: Fixed Base and Mobile](#)).

Alternatively, for metals analyses, the commercial laboratory should be accredited for metals in soil by the Minnesota Department of Health (MDH) through the MDH Environmental Laboratory Accreditation Program.

VI. GENERAL INFORMATION

Safety is always the highest priority at any site. If for any reason the procedures discussed in this or other MDA guidance documents cannot be implemented safely, MDA staff will consider proposed alternative procedures.

MDA staff prefer to review all investigation and cleanup activities at golf courses prior to their implementation. The MDA strongly recommends that owners and developers and other interested parties enter the MDA's Agricultural Voluntary Investigation and Cleanup (AgVIC) program for MDA staff review, guidance, and verification of appropriate steps taken to address potential contamination.