

Pesticides in Drinking Water

This brochure describes the presence of pesticides in Wisconsin's drinking water supplies, information on basic requirements of public water supplies, recommendations for private well owners, potential health effects and where to find out more detailed information

What are pesticides and how are they used?

A pesticide is any substance used to control or repel a pest or to prevent the damage that pests may cause. Pests can be insects, rodents, unwanted plants (weeds), fungi, or microorganisms like bacteria and viruses.



The term "pesticide" includes insecticides, herbicides, fungicides and other substances used to control pests. Some examples of pesticide types and their uses include:

- **Algaecides** - Control algae in lakes, canals, swimming pools, etc.
- **Anti-microbials** - Kill microorganisms (such as bacteria & viruses).
- **Disinfectants/Sanitizers** - Kill or inactivate disease-producing microorganisms on inanimate surfaces.
- **Fungicides** - Kill fungi (including blights, mildews, molds and rusts).
- **Fumigants** - Produce gas or vapor intended to destroy pests in buildings or soil.
- **Herbicides** - Used to control unwanted plants (weeds). Herbicides may be combined with other materials such as "weed and feed" products.
- **Insecticides** - Kill insects and other arthropods.
- **Nematicides** - Kills nematodes (nonsegmented roundworms) that infect roots of certain crops
- **Pheromones** - Biochemicals used to disrupt the mating behavior of insects.
- **Repellents** - Repel pests, including insects (such as mosquitoes) and birds.
- **Rodenticides** - Control mice, rats and other rodents.

What are some pesticides I might find in my home?

Many household products are pesticides. Some common products are:

- Cockroach sprays and baits.
- Insect repellents for personal use.
- Rat and other rodent poisons.
- Flea and tick sprays, powders, and pet collars.
- Kitchen, laundry, and bath disinfectants and sanitizers.
- Products that kill mold and mildew.
- Some lawn and garden products, such as weed killers or "weed and feed."
- Some swimming pool chemicals.



How can I be exposed to pesticides?

Pesticides are used in a variety of ways. They can therefore be inhaled, absorbed or ingested, depending upon the application or use.

- The body can absorb products containing pesticides that are applied purposely or accidentally through the skin.
- People who regularly use pesticides in large quantities, use them in an area without proper ventilation, or fail to follow other product precautions, are more likely to accidentally inhale pesticides.
- Pesticides can be ingested by eating foods which contain trace amounts.
- Pesticides can be ingested via contaminated drinking water.

How do pesticides get into drinking water supplies?

When pesticides are spilled, disposed of, or applied on the soil, some amount can be carried into the surrounding surface water or groundwater. These products move with the water, and can eventually enter into nearby drinking water wells, or surface water intakes.

The Wisconsin Department of Natural Resources Bureau of Drinking Water & Groundwater would like to thank the Groundwater Coordinating Council (GCC) Education Subcommittee for their part in the development and editing of this publication. For more information on the GCC, its member organizations and programming, please visit wisconsin.gov. Choose "Government," "State Agencies," followed by "List of Agencies" then select "Groundwater Coordinating Council."

Wisconsin Department of Natural Resources
Bureau of Drinking Water & Groundwater

What makes a well vulnerable to pesticide contamination?

Several factors can affect a well's vulnerability to pesticide contamination. These include:

- **Location.** Wells located on or near agricultural areas, or near pesticide-related industries.
- **Quantity.** Larger spills or applications tend to affect a wider geographic region and can result in higher levels of contamination than smaller spills.
- **Well depth and construction.** Since contaminants are seeping from the ground surface, shallow wells are more likely to be affected than deep wells.
- **Soil type or Geology.** Areas with thin, highly porous or sandy soils, and have shallow groundwater aquifers or fractured bedrock (Karst topography), are most vulnerable to contamination. Clay soils can absorb and significantly slow down the movement of some contaminants.
- **Time.** Groundwater usually moves very slowly. It can take years for pesticides to reach a well. Wells that are safe today may eventually become contaminated by a spill that happened in the past. This is why it is very important to test water supplies regularly.



What are the health risks of pesticides?

State health advisory levels have been established for pesticides found in Wisconsin water supplies. These advisory levels are calculated from available toxicological studies and are set to protect average exposed populations. Potential health effects in people consuming pesticides above the health advisory levels depend upon the kind and amount of pesticide, how long the person has been consuming the water, and the person's overall health.

Acute pesticide poisoning symptoms may include headaches, dizziness, stomach and intestinal upset, numbness of extremities, spasms, convulsions and heart attacks. Wisconsin has no confirmed cases of acute pesticide poisoning from contaminated drinking water as of this publication's printing date. (See the publication number on back of this brochure for reference.)



While the long-term or chronic effects of pesticides in humans are not completely understood, some pesticides are suspected to cause increased susceptibility to certain diseases, including cancer. When more than one pesticide is present, there may be additional effects from the combination of chemicals to consider. Your local public health department or family doctor are the best resources for determining if you may have an illness related to pesticide exposure.

How can I find out if my water is safe to drink?

All public water systems are required to notify consumers if any contaminant, including pesticides, is detected at concentrations above the maximum contaminant level (MCL). In addition, public water systems that serve residential populations are required to complete a Consumer Confidence Report (CCR) each year. If you would like to view your community's CCR, contact your local water supplier or visit the Wisconsin Department of Natural Resources (DNR) website at dnr.wi.gov.

Private well owners are responsible for the safety of their own water supply. As always, if you notice a change in taste, color or odor, you may want to use an alternate safe drinking water source until you can have your water tested.



In addition, private well owners should have their water tested if they suspect pesticide contamination. There are a number of laboratories statewide that can provide drinking water sampling materials and instruction. A list of certified labs is available online at dnr.wi.gov or check your local yellow pages.

What pesticides are most frequently found in contaminated drinking water?

Based on Department of Agriculture, Trade and Consumer Protection monitoring surveys, the most frequently detected pesticides in Wisconsin are:

- Chemical breakdown products of metolachlor (*Dual*).
- Atrazine and its chemical breakdown products.
- Chemical breakdown products of alachlor (*Lasso*).

What can be done if a community well is contaminated with pesticides?



If a community well is contaminated with pesticides, consumers will be notified of the problem by the water system owner and given instructions on what to do. Typically, the water system will be required to drill a new well in an uncontaminated area. Communities can also opt to treat the water, to reduce the levels of pesticides to an amount below the health advisory level. However, the cost of equipment, operation and maintenance can be very high. Water quality must also be monitored regularly to assure that the treatment continues to work.

What solutions are available for private well owners?

Private well owners should have their water tested if they suspect contamination. Owners whose wells have pesticides above the maximum contaminant level (MCL) should contact the regional office of the DNR for assistance.

In most cases owners will be advised to replace the well with a new, safe water supply. Depending upon the specific pesticide and the amount of contamination, the well owner may be able to purchase a home treatment system.

Because treatment systems vary in their ability to remove different types of contaminants, well owners should be wary of sales claims. The Wisconsin Department of Safety and Professional Services (DSPS) can provide information about approved home treatment systems for removing select contaminants. If the well serves the public, such as a restaurant or daycare, then DNR approval is required for the specific installation. Low-income well owners may be eligible for a grant to pay a portion of the costs of establishing a safe water supply. Eligibility guidelines and applications are available online at dnr.wi.gov. Search: well compensation grant.

Where can I get more information?

Information specific to pesticides in drinking water and groundwater resources - Visit the DNR website at dnr.wi.gov. Search: drinking water or groundwater.

You may also contact the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) at (608) 224-4500 and ask to speak to a pesticide specialist, or visit the DATCP website at datcp.state.wi.us.

Information on approved home drinking water treatment devices for pesticides - Contact the Wisconsin Department of Safety and Professional Services (DSPS) at (608) 267-9421 or email DSPPSBPIbgTech@wi.gov. You may also visit their website at dsps.wi.gov/Pages/Programs/Plumbing/Default.aspx. Click on Plumbing Products. Select one of the 3 search options. *Please note that community water systems must also have the installation of any treatment device approved in advance by DNR staff.*

Information specific to pesticides and health - Talk to your family doctor or contact your local public health department. You may also contact the Wisconsin Department of Health Services, Division of Public Health at (608) 266-1120 or visit them on their website at dhfs.state.wi.us.

Information on drinking water testing or sampling procedures - There are a number of laboratories statewide that can provide drinking water sampling materials and instruction. A list of certified labs is available online at dnr.wi.gov, Search: lab lists. You may also check your local yellow pages.

Information on the quality of your public water system - Your local water supplier prints a special report on the quality of your public water system's drinking water. Contact your local water supplier. Go to dnr.wi.gov, Search: drinking water quality. Click on the first option available in the list. A query, or search, can then be made by city or individual system.

Contact Us

Customer Service Staff are here to assist you.

How may we help you?

Call Toll Free 1-888-WDNRINFO (1-888-936-7463)

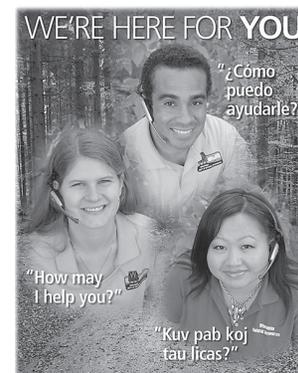
Or, go to dnr.wi.gov, Search: Contact

Click on one of the following options:

Chat with customer service.

Call a representative.

Email your question.



Toll free hotlines

Violation Hotline:
1-800-TIP-WDNR or
phone 1-800-847-9367

Confidentially report
suspected wildlife,
recreational and
environmental
violations.

Emergency Spill Hotline:

1-800-943-0003 phone

Bilingual Services are available Drinking Water & Groundwater Program

101 S. Webster
P.O. Box 7921
Madison, WI 53707-7921
(608) 266-1054

For more information, go to dnr.wi.gov,
Search: Drinking Water

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