

# **PESTICIDES & WELL WATER**

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## **What are Pesticides?**

Pesticides consist of a large group of chemicals that are used in agriculture and residential settings to control plant and animal infestation. Pesticides can range from herbicides (to control weeds) and insecticides (insects) to nematicides (worms) and fungicides (molds, mildews, rusts). Pesticides are commonly applied on farms, fruit orchards, golf courses, and residential lawns and gardens. Many pesticides are also used inside homes and other buildings.

Pesticides can enter your drinking water through several avenues. Surface water runoff can carry pesticides from agricultural fields, golf courses, and residential properties into lakes, rivers, and reservoirs. Rain and snow can carry pesticides through the soil into groundwater. Accidental spills and leaks from improperly applied or disposed of pesticides can seep into well water.

Some pesticides are soluble in water and some pesticides are insoluble. Pesticides that are soluble dissolve easily and will travel with water as it moves in the environment which increases the risk of reaching groundwater. They are more likely to be absorbed by the roots of plants but are not likely to be absorbed into our bodies through skin contact. Pesticides that are insoluble in water remain separate (similar to how oil and water remain separate). Insoluble pesticides are more likely to stick to soil in the environment and do not travel as much with water as it flows. They are also not likely to be absorbed by plant roots but can enter the skin with longer exposure.

## **What are the health effects of Pesticides?**

The potential health effects of pesticides are dependent on the type and amount of pesticide, how long the person has been consuming the water (exposure), 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.

The levels of pesticides typically found in drinking water are usually quite low. However, the health effects from exposure to small amounts of pesticides in drinking water over a long period of time are not well understood and need to be studied further.

The U.S. Environmental Protection Agency (EPA) does have maximum contaminant levels (MCLs) for many but not all chemicals in pesticides. Some states have stricter standards for those regulated contaminants. Well owners should follow state and local recommendations if available. If none are available, well owners should use EPA MCLs as guidelines to treat the water and prevent any health-related effects.

## How Do I Test for Pesticides?

There are several different laboratory tests that analyze for pesticides in drinking water. Each of these tests can detect different types of pesticides. Because these tests can be expensive, you should test your well water for the pesticides you have reason to believe may be contaminating your well. An initial test for nitrates can indicate a need to further test for pesticides but is not a guarantee. Contact your state or local health department or use our [interactive map](#) for a list of state-certified laboratories in your area that can test for pesticides.

## What is the Treatment for Pesticides in Drinking Water?

The following steps may help you evaluate the potential for pesticide contamination of your well and select a treatment option:

### Evaluate the proximity of your well to areas of pesticide use

- Contact your local environmental office to see if wells in your area have been sampled and if pesticide contamination was detected.
- Define location of areas where pesticides of concern have been used. Wells located on or near farms are more likely to become exposed to pesticides than in other areas.
- Determine general direction of groundwater movement from these areas. Groundwater flow generally follows surface contours, moving from higher areas toward lower areas such as rivers, lakes, and marshes.
- The potential for pesticide contamination in your well can be higher if pesticides are detected in other nearby wells or if your well is located within a mile downhill from areas where pesticides are used on coarse, permeable soils.

### Evaluate the construction of your well

- Consult with a licensed well contractor about having your well and well casing inspected for sanitary construction.
- Find the depth of the well into the water table (this is approximately equal to the depth of standing water in the well).
- Shallow wells and wells with less than 30 feet of casing have a greater potential for contamination. However, even properly constructed deep wells may become contaminated under certain conditions.

### If your well tests positive for pesticide contamination

- Immediately switch to bottled water until the problem is solved.
- Ask your licensed well contractor if you should drill a deeper well or pursue a water treatment option.
- Treat the water with either a granulated activated carbon (GAC) filter system or a reverse osmosis system.
- To avoid pesticide contamination, practice informed and careful pest control. Pesticides should be properly used, stored, and disposed of in accordance with manufacturer's instructions. Before hiring a pesticide company, read our [wellcare® information sheet on Proper Use and Disposal of Pesticides and Fertilizers](#).

## For More Information on Pesticides & Well Water

Contact your licensed well contractor, local health department, or the wellcare® Hotline for more information on Pesticides and Well Water.



## Information to help maintain and protect your water well system:

wellcare® is a program of the [Water Systems Council \(WSC\)](http://www.watersystemscouncil.org). WSC is the only national organization solely focused on protecting the health and water supply of more than 13 million households nationwide who depend on private wells.

This publication is one of more than 100 wellcare® information sheets available FREE at [www.watersystemscouncil.org](http://www.watersystemscouncil.org).

Well owners and others with questions about wells and well water can contact the wellcare® Hotline at 1-888-395-1033 or visit [www.wellcarehotline.org](http://www.wellcarehotline.org) to fill out a contact form or chat with us live!

## JOIN THE WELLCARE® WELL OWNERS NETWORK!

By joining the FREE wellcare® Well Owners Network, you will receive regular information on how to maintain your well and protect your well water.

Contact us at 1-888-395-1033 or visit [www.wellcarehotline.org](http://www.wellcarehotline.org) to join!