

# wellcare<sup>®</sup> information for you about **Pesticides**

## **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), insecticides (insects), nematocides (worms) and fungicides (molds, mildews, rusts). Pesticides are commonly applied on farms, fruit orchards, golf courses and residential lawns and gardens. Many pesticides also are 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. Improperly disposed pesticides also can be carried through soil to groundwater. And improperly applied pesticides for termites can seep into well water, especially if the well is close to the house or the well casing is cracked.

Some pesticides do not break down easily in water and can remain in the groundwater for a long period of time. The insecticide DDT, though banned for nearly 20 years, can still be found in trace levels in some groundwater.

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

The potential health effects of pesticides 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.

The levels of pesticides typically found in drinking water usually are quite low and would not be likely to cause harmful health effects. 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.

There are approximately 50,000 different pesticide products, composed of more than 600 active ingredients, used in the United States. The U.S. Environmental Protection Agency (EPA) is working on reevaluation of all pesticides registered before 1972 to bring them up to modern health standards. EPA also requires extensive testing of new products before they come on the market.

## **How do I test for Pesticides?**

There are several different laboratory tests that look for pesticides in drinking water. Each of these tests can detect different kinds of pesticides. Because these tests can be expensive, you should test your well only for those pesticides you have reason to believe may be contaminating your well. A first test for nitrates can indicate a need to test further for pesticides (see below). Contact your local health department for a list of state-certified laboratories in your area.

Report any test results that exceed the EPA's maximum contaminant level to your local health department. They will be able to investigate the source of the contamination and see if other wells around you are also contaminated.

## **What is the treatment for Pesticides in drinking water?**

The Cornell University Cooperative Extension\* offers the following steps to 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**

- Determine if wells in your area have been sampled and if pesticide contamination was detected.
- Determine 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 probably is 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

- Check with a water well professional about having your well and well casing inspected for sanitary construction.
- Determine the depth of the well into the water table. (This is approximately equal to the depth of standing water in the well.)
- Shallow wells, such as those with less than 30 feet of casing or less than 10 feet of standing water in the well pipe, have a greater potential for contamination. However, even properly constructed deep wells may become contaminated under certain conditions.

### Test for nitrate contamination

- High nitrate levels often are found in wells with pesticide contamination, although low nitrate levels do not assure absence of pesticides. Your local health department or Cooperative Extension office can provide information on how to get your water tested.

### If your well tests positive for pesticide contamination

- Immediately switch to bottled water until the problem is solved.
- Ask your well professional 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, make sure that the applicator is state-certified and follows state and federal handling and disposal guidelines.

### For more information about Pesticides in drinking water

Nancy M. Trautmann and Keith S. Porter, Center for Environmental Research, and Robert J. Wagenet, Department of Agronomy, Cornell University, *Pesticides: Health Effects in Drinking Water*, <http://pmep.cce.cornell.edu/facts-slides-self/facts/pes-heef-grw85.html>

New Jersey Department of Health and Senior Services Consumer and Environmental Health Services, *Facts: Pesticides in Drinking Water*, [www.state.nj.us/health/eoh/hhazweb/pest.pdf](http://www.state.nj.us/health/eoh/hhazweb/pest.pdf)

Wisconsin State Laboratory of Hygiene, Environmental Health Division, *Pesticides in Drinking Water*, [www.slh.wisc.edu/ehd/pamphlets/pesticide.php](http://www.slh.wisc.edu/ehd/pamphlets/pesticide.php)

### For more information on your drinking water

The following sites provide up-to-date information on efforts to protect drinking water supplies and steps you can take as a private well owner:

NSF International, [www.nsf.org](http://www.nsf.org) / Water Quality Association, [www.wqa.org](http://www.wqa.org)

### For more information about wells and other wellcare® publications

wellcare® is a program of the Water Systems Council (WSC). WSC is a national nonprofit organization dedicated to promoting the wider use of wells as modern and affordable safe drinking water systems and to protecting ground water resources nationwide. Well owners and others with questions about wells or well water can now call the new wellcare® hotline at 888-395-1033 or visit [www.watersystemscouncil.org](http://www.watersystemscouncil.org)



This publication was developed in part under Assistance Agreement No. X-82849101-4 awarded by the U.S. Environmental Protection Agency. It has not been formally reviewed by EPA. The views expressed in this document are solely those of WSC. EPA does not endorse any products or commercial services mentioned in this publication.