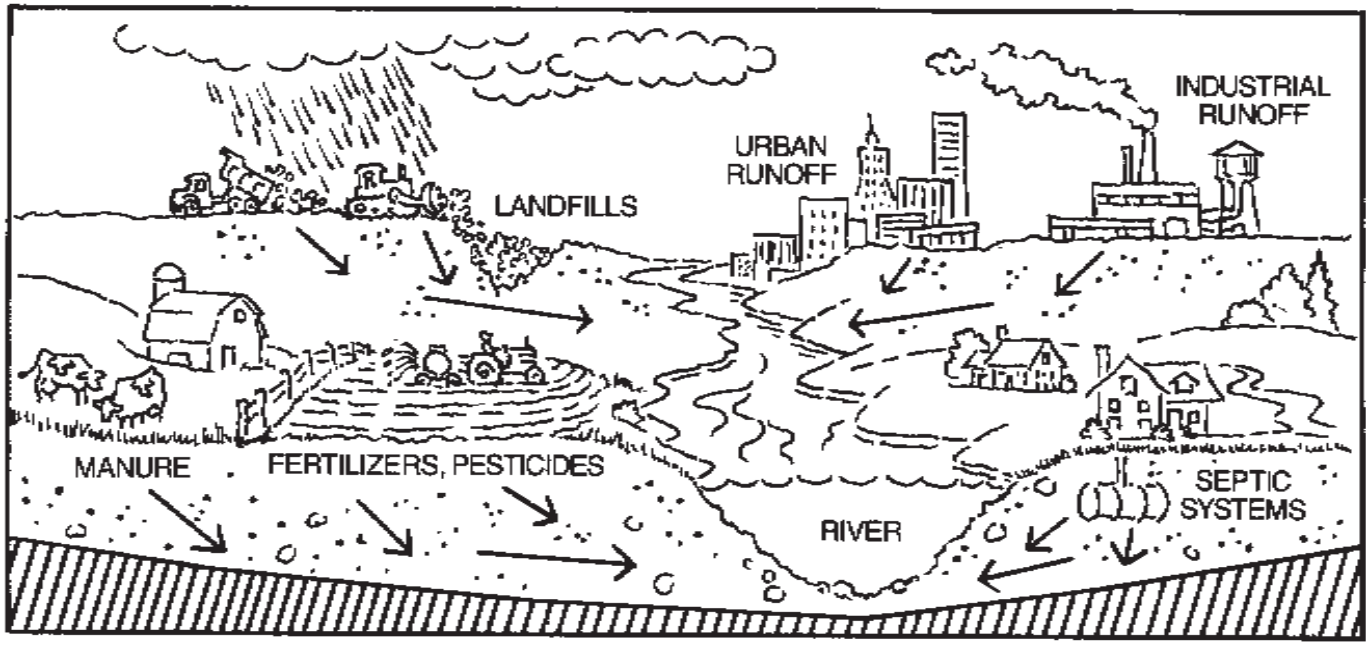
Protecting Groundwater Is Everyone's Business

We All Live Downstream



Potential Sources of Groundwater Contamination

What is Groundwater?

Groundwater is water found below the earth's surface. It is stored or transmitted through pores and channels in the soil and underlying bedrock. Groundwater is mainly supplied by precipitation that has infiltrated the soil and bedrock. Wells are drilled into groundwater and springs are fed by groundwater.

Surface water, such as streams, lakes, and oceans feed into or draw on groundwater. Most groundwater eventually re-emerges as surface water.

Groundwater pollution is caused by many sources including:

- Improper use and over-application of herbicides and pesticides;
- Malfunctioning septic tanks;
- Improper disposal of household wastes such as old paint, cleaners, insect and weed controls, hobby chemicals, used motor oil, and automobile antifreeze.

Why is Groundwater Important?

Groundwater is an important water source in many regions including urban and rural areas. Groundwater supplies nearly half of all households and is the primary source of water used for agricultural irrigation in the United States.

Groundwater Contamination

Traditionally, well and spring waters have had the images of being exceptionally pure, filtered by the soil, and unaffected by contamination. We have learned through painful experience these beliefs can be inaccurate because soil cannot adequately filter many contaminants.

Many land surface activities, such as illegal industrial waste disposal, improper application of agricultural chemicals and fertilizers, inadequate urban stormwater management practices, and accidental spills can leak substances into the ground. Once in the ground, the substances move downward towards the groundwater.

Some nutrients in water, such as phosphorus, are filtered and absorbed by soil before reaching the groundwater. Other nutrients, such as nitrogen, are soluble and cannot be absorbed by soil particles. Soluble nutrients are

likely to contaminate groundwater. Researchers have found that groundwater nutrients can also contaminate streams, lakes and areas downstream, such as the Chesapeake Bay.

Bodies of water like the Chesapeake Bay can tolerate a certain amount of nutrients. In fact, without nutrients aquatic life could not exist. Nutrient overloads, however, can produce algae blooms.

As a bloom grows, it covers the water's surface, preventing sunlight from reaching bottom-dwelling plants and animals and causing death. When algae blooms decay, large amounts of oxygen are used, depleting the water's oxygen supply and affecting even more aquatic plants and animals.

In addition to nutrient overloads, toxic household products including cleaners, pesticides, and herbicides can also enter groundwater supplies, causing problems for plants, animals, and humans.

Groundwater Protection

Once groundwater is contaminated, it usually takes a very long time for it to become pure. Natural processes that can help remove contaminants from surface water, such as atmospheric losses and breakdowns caused by sunlight and microorganisms, usually do not occur in groundwater. Slow water movement and cold temperatures also hinder the purification of groundwater.

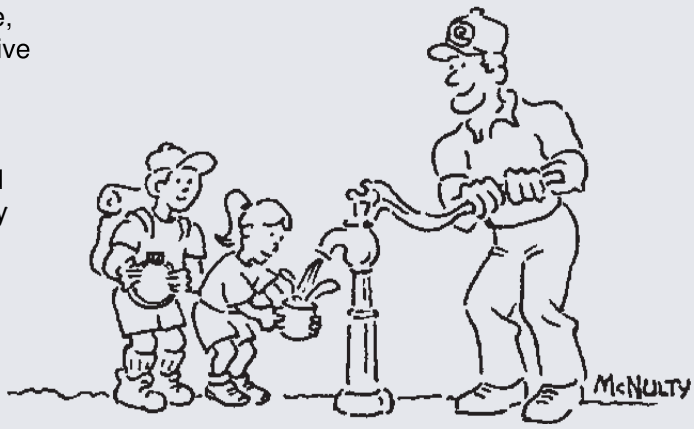
Prevention is the key to protecting groundwater quality. Once valuable groundwater supplies become contaminated, cleanup options are limited, extremely expensive, and time consuming.

Resources

For additional information on groundwater contamination and other land and water conservation concerns, contact your county conservation district office.

How Can You Help to Protect Groundwater?

- Properly dispose of household wastes and poisons. Never dump these substances down the drain -- including storm drains!
- Inspect your septic system every three to five years. Pump out the septic system regularly so it doesn't overload the drain field.
- Use fertilizers properly. Reduce excess nutrients by following soil and manure test results. Implement a Nutrient Management Plan on your farm.
- Follow pesticide application, storage, and disposal directions. Try alternative practices such as "Integrated Pest Management."
- Make sure wells are properly sealed and cased. Locate wells uphill, away from potential pollutants.
- Never use sinkholes as a "dump!" Plant tree, shrub, and grass buffers around sinkholes.



Revised 8/04