

Keeping our ground water clean

Half of all Americans, including 95 percent of rural communities, get their household water supplies from underground sources of water, also known as groundwater. Groundwater is also used for about half of the nation's agricultural irrigation and nearly one-third of the industrial water needs. This makes groundwater a vitally important national resource.

How does ground water become contaminated?

Groundwater contamination can originate on the ground's surface or in the soil above or below the water table. Where a contaminant originates is a factor that can affect its actual impact on ground water quality. For example, if a contaminant is spilled on the surface of the ground above the water table, it may have to move through numerous layers of soil and other underlying materials before it will reach ground water. As the contaminant moves through these layers, a number of processes occur that lessen the eventual impact of

the substance when it finally reaches the groundwater. These processes include: filtration, dilution, oxidation and biological decay. The effectiveness of these processes is also affected by the distance between where the contaminant is introduced and the ground water. The time it takes the substance to reach the ground water is determined by properties of the soil and rock above the ground water. The longer it takes contaminants to reach the ground water table may allow for the breakdown of pollutants.

What substances contaminate groundwater?

A significant number of groundwater problems stem from man's activities. Contamination can be introduced into groundwater from a variety of sources, including:

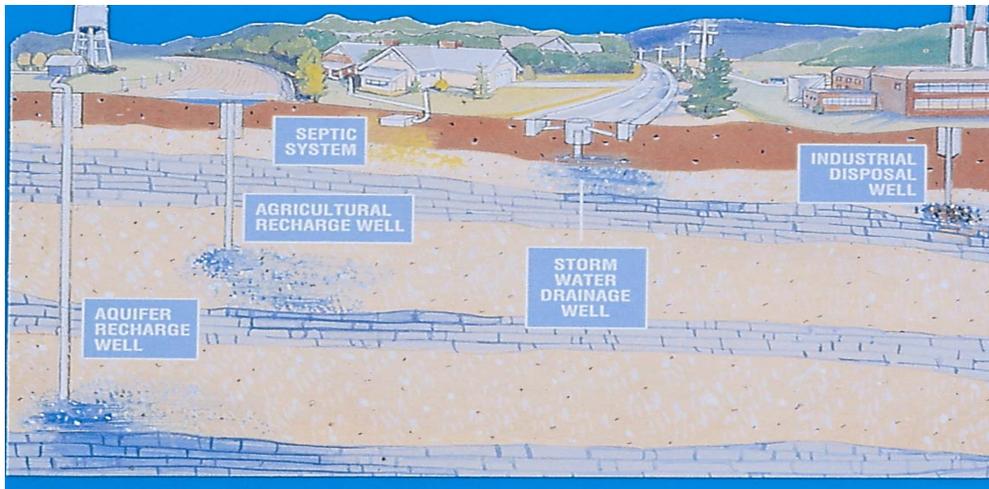
Accidents and illegal dumping.

Accidents can result in ground water contamination. Accidents involving chemicals can occur during transportation, use and storage. Frequently, the automatic response to a spill is to flush the area with water to dilute the chemical into the soil around the spill site, allowing it to work its way down to the ground water. In addition, there

are numerous instances of ground water contamination caused by illegal dumping of hazardous or potentially harmful wastes. These include residents who dump used oil, antifreeze and other household chemicals on soil, in gutters and in utility vaults.

Almost 2 billion pounds of hazardous waste are generated each year in our homes from household cleaners and chemicals. Americans use nearly 1.3 billion gallons of motor oil, but less than one-half is reprocessed by recyclers. Many people use old motor oil and gasoline to kill weeds and fire ant beds. Motor oil, poured down sewer drains or on the ground, can contaminate surface and ground water. One gallon of gasoline can contaminate an estimated 750,000 gallons of water. Gasoline contains more than 200 different chemicals. One of those chemicals, benzene, has a federal drinking water standard of only 5 parts per billion (ppb), but humans can't detect it until levels reach 1700 ppb.

Acceptable methods of disposal would be to take used motor oil, gasoline and other automobile fluids to service stations and retail stores that recycle. Household batteries, paints, solvents, automobile fluids, mothballs, paint strippers, and most polishes may be taken to a hazardous waste collection center.



What to do to protect our groundwater

Fertilizers and pesticides. Agricultural activities can contribute to groundwater contamination with the millions of tons of fertilizer and pesticides spread on the ground, and from the accumulation and disposal of livestock wastes. More pesticides contaminate water than any other substance and we use more than one billion pounds each year.

Find alternatives to harmful, toxic pest killers for your garden and lawn. Geraniums for example repel Japanese beetles, garlic and mint repel aphids, and marigolds repel whiteflies. Consider insect-resistant crop varieties and spot-treat insect infestations when possible. Apply lawn fertilizers and weed killers twice a year in the early spring and fall. Follow the directions on the label and never pour unused chemicals into utility vaults, storm drains or onto the ground.

Septic tanks and leaching fields. In addition, many homes have septic tanks and leaching fields. Leaching fields are designed to discharge to groundwater. It is important not to pour toxic cleaners, paint thinners or chemical drain cleaners into these on-site sewage systems. Household chemicals can destroy the bacteria that break down organic material in your septic tank. The fluids will then discharge to groundwater through the leaching field. Monitor the septic tank annually, and have a reputable contractor pump it out every two to three years- or more frequently, if needed.

Wells. Open and unused domestic wells also pose a threat to groundwater because they provide a direct avenue to groundwater. Domestic or abandoned wells should not be used to dispose of unused paint, paint thinners, household chemicals or automobile fluids.

- Develop water-wise habits and use only the water you need.
- Find alternatives to harmful, toxic pest killers for your garden.
- Find alternatives to toxic household cleaners, such as vinegar and baking soda.
- Take used household batteries, paints, solvents, automobile fluids, mothballs, paint strippers, and most polishes to a hazardous waste collection center. These products can pollute water if not disposed of properly.
- Take your used motor oil and other automobile fluids to service stations and retail stores that recycle.
- Find draught tolerant plants, grasses, and ground coverings that are adapted to the local climate and don't need a lot of additional water.
- Properly close abandoned domestic and irrigation wells.

For more information, please contact:



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