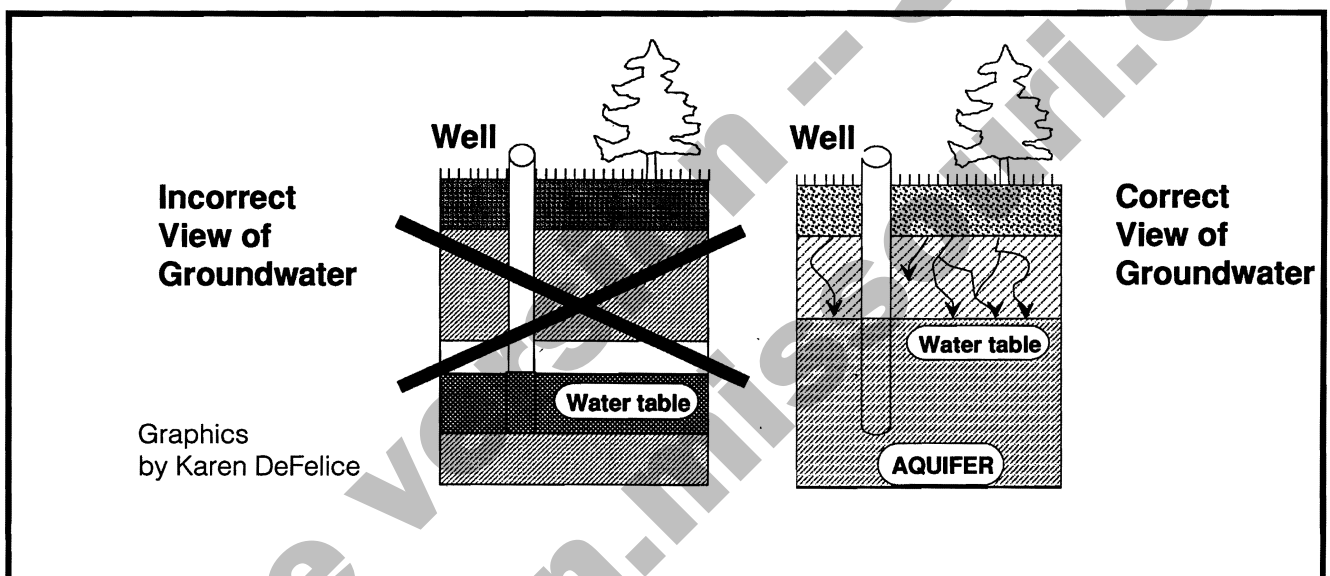




– Nitrogen in the Environment – Aquifers and Soil Filter Effect

Darryl Buchholz, Extension Agronomy

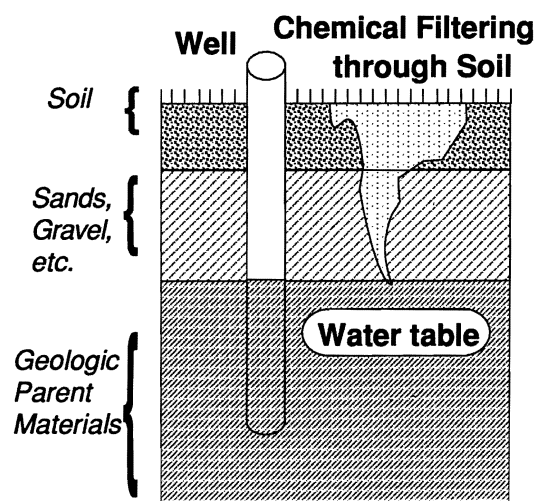


Groundwater is like a very large, saturated underground sponge made of sands and gravels. Water seeps through this sponge at varying rates, depending on the permeability of the sands or gravel. Water filters down through the soil until it reaches the **water table**. The water table indicates the top level of groundwater, or **aquifer**.

Aquifers may be present very near the ground surface or more than 1,000 feet down. Factors that affect the potential for contamination of groundwater include: the depth to the water, soil type, geology of the land, together with how rapidly waters from the surface can reach the groundwater.

Chemicals in soils may eventually show up in groundwater at some place or time. However, not all materials end up in groundwater and not all the materials that do get into it are in hazardous forms.

Soil Filter Effect



Groundwater contamination only becomes a problem when chemicals

- are present in large enough quantities,
- dissolve in water and
- leach far enough through soil to reach the groundwater in a harmful contamination.

This depends on the type of material and the soil type. Soils such as clay can attract and hold large amounts of chemicals. Chemical materials can be changed through soil microbial and chemical reactions, reducing or eliminating their toxicity. As soils become more porous, like sands, chemicals flow more directly through these soils and may enter a shallow water table.

This publication was written by Karen DeFelice, former associate extension agronomist; Nyle Wollenhaupt, former state extension agronomist; and Daryl Buchholz, state extension agronomist. This material is based upon work supported by the United States Department of Agriculture, Extension Service, under special project number 89-EWQI-1-9203.



■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Gail L. Imig, Director, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.