wellcare® information for you about

Ground Water Withdrawals

The summer of 2002 saw widespread drought across America, accompanied in many communities by restrictions on water use by local governments grappling with dwindling supplies. Such restrictions may grow as multiple demands on finite ground water resources affect the supply.

Who Uses the Water?

Well water and much of the public water supply comes from underground aquifers, which are found in the ground at different depths. Aquifers act as water storage spaces, containing different amounts of water depending on the composition of rock, sand and gravel in which the aquifer exists.

More than 15 million American households rely on private water well systems for drinking water and other uses. The average home in the U.S. consumes about 69.3 gallons of water per person per day, according to a 1999 survey of 1,200 homes by the American Water Works Association.

Major residential development that adds hundreds of new individual households into a dense area can stress the water supply. The problem grows when conservation measures are not used by the new homeowners.

Much larger wells draw much greater amounts of ground water for agriculture to irrigate fields, commercial uses, such as a bottled water plant, or industrial uses, such as a cement plant or computer chip manufacturing plant. These withdrawals can range from just a few hundred gallons to a half million gallons per day.

For example, a single bottling company in New Hampshire applied to state officials in 2003 to withdraw 310,000 gallons of ground water a day. The request was denied after much public outcry over the impacts. The state formed a commission to study ground water withdrawals before any major new withdrawal permits are issued.

The Impacts of Ground Water Withdrawals

State agencies and the U.S. Geological Survey have been tracking the impacts of increasing ground water withdrawals on aquifers and nearby surface water supplies, such as streams and lakes. Among their findings:

Ground water withdrawals can affect both ground water and surface water. Intensive withdrawals have led to cases where wells, springs and wetlands have gone dry, lake levels have dropped, stream flow has been reduced with great harm to wildlife, and contamination has prevented installation of new wells.

The drop in the water table known as groundwater mining is one problem. It occurs when water is withdrawn from an aquifer more rapidly than it is replenished. As the water table drops, water pumping costs increase. Eventually, the users run out of water.

Extensive groundwater mining also may cause subsidence, a lowering of the land surface. Subsidence occurs when the removal of water leaves underground spaces that collapse or

when underlying clay shrinks from lack of moisture. The result looks like a cone of depression on the land.

Lowered water tables can also lead to greater contamination of ground water. The reduction in surface water lowers the ability of a region's waterways to filter pollutants from water before it flows in to recharge an aquifer.

Should You Be Concerned about Ground Water Withdrawals?

Every individual well owner should be aware of the yield of their own well and the pressures on the aquifer that supplies it. If drought conditions have stressed your well, this is even more important.

Your water well professional can tell you about current conditions, based on the ease with which water is being found and at what depth today, compared to the time when your well was constructed. Your local health department or state natural resources agency will have information on special water management areas in your state, areas where ground or surface water supplies are dwindling or where subsidence occurs.

You'll also want to know what laws in your state govern access to dwindling water supplies. Some states give precedence to senior water users, no matter what the public need. Others balance public and commercial withdrawals. The Water Systems Council information sheet, *Who Owns the Water*, outlines the five general approaches to water use laws for each state.

For more information on ground water withdrawals

New Hampshire Department of Natural Resources, study of ground water withdrawals, http://www.dnr.state.wi.us/org/water/dwg/gw/GW-quant.htm

University of Idaho, background on groundwater mining and subsidence, http://www.uidaho.edu/wq/wqpubs/cis900.html

wellcare® information sheets – *Who Owns the Water, Water Conservation, Determining Well Yield, Coping with Low Water Levels* and *What to Do if the Well Runs Dry* – available in print by calling 202-625-4387 or online at: www.watersystemcouncil.org/wellcare/infosheets.cfm

For more information on your drinking water

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

Home*A*Syst Program	**www.uwex.edu/homeasyst**
Water Quality Association	**www.wqa.org**
The Groundwater Foundation	**www.groundwater.org**
American Water Works Association	**www.awwa.org**
wellcare® Hotline for Well Owners	**888-395-1033**

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 promote the wider use of wells as modern and affordable safe drinking water systems and to protect 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**

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