

# City of Apple Valley Water System Profile

## Jordan Aquifer Supplies Apple Valley

Water supplied to Apple Valley residents is groundwater. The Utilities Division operates 17 wells, ranging in depth from 487 to 1,127 feet. If the City needed additional water in a special situation, water can also be drawn from the Mt. Simon aquifer. The Jordan and Mt. Simon are bedrock aquifers, well-defined hydrological units where the water exists in spaces between the rock grains or in the fractures within the more solid rock.

The Utilities Division will soon add an 18th well, which will be located near Flint Lane in Greenleaf Park. Plans are for this well to be operational in the summer of 2004.

*Apple Valley's newest well, #17, a submersible well near Kohl's Department Store*



## Stormwater Management

Stormwater management is an important component of maintaining a safe drinking water supply. As an area develops, land that once allowed rain to soak into the ground is covered with impervious surfaces such as pavement and roofs. Running over these surfaces, water warms up, picks up pollutants, and reaches streams quickly, causing thermal and chemical pollution as well as erosion and sedimentation. Pollutants washed into streams can quickly infiltrate underground aquifers—that's why managing stormwater effectively helps keep our drinking water free from pollutants. The goals for stormwater management include:

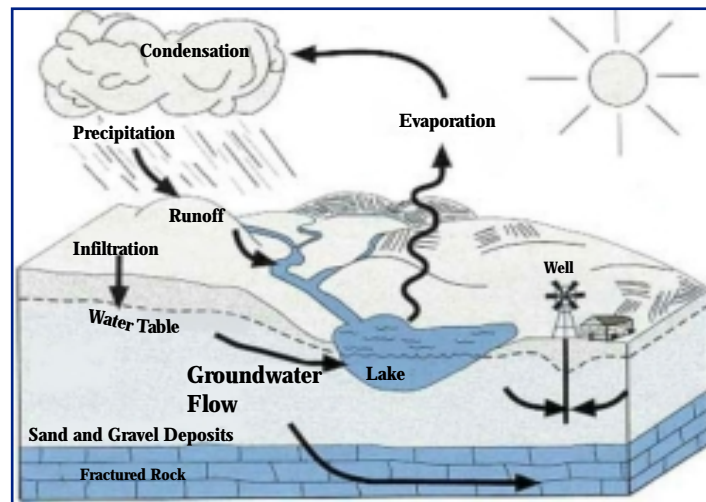
- maintain groundwater quality and recharge
- reduce stormwater pollutant loads
- protect stream channels
- prevent or reduce flooding

The management practices the City of Apple Valley uses to control stormwater include ponds, wetlands, filtering, and vegetation.

## All Water is Connected by the Hydrologic Cycle

The movement and endless recycling of water between the atmosphere, the land surface, and underground is called the hydrologic cycle. This movement of water is driven by the energy of the sun and the force of gravity. There are five basic links in the cycle:

- Condensation
- Precipitation
- Infiltration
- Runoff
- Evaporation



Understanding the hydrologic cycle is basic to the proper management and protection of water resources. It also highlights what you can do to protect Apple Valley's water supplies: dispose of chemicals and hazardous waste properly, and keep debris out of stormwater. Remember what washes into the storm drain eventually makes its way to rivers, lakes, and groundwater.

## 2002 Water Quality Report



Published June 2003

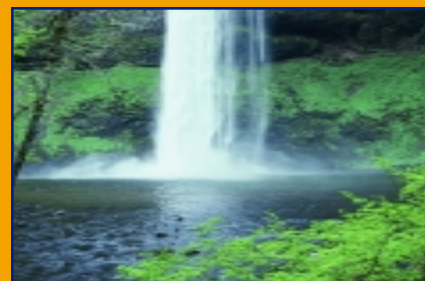
## Know Your Water System

Did you know the Apple Valley water system has four storage reservoirs that hold a combined 11.2 million gallons of water? One of these, the Nordic Reservoir located near Foliage Avenue and McAndrews, will be repainted this year beginning in August. Some other interesting facts about Apple Valley's water system:

- 2.5 billion gallons of water pumped per year
- 14,000 metered connections
- Iron levels reduced 85% by water treatment; manganese reduced 62%
- Water hardness: 17 grains per gallon
- Chlorine: 0.5 part per million for disinfection
- Fluoride: 1 part per million for dental health

## Test Your Water Knowledge

1. How much of the earth's water is suitable for drinking?  
a) 50% b) 15% c) 1%
2. Water is the only substance found on earth in three forms—solid, liquid, and gas—True or False?



1. c. 1%.  
97% of the earth's water is salt water. 2% of the fresh water is tied up in the polar ice caps.
2. True.

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Learn About  
Apple Valley  
Drinking Water

For questions or concerns about water quality, to schedule a speaker for your group, to schedule a tour of our facilities, or for information about opportunities for public participation in decisions that may affect the quality of water, contact Carol Blommel, Public Works Supervisor-Utilities at 952-953-2400.

\*\*\*ECRWSS\*\*\*  
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## Test Results Again Show Apple Valley Water Safe for Drinking

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The water quality table shown below is your guide to see how water delivered by the City of Apple Valley measures up to these regulations.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

EPA regulates about 90 contaminants that are known or potential health threats and that have at least a possibility of being found in drinking water. The substances listed



in the table are the only ones detected; many other substances are monitored but were not detected.

### Why Don't Regulations Prohibit Everything in Drinking Water?

All drinking water sources contain some natural substances. Water is a good solvent, and many substances are dissolved by water on contact. At low levels, they are generally not harmful in our drinking water. Removing all substances from drinking water would be extremely expensive and would not necessarily improve the water quality. In fact, it could result in an inferior product. Many naturally occurring minerals are essential nutrients and may actually improve the taste of your drinking water.

### Is Bottled Water Safer?

Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Research repeatedly shows bottled water is no safer

than conventional tap water provided by public water systems in the U.S.

## Drinking Water Information From EPA

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or humans. Substances that can be present in source water include:

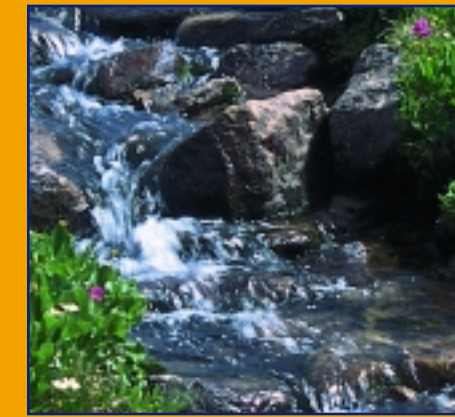
**Microbial contaminants**, such as viruses and bacteria, which may come from wastewater treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants**, such as salts and metals, which can occur naturally or result from stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

**Radioactive contaminants**, which occur naturally or result from oil and gas production and mining activities.



Some people may be more vulnerable to contaminants found in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

Radon is a naturally-occurring radioactive gas that is found in ground water. EPA is studying radon results from water systems nationwide as it determines what its drinking water

limit should be. Radon poses a lung cancer risk when gas is released from water into air (as occurs during showering, bathing, or washing dishes or clothes) and a stomach cancer risk when it is ingested. Because radon in indoor air poses a much greater health risk than radon in drinking water, EPA is assessing two different limits for drinking water: an Alternative Maximum Contaminant Level (AMCL) of 4,000 pCi/L for states that have adopted an Indoor Air Program, which compels citizens, homeowners, schools and communities to reduce the radon threat from indoor air; and a limit of 300 pCi/L for other states. Minnesota plans to adopt an Indoor Air Program once the Radon Rule is finalized.

## How to Read the Water Quality Table

The **Level Found** can be the highest amount found in the water or the average of all samples tested, depending on the regulation for the substance. If multiple samples were tested in 2002, the lowest and highest detected values are listed under **Range of Detections**.

Regulated substances have **Maximum Contaminant Levels (MCLs)** set by the EPA. This is the highest level of the substance legally allowed in drinking water. Some contaminants also have **Maximum Contaminant Level Goals (MCLGs)**. It is the level of a substance where there is no known or expected health risk. MCLGs allow for a margin of safety. MCLs are set as close to MCLGs as practical using the best available water treatment processes.

Monitoring for unregulated contaminants as required by EPA rules was conducted during 2002. Complete results, unavailable at the time of this report, are available upon request from Pat McKasy, Minnesota Department of Health (MDH) at 651-215-0759. Although these are substances that do not have MCLs, the MDH evaluates them using state standards known as Health Risk Limits.

The MCL for lead and copper is known as the **Action Level (AL)**. This is the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow. Water from several Apple Valley homes is monitored every three years for lead and copper levels; ninety percent of the samples tested must be less than the action level for compliance.

**Radiological parameters:** primarily naturally-occurring substances that emit radiation as they decay.

**Inorganic parameters:** salts and metals with natural and man-made origins.

**Organic parameters:** Carbon-based compounds, primarily man-made in origin.

**ppm:** parts per million **ppb:** parts per billion  
**pCi/L:** picocuries per liter, a measure of radioactivity **ND:** Not Detected

## Drinking Water Quality Table for 2002

Detected Substance Units of Measurement	Test Date	MCL: highest amount allowed	MCLG: No health risk	Level Found in Apple Valley Water	Range of Detections	Typical Source of Substance in Drinking Water
Alpha Emitters pCi/L	2002	15	0	10.4	—	Erosion of natural deposits.
Radon pCi/L	2001	4,000/300--see text above	—	202	—	Erosion of natural deposits.
Barium ppm	2002	2.0	2.0	0.15	—	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride ppm	2002	4.0	4.0	1.09	0.77-1.3	Water additive which promotes strong teeth; erosion of natural deposits; aluminum and fertilizer factories.
Nitrate as Nitrogen ppm	2002	10.0	10.0	0.12	ND-0.12	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Sodium ppm	2002	No limit set	—	6.5	—	Erosion of natural deposits.
Sulfate ppm	2002	No limit set	—	30	—	Erosion of natural deposits.
Lead ppb	2001	90% of samples must be below 15 ppb (AL)	—	90% level: 8.0	1 out of 30 homes exceeded AL	Corrosion of household plumbing systems; erosion of natural deposits.
Copper ppm	2001	90% of samples must be below 1.3 ppm (AL)	—	90% level: 0.178	0 out of 30 homes exceeded AL	Corrosion of household plumbing systems; erosion of natural deposits.
Total Trihalomethanes ppb	2002	100	—	14.4	—	Byproduct of drinking water disinfection.