



What is Groundwater?

Groundwater is the water that fills the small spaces between rock particles (sand, gravel, etc.) or cracks in solid rock.

Rain, melting snow, or surface water becomes groundwater by infiltrating into the ground and filling these spaces. The top of the water-saturated zone is called the “*water table*.”

When water infiltrates from the surface and reaches the water table, it begins moving toward points where it can escape, such as wells, rivers, or lakes.

An **aquifer** is any type of geologic material, such as sand or bedrock, which can store and supply water to wells or springs. Winona’s water comes from deep wells in the Mt. Simon sandstone aquifer.

The groundwater, which supplies the public water supply wells, often comes from within a short distance (1-2 miles) of the well. How fast groundwater moves depends on how much water is pumped from the well and what type of geologic material the water is moving through. The “capture zone” for each well was identified as part of the wellhead protection planning process.

What were the steps the City took to develop a Wellhead Protection Plan?

1. Identify the aquifer recharge areas to be protected.
2. Determine how vulnerable the recharge area is to pollution.
3. Identify land uses and potential sources of pollution in the wellhead protection area and implement ways to prevent groundwater contamination.
4. Establish a plan to work with property owners and residents to ensure that pollution doesn’t degrade our groundwater supplies.

What Can You Do?

- Help identify land uses and potential sources of contamination on your property (wells, tanks, septic systems, hazardous wastes, etc.).
- Make sure any potential sources of contamination under your control meet local, state, and federal regulations.
- Use hazardous products only as directed and dispose of them properly when no longer needed.
- Practice proper turf management techniques and avoid over-fertilization of your lawns and gardens.
- Seal any unused wells on your property, according to Minnesota Well Code. Contact Public Works for possible well sealing grant or cost-share opportunities.
- Conserve water whenever possible.
- Report spills (or illegal dumping) of hazardous wastes, fuels, or chemicals to law enforcement.



WELLHEAD PROTECTION PLAN



A Cooperative Planning Effort with the Minnesota Department of Health
for
DRINKING WATER SUPPLY MANAGEMENT

For Further Information Contact:
City of Winona
Public Works Department
507-457-8269

A community effort to protect public water supply wells...

The City of Winona relies on groundwater for our drinking water supply. The City currently operates eight water supply wells. These wells draw water from a groundwater aquifer located several hundred feet underground. Despite this depth, groundwater aquifers are vulnerable to contamination from human land surface activities. Improper handling and disposal of hazardous substances may eventually cause a degradation of Winona's groundwater supplies.



The City of Winona is working with citizens to protect drinking water supplies by carrying out a Wellhead Protection Plan. This plan has been prepared in conjunction with several local, county and state agencies. The Minnesota Department of Health is the lead agency for the State's program.

For additional wellhead protection information, contact the Minnesota Department of Health at 651-201-4700 or visit their website at:

www.health.state.mn.us/divs/eh/water/swp/whp



Most Minnesotans get drinking water from wells

Wellhead Protection is a way to prevent drinking water from becoming polluted by managing possible sources of contamination in the area which supplies water to a public well. Wellhead Protection is an ongoing task for all communities. Everyone has an important part to play in protecting drinking water wells—today and for the future. For more information, contact Winona's Public Works Department at 507-457-8269.

How can wells become polluted?

Wells become polluted when substances that are harmful to human health infiltrate into the groundwater aquifers. Wells that obtain their water from these aquifers can pull in contaminated water. If the level of contamination rises above established health standards, additional water treatment processes may be required.

The City of Winona regularly samples the quality of the water pumped by their wells to ensure that the water supply is safe for residents to consume. At present, our water meets all State and Federal drinking water standards. An annual report of water

quality is available on our website:

www.cityofwinona.com

Many activities can cause pollution of our groundwater supplies. Potential sources of pollution can include:

- Improperly disposed household hazardous wastes
- Abandoned wells that haven't been properly sealed
- Poorly-maintained septic systems
- Overuse of fertilizers and pesticides
- Leaking storage tanks
- Unreported spills and illegal dumping
- Contaminated stormwater runoff

