

Essential Information about Drinking Water

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Where does drinking water come from? What kind of systems supply drinking water to North Carolina residents? How are those systems regulated?

This handout answers these common questions. The handout is part of a larger set of materials, the North Carolina Drinking Water Incident Response Toolkit, which is available at drinkingwater.sog.unc.edu. The toolkit includes a glossary, which has definitions of relevant terms, including those that appear in *italics* in this handout.

Drinking Water Sources and Systems

SOURCES

People get their drinking water from different types of drinking water systems. The water that supplies drinking water systems is called *source water*. Source water is untreated surface water or groundwater.

Surface water collects on the ground and in bodies of water such as lakes and rivers.

Groundwater comes from underground sources that are formed when rainfall is absorbed into the ground and seeps downward through porous spaces and rocks until it reaches a dense barrier of rock. Groundwater sources may also be known as aquifers.

Drinking water may be provided by a *public water system* or an *individual water system*. The distinction between types of systems is important because they are regulated differently. In the United States, most people obtain their drinking water from a public water system or a private drinking water well, which is the most common type of individual water system.

Public water systems may get their source water from either surface water or ground water. Private drinking water wells rely on groundwater as their source.

PUBLIC WATER SYSTEMS

The majority of North Carolinians obtain their usual drinking water from a public water system. A public water system provides drinking water to at least 15 service connections, or to an average of 25 people for at least 60 days a year. The term “public water supply” applies to privately-owned systems that satisfy this definition as well as to

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those that are owned by a public entity such as a local government. Public water systems are regulated by the federal Safe Drinking Water Act.

As Figure 1 illustrates, public water systems are divided into categories. The first division is between community and noncommunity systems. Noncommunity systems are further subdivided into transient and non-transient systems.

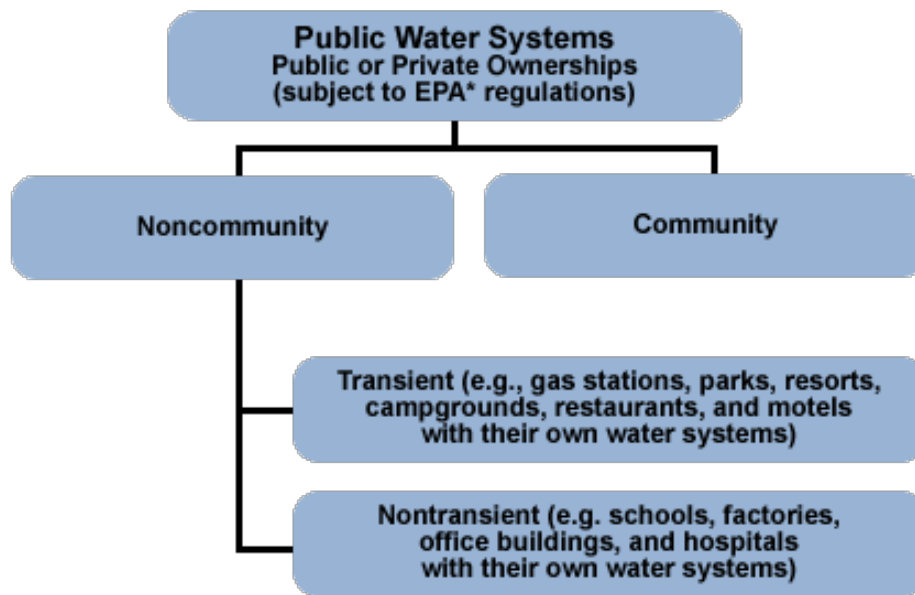


Figure 1. Types of public water systems

Source: U.S. Centers for Disease Control and Prevention, at <https://www.cdc.gov/healthywater/drinking/public/index.html>

A *community water system* supplies water to the same population year-round. For example, a drinking water utility that serves a municipality, county, or other geographic area is a community water system.

A *noncommunity water system* does not serve the same population year-round.

A *transient noncommunity water system* supplies water to at least 25 people at least sixty days per year, but not on a regular basis and not to the same group of people. For example, a gas station may have a transient non-community water system.

A *nontransient noncommunity water system* provides drinking water to at least 25 of the same people for at least six months a year, but not year-round. Examples of nontransient noncommunity water systems include hospitals and schools with their own water systems.

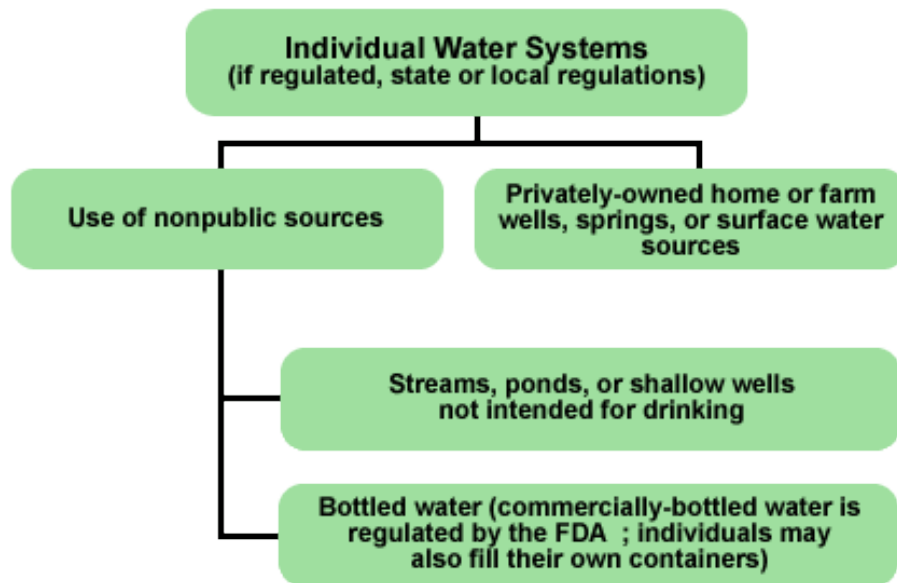
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According to the North Carolina Department of Environmental Quality, there are nearly 6000 public water systems in North Carolina. This figure includes both community and noncommunity systems. In 2017, the UNC Environmental Finance Center determined that there were 1,991 active community water systems in the state, and that 89 of the 100 largest community water systems were operated by local governments.

INDIVIDUAL WATER SYSTEMS

Individual water systems include private drinking water wells and other nonpublic sources, such as bottled water and bodies of water not intended for drinking.

Private drinking water wells typically supply water to individual residences. They are not regulated by the Safe Drinking Water Act or other federal laws. An estimated 20 to 25 percent of North Carolinians get their household drinking water from private drinking water wells. This accounts for more than 2 million people.



Types of individual water systems

Source: U.S. Centers for Disease Control and Prevention, at <https://www.cdc.gov/healthywater/drinking/private/index.html>

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Drinking Water Regulation and Safety

Public water systems and private drinking water wells are regulated differently. All types of public water systems—community and noncommunity—are subject to the federal Safe Drinking Water Act. Private wells are not covered by the federal law, but are regulated at the state and local level.

PUBLIC WATER SYSTEMS

The Safe Drinking Water Act (SDWA), a federal law, gives the U.S. Environmental Protection Agency (EPA) the power to set and enforce standards for public water systems. This includes standards for appropriate treatment techniques, standards setting maximum contaminant levels, and requirements for public water systems to monitor drinking water and make reports to the public.

The EPA delegates responsibility for enforcing the SDWA to states and tribes. The state or tribal agency responsible for enforcement is called the *primacy agency*. In North Carolina, the primacy agency for the SDWA is the Department of Environmental Quality (DEQ), Division of Water Resources, Public Water Supply Section.

PRIVATE DRINKING WATER WELLS

There is no federal regulation of private drinking water wells.

At the state level, the North Carolina Department of Health and Human Services' Division of Public Health has primary oversight over private drinking water wells, but programs for inspecting and permitting newly constructed wells are carried out by local health departments. State regulations establish well construction standards and require that new wells be tested for certain contaminants that could make the water unsafe to drink, including metals such as lead and some disease-causing bacteria.

North Carolina law does not require periodic re-testing of private drinking water wells. Rather, well owners are responsible for maintaining the wells and ensuring the water remains safe to drink.

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References

LAWS AND REGULATIONS

Federal Safe Drinking Water Act, 42 U.S. Code Subchapter XII (§ 300f et seq.).

National Primary and Secondary Drinking Water Regulations, 40 C.F.R. Parts 141 to 143.

N.C. General Statutes § 87-85 (Definitions); § 87-97 (Permitting, inspection, and testing of private drinking water wells).

N.C. Administrative Code title 15A, Subchapter 02C, § .0100 (Well construction standards; Criteria and standards applicable to water supply and certain other type wells); § .0300 (Permitting and inspection of private drinking water wells).

N.C. Administrative Code title 15A, Subchapter 18A, § .3800 (Private drinking water well sampling).

OTHER INFORMATION SOURCES

U.S. Environmental Protection Agency, Basic Information about your Drinking Water, at <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-your-drinking-water>.

U.S. Centers for Disease Control and Prevention, Drinking Water, at <https://www.cdc.gov/healthywater/drinking/index.html>.

N.C. Department of Environmental Quality, Drinking Water, at U.S. Environmental Protection Agency, Basic Information about your Drinking Water, at <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-your-drinking-water>.

N.C. Division of Public Health, Private Water Supply Wells Program Resources, at <https://ehs.ncpublichealth.com/oswp/wells-resources.htm>.

UNC Environmental Finance Center, <https://efc.sog.unc.edu/>.