



THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION

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PROTECTING YOUR WELL AND WELLHEAD

If you are one of the many Americans who use groundwater for drinking, the proper protection of your well and wellhead is essential for the health of your family, yourself and your neighbors. Groundwater is susceptible to contamination from a variety of sources, including septic tanks, pesticides (herbicides, insecticides, rodenticides) and household chemicals. As hundreds of wells often tap into the same aquifer (large underground water supply), it is essential to prevent contamination from reaching these vital underground resources. In addition, protecting your wellhead is often an easier and less expensive means of ensuring the safety of your water supply than a water treatment system.

SIX PRINCIPLES OF WELLHEAD PROTECTION

The following principles are recommended by the University of Georgia. Using these guidelines will help ensure the safety of your well water.

1. Proper Well Location

Safety, rather than convenience or economy, should be the first priority when selecting a location for your well. Ideally, a well should be located high in the landscape so that surface water drains away from it. The well should not be located in a flood-prone location unless the well casing extends at least 2 feet above the level of the highest known flood of record. Be sure to site the well uphill from runoff that may contain pesticides and other contaminants. The Georgia Water Well Standards Act of 1985 requires the following minimum separation distances between a well and various potential sources of contamination:

- 10 feet from Sewer Line
- 50 feet from Septic Tank
- 100 feet from Septic System Adsorption Field
- 100 feet from Animal or Fowl Enclosure
- 150 feet from Cesspool or Seepage Pit
- 150 feet from Waste Lagoon
- 150 feet from Dead Animal Burial Pits
- 100 feet from Pesticide Storage, Mixing and Loading Facilities
- 100 feet from Fertilizer Storage
- 500 feet from Petroleum Tanks

2. Proper Well Construction

A properly constructed and sealed well greatly reduces the risk of contamination. Be sure to examine the following:

- The well casing, a plastic or steel pipe that runs the depth of the well, should extend 1 to 2 feet above the surrounding ground to prevent surface water from running down the casing.
- The top of the casing should be sealed with a tight-fitting, tamper-resistant, vermin-proof sanitary well cap. The cap should be firmly installed and include a screened vent so that air can enter the well. Vents should face the ground, be tightly connected to the well cap or seal and be properly screened to keep small insects out.
- During well construction, the annular space (open space between the well casing and the sides of the bore-hole) should be sealed to prevent water and possibly pollutants from flowing along the outside of the casing down into the well. This sealing process is called grouting, and it involves injecting bentonite grout, sand-cement grout or neat cement around the outside of

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Remember that a poorly constructed well provides direct access for contaminants on the surface that can pollute your groundwater and make you sick!



Sanitary Well Cap

The airtight rubber gasket seal prevents entry of anything, while the screened vent allows for air exchange.

<http://pubs.cas.psu.edu/freepubs/pdfs/xh0011.pdf>

the well casing. The Georgia Water Well Standards Act of 1985 requires the following minimum depths of grout seal below the ground surface:

- 10 feet for individual wells anywhere in the state
- 25 feet for nonpublic wells in igneous or metamorphic rock
- 50 feet for nonpublic wells in sedimentary rock

*Note: According to the Georgia Water Well Standards Act of 1985, **individual water well** means a well that is constructed for the purpose of obtaining ground water to supply water to a single-family dwelling and intended for domestic use, including, but not limited to, household purposes, farm livestock or gardens. **Nonpublic water well** means a well that is constructed as a source of water supply for a water system that provides piped water to the public for human consumption, if such system has fewer than 15 service connections or regularly serves fewer than 25 individuals, excluding individual water wells.*

It is preferred, however, that the well grout extends all the way from the ground surface to the depth the casing is set. For large diameter water wells cased with concrete pipe or other acceptable casing material, if the casing joints are not sealed, the annular space must be grouted as specified above, and the annular space below the grout must be filled with sand or gravel.

- The well must be curbed at the surface with a watertight curbing of concrete slab that is at least 4 inches thick, extends at least 2 feet in all directions from the well casing and slopes away from the casing.

Well construction must be done by a licensed well driller meeting the wellhead protection and other requirements listed in the Georgia Water Well Standards Act of 1985, (OCGA 12-5-120--12-5-137). For a list of licensed well drillers, contact the Georgia Environmental Protection Division, Watershed Protection Branch at 404-675-6232 or visit their website at www.gaepd.org. After completion, obtain a well construction log (you have the right to it) from the driller and keep it for your records.

It is difficult to fix the problem of inadequate grouting in an existing well. However, installing a sanitary well cap and curbing with a concrete slab can be done. A step-by-step procedure for curbing an existing well is described in the Georgia Home*A*Syst publication *Improving Drinking Water Well Condition*, available at your local county Extension office or on the web at <http://www.caes.uga.edu/publications>.

3. Keep Contaminants Away From Your Well

Possible sources of contamination should be kept away to prevent contamination from accidental spills or seepage. Keep in mind the following tips:

- **NEVER** store chemicals in your wellhouse.
- **NEVER** dispose of household chemicals and personal care products by throwing them in the drain or faucet or flushing them down the toilet. Information on how to dispose of household products can be found in the *What's in Your House?* publication available at your local county Extension office or online at <http://www.fcs.uga.edu/ext/housing/hazard.php>.
- **NEVER** dispose of excess medications by flushing them down the toilet. Take medication to a collection facility or program if possible. Or, mix medications with used cat litter or used coffee grounds, wrap in a watertight bag and dispose with solid trash.
- **NEVER** dispose of motor oil by dumping it on the ground. Call a local auto repair shop or service station for information on disposal, or check with your local recycling center.

4. Backflow Prevention

Backflow or back siphonage can contaminate your water system. If your well pump unexpectedly stops while a hose is submerged in chemicals, the backflow due to drop in pressure could draw those chemicals directly into your well. Likewise, water from laundry tubs, sinks, washing machines, swimming pools, etc. could flow back through plumbing to contaminate the well. To help prevent backflow:

- Install a double check valve backflow preventer between a well and an irrigation system.
- Install a simple atmospheric vacuum breaker available in hardware stores on each outside faucet.
- Never submerge a hose into any potential contaminating material.

5. Sealing Abandoned Wells

Abandoned wells are common throughout rural areas. They present a variety of health hazards, including allowing a pathway for pollutants to contaminate groundwater. Sealing abandoned wells will prevent pollution and eliminate the possibility of someone falling into the well. Abandoned wells should never be used for the disposal of garbage or other contaminants! Make sure that any abandoned wells on your property are filled, sealed and plugged by a licensed water well driller as instructed in the Georgia Water Well Standards Act of 1985, (OCGA 12-5-120--12-5-137).

6. Testing Well Water

It is the responsibility of the user of the well to have their private water supply tested. Testing should be carried out routinely once a year, particularly for bacteria and nitrates, to ensure the safety of your well water and to establish a record of well water quality. Testing for other contaminants should be done if there is reason to suspect their presence. Each time the well is tested, it is a snapshot in time. Developing a long-term record of testing will help determine if water quality is changing over time. Also remember that testing should be done any time there is a change in the taste, clarity or smell of your water. More information about water testing is available in the University of Georgia Cooperative Extension Circular 858-2 "Testing for Water Quality," available in your local county Extension office (Call 1-800-ASK-UGA1) or on the web at <http://www.caes.uga.edu/publications>. To have your water tested, contact either your county Extension agent or a certified private laboratory. For a list of state certified water testing laboratories, contact the Georgia Environmental Protection Division, Watershed Protection Branch, Drinking Water Program, Compliance and Enforcement Unit by phone at 404-656-5660 or visit their website at www.gaepd.org.

The University of Georgia offers an opportunity for well owners to assess the risk associated with their wells through the HOME*A*SYST / FARM*A*SYST program. These self-assessments will allow you to determine the risks associated with your well. For more information, contact your county agent or visit <http://www.caes.uga.edu/publications>.

Sources:

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