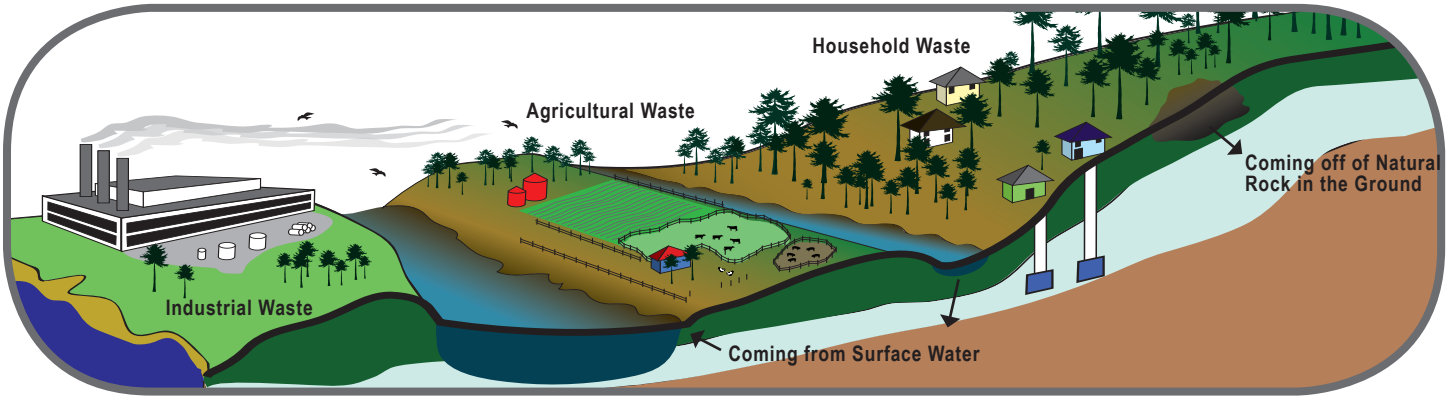
Protect Yourself from Arsenic in Your Well Water

Arsenic *is a grey, semi-metallic element that is naturally-occurring. Natural deposits of arsenic can be found in certain types of rock and soil. Over a long period of time these rocks and soil may erode and release arsenic into the environment. Arsenic can get into the environment also through some industrial and agricultural activities. Some examples of industrial activities that may contain arsenic include hazardous waste sites, old pesticide factories or sites where pesticides were sprayed, metal smelters and industrial lumber operations. Arsenic is also used in the manufacture of some electronic devices and has been detected in waste ashes from coal combustion.*

Contaminants get into groundwater through natural, agricultural, household and industrial waste sources .



How does arsenic get into well water?

Your private well water comes from underground water supplies. Arsenic can get into groundwater through the erosion of natural mineral deposits or from industrial activities.

How do I know if my well water contains unsafe levels of arsenic?

Have your water tested. Contact the Environmental Health section of your local health department.

You should have your water tested for harmful chemicals every two to three years.
If you suspect contamination as a result of a spill or other incident, test more frequently.

If you have high levels of arsenic in your drinking water:

If you have levels of arsenic above 10 parts per billion (ppb) in your drinking water well, consider using an alternative water supply for drinking. If levels of arsenic in well water are above 500 parts per billion (ppb) you may want to stop using well water for cooking, bathing, and washing clothes.

How can arsenic affect my health?

Drinking very high concentrations of arsenic for a short period of time may cause nausea, vomiting, irregular heartbeat, and muscle cramping or weakness. Symptoms typically go away once the exposure is removed.

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Drinking water with arsenic for many years may cause changes to the pigment of skin and may lead to the development of small "corns" and "warts" on the soles, palms, and torso. This is the most characteristic sign of long-term arsenic contact and may happen together with numbness or tingling in the hands or feet. It may also cause damage to the liver and kidneys or lead to decreased red and white blood cell production. In some cases, it can contribute to a lack of muscle coordination and difficulty concentrating.

Skin contact with arsenic can cause irritation or redness of the skin, but it is unlikely that harmful amounts can enter the body through the skin. Breathing high levels of arsenic in a short time may cause a sore throat, irritated lungs, or difficulty breathing. Breathing arsenic for a long period of time may cause some numbness in the arms and legs, thickening or discoloration of the skin, and possible liver damage.

According to the U.S. Department of Health and Human Services and the International Agency for Research on Cancer (IARC), ingesting elevated levels of arsenic for a long period of time may increase the risk of cancers of the skin, liver, bladder, and lungs. The U.S. Environmental Protection Agency (EPA) has also determined that inorganic arsenic is a known carcinogen (cancer-causing substance).

This fact sheet answers the most frequently asked health questions about arsenic. This information is important because arsenic has been identified in groundwater and private wells in North Carolina. The effects of exposure to any hazardous substance depend on the dose, duration, how you are exposed, personal traits and habits and whether other chemicals are present.

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N.C. Depart. of Health & Human Services • www.ncdhhs.gov
Division of Public Health • www.ncpublichealth.com
UNC Superfund Research Program • www.sph.unc.edu/srp

When should I see a doctor?

You should see a doctor if you think you have high levels of arsenic in your well water and have symptoms of nausea, dizziness, vomiting, or rapid heart rate, or you notice discoloration or changes to your skin.

Blood and urine tests can be done to determine if you have been in contact with arsenic. These tests are most useful for determining only very recent exposures because the body gets rid of arsenic within one to two days. Hair or nail analysis can be used to determine long- term exposures.

Whom can I call for questions?

Contact your local health department or the Division of Public Health (N.C. Department of Health and Human Services) Occupational and Environmental Epidemiology Branch at (919) 707-5900.

Additional Information

The EPA has established a maximum contaminant level for arsenic in drinking water at 10 ug/L or 10 ppb (parts per billion).

Websites

Basic Information about Private Drinking Wells
http://water.epa.gov/drink/info/well/

National Science Foundation International:
www.nsf.org

ATSDR
(Agency for Toxic Substances & Disease Registry)
www.atsdr.cdc.gov/toxfaqs/tf.asp?id=19&tid=3

NIEHS
(National Institute of Environmental Health Sciences)
www.niehs.nih.gov

Local Health Departments
www.ncalhd.org/county.htm

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