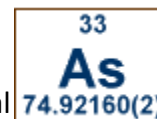


Arsenic in Groundwater

Arsenic is a naturally occurring element found in rocks, soils, air, plants, and animals. At a very high dose, it is a lethal poison. At low doses, it can have beneficial uses. Arsenic was once the major treatment for syphilis and is still being used as an experimental treatment for leukemia.



The current concern relates to the potential for harm from chronic low level exposure to arsenic in groundwater. Arsenic can occur in groundwater from natural and human sources. It is naturally present in rocks and minerals throughout the earth's crust, and can leach into groundwater from these sources.

Chronic exposure to lower arsenic levels can result in skin cancer, internal cancers, and various non-cancerous skin conditions. Arsenic exposure is also linked to diseases of the heart, lungs, and brain.

Under the Safe Drinking Water Act of 1976, the Environmental Protection Agency set a maximum level for arsenic in drinking water at 50 micrograms per liter. In 1996, the National Research Council (NRC) was asked by Congress to review the scientific studies that had been done to assess whether that standard was sufficient to protect human health. The NRC concluded in a 1999 report that the 50 micrograms per liter should be reconsidered. In January 2001, the EPA published a new standard for arsenic in drinking water, lowering the acceptable level from 50 parts per billion to 10 parts per billion. Because of concerns expressed by a number of states about the costs of complying with the new standard and some uncertainty in the scientific studies about the level of risk of chronic low-level exposure, the Environmental Protection Agency requested the National Research Council to review its 1999 report. After reviewing the NRC's 2001 update (September 2001) the Environmental Protection Agency has announced that it would implement the new standard

HOW CAN ARSENIC GET INTO MY DRINKING WATER?

There are two main ways arsenic can get into your drinking water. Mineral deposits in some areas of Cabarrus County naturally contain high levels of arsenic. Groundwater flowing through these deposits can dissolve arsenic from the minerals. This can increase the amount of arsenic in your well water.

Another way arsenic can get into your water is by contact with hazardous waste. Waste material containing arsenic is produced by industries that make or use arsenic. Arsenic has been used as a wood preservative, in pesticides, and in special kinds of glass. Improper disposal of this waste can contaminate groundwater.

Arsenic has no smell or taste, so you cannot tell if it is in your drinking water. The only way to find out if your well water has high levels of arsenic is to have it tested.

HOW CAN ARSENIC AFFECT MY HEALTH?

Health effects caused by arsenic depend on a variety of things. These include the type and amount of arsenic that has entered the body, how long you have been exposed to arsenic, and how the body responds to arsenic. Unborn babies, young children, people with long-term illnesses and elderly people are at greatest risk due to arsenic exposure. If you or your family members are concerned about health problems you believe to be related to arsenic in your water, you should consult your physician and have your well water tested.

IS THERE AN ACCEPTABLE LEVEL OF ARSENIC IN DRINKING WATER?

In October 2001, the U.S. Environmental Protection Agency (USEPA) established a new maximum level for arsenic in public water supplies. The new USEPA standard is 10 parts per billion or 0.01 parts per million; however, public water supplies had until January 2006 to meet this new standard. This level also serves as a guideline for an acceptable level in private wells.

HOW CAN I REDUCE MY EXPOSURE TO ARSENIC IN MY WATER?

If elevated levels of arsenic are found in your well, we recommend that you stop using your well water for drinking and preparing food. Bottled water can serve as an alternative for these purposes. You can continue to use your well water for bathing and washing clothes without concern.

NSF International, a not-for-profit organization that develops standards, product testing procedures, and certification services for products including water treatment devices, has certified point-of-use reverse osmosis and distillation devices for the reduction of arsenic in drinking water. Pretreating water through chlorination or oxidation may be necessary to make reverse osmosis devices effective for arsenic removal. NSF also is working on certification standards for filtration devices that can be used to reduce arsenic. For more information or a list of NSF-certified devices, contact the organization at 877-8-NSF-HELP.

Some of the treatment technologies may not be amenable to point-of-entry, or whole-house treatments. In these cases, point-of-use units, which treat water at the tap, may be the best option.

Following installation of a treatment device, water quality should again be tested to verify the operation of the device. After that, water should be tested at least annually to confirm treatment effectiveness. A maintenance agreement for such devices is highly recommended.