



Chemicals in Private Drinking Water Wells Fact Sheet Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of arsenic typically found in drinking water wells.

Arsenic

What is arsenic?

Arsenic is a naturally occurring metal. It is in rocks and soil, water, and air. Arsenic is also in plants and animals. There are trace amounts of it in all living matter.

Wood preserving takes up nearly 90% of man-made arsenic in the United States. Other uses include making pesticides, paints, dyes, metals, drugs, soaps, and semi-conductors.

Arsenic deposited on the ground from industrial or agricultural uses tends to stay in the top few feet of soil for a long time. When dissolved in water, arsenic has no smell, taste, or color. This is true even at high levels.

How might exposure to arsenic in drinking water occur?

- Water that seeps through the rock dissolves some arsenic and carries it into aquifers, under the ground, where water is stored. Some aquifers are used for drinking water.
- Drinking water that contains arsenic as a result of proper or improper use or disposal of wastes.

What is the standard for arsenic in drinking water?

The Florida Department of Environmental Protection drinking water standard for arsenic is 10 micrograms per liter (10 ug/L). There is no required sampling of private drinking water wells.

How can arsenic affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times less than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, the risk of illness increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?

- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Health effects from exposure to arsenic in drinking water typically take years to develop. At low levels, darkening of the skin (hyperpigmentation) may take years to develop.

Too much direct sunlight and cigarette smoking may worsen the effects of arsenic exposure. Apart from arsenic, stopping smoking and reducing excess sun exposure reduces the risk of many diseases.

How likely is arsenic to cause cancer?

The World Health Organization, the U.S. Department of Health and Human Services, and the U.S. Environmental Protection Agency have all determined exposure to inorganic arsenic increases the risk of cancer in humans. These include cancers of the lung, skin, bladder, liver, kidney, and prostate. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for arsenic exposures?

There are tests to measure the level of arsenic in blood, urine, hair, or fingernails. The urine test is the most reliable test for arsenic exposure occurring within the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if exposure to above-average levels of arsenic. They cannot predict how the arsenic levels in your body will affect your health.

Is it safe to keep drinking water with arsenic in it?

Levels of arsenic less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to arsenic in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for arsenic at: www.atsdr.cdc.gov/toxfaqs/tfacts2.pdf