

WHAT ARE RADIUM AND URANIUM?

Uranium is a naturally occurring radioactive metal. Radium is formed when uranium decays in the environment. Small amounts of radium and uranium occur in groundwater in certain parts of Georgia. Radium can be found in groundwater more frequently in the southern *Coastal Plain* region. Uranium in groundwater occurs mainly in the northern *Piedmont* region. As a result, a small number of public drinking water systems have recently been identified that exceed the federal drinking water standards for radium and uranium.

Radioactive elements are unstable in nature and to reach a more stable condition, they give off energy, or radiation. The main type of radiation emitted by radium and uranium is the alpha particle. Initial water testing is usually for alpha radiation, and additional testing is required to identify uranium and radium.

While this is not an immediate health concern, you should know what is in your drinking water. This brochure will help you understand the problem, how it affects you, and what can be done to reduce or eliminate exposure.



IS MY WATER SAFE?

Testing public drinking water systems for radioactivity has been required by the U.S. Environmental Protection Agency (EPA) since the 1970's. The EPA establishes maximum contaminant levels (MCLs) for radioactive contaminants, and MCLs recently became more protective for some substances. Current MCLs are well below levels at which health effects have been observed. Therefore, they are assumed to be protective of the public's health.

In Georgia, about two percent of the public drinking water systems have radium or uranium at levels above the MCLs. This is naturally occurring and not the result of pollution. If your water system is affected, your water provider will notify you, and they will take measures to reduce the levels and keep you informed.

WHAT ARE THE HEALTH EFFECTS FROM EXPOSURE?

Radium and uranium in water may pose a health risk when the water is used for drinking and cooking over many years. The amount of radiation received from showering, washing clothes, or other uses is not significant. Skin contact with water containing radium and uranium is not a health risk.

A small amount of radium and uranium in drinking water is absorbed into the body from the digestive tract but most is eliminated. Absorbed uranium settles in body tissues, and over a period of time it can affect kidney function. Absorbed radium deposits mostly in bones, slightly increasing the risk of bone, liver, and breast cancer. The increased cancer risk associated with consuming water containing radium at the MCL for one year is comparable to one chest X-ray, or the cosmic radiation from one round trip flight from Georgia to California.

Geologic Regions of Georgia



? COMMON QUESTIONS ?

Is my water safe to drink?

Yes. Please read the back of this brochure for ways to reduce exposure to sensitive populations including pregnant and nursing women, infants and small children.

Is my drinking water monitored?

Yes. By law, all public water systems must be monitored for radioactivity.

Can I use my water for bathing and laundry?

Yes, this water can continue to be used for bathing, showering, dish and clothes washing.

Can I water my garden?

Yes, this water can continue to be used for growing food.

Can public water systems correct the problem?

Yes. Your water provider is working with state regulators to correct problems in systems that exceed MCLs. Corrective methods include obtaining a new water source, blending water from more than one source, and removing radium and uranium by treatment.

WHAT SHOULD I DO?

We cannot eliminate radiation from our environment. We can, however, reduce possible health risks by minimizing our exposures to it. The risks to health from radium in water do not represent a health emergency and radium can be controlled by your water provider by using treatment or finding a supply with lower levels.

The risk estimates* from exposure to radium and uranium in drinking water assume that an individual drinks two liters of water each day for 70 years. If you drink less tap water or consume more bottled water instead, your health risk will be reduced.

Sensitive Populations

Infants and young children are the population most at risk for adverse health effects from repeated exposure to radium and uranium in drinking water. Because of their body weight and developing systems, infants and children are exposed to higher doses. Their growing bodies absorb more contamination and can sustain permanent damage if exposures occur during critical growth stages.

Therefore, pregnant and nursing women, women who may become pregnant, infants and small children are sensitive populations that should avoid consuming large quantities for an extended period of time.

The estimated health risks from exposure to low levels of radium and uranium are small, and short term exposures pose only extremely small risks. Talk to your health care provider regarding your particular health concerns.

** Risks estimates are only for radionuclides tested and their progeny in equilibrium.*

FOR MORE INFORMATION

**Georgia Division of Public Health
Chemical Hazards Program
(404) 657-6534**

www.health.state.ga.us/programs/hazards

**Georgia Environmental Protection
Division
Drinking Water Compliance Program
(404) 656-4807**

www.gaepd.org

**U.S. Environmental Protection Agency
Radiation Protection Programs
(404) 562-9459**

www.epa.gov/radiation/basic

RADIUM AND URANIUM IN PUBLIC DRINKING WATER SYSTEMS

