Uranium in Drinking Water

FACT SHEET SWP-109 **June 2009**

What is Uranium?

Uranium is a naturally occurring element that has been in rocks since the earth was formed. Not all rocks contain uranium, but there are some places in Montana where uranium is in the bedrock and in valley fill sediments that have eroded from the bedrock of the adjacent upland or mountainous areas. Uranium breaks down (decays) very slowly into other elements including radium and radon gas. These other elements are part of a sequence formed through a transformation (decay) process that begins with the most prevalent form of "natural" (unprocessed) uranium (U-238).

Is There Uranium in My Well Water?

The amount of uranium in well water varies from place to place; without testing, it is not possible to determine if the water can be considered safe for drinking. In fact, most drinking water contains a range of naturally occurring elements and/or compounds. Historically, few drinking water wells were tested for uranium. As public awareness about water quality-related health affects increases, more wells are being analyzed for a full complement of substances including uranium. This is leading to increased knowledge about the occurrence of uranium in Montana's domestic water wells.

How Can Uranium Affect My Health?

The chemical properties of uranium in drinking water are of greater concern than its radioactivity. Most ingested uranium is eliminated from the body; only a very small amount is absorbed and carried through the bloodstream. Studies show that drinking water with elevated levels of uranium can affect the kidneys over time. Bathing and showering with water that contains uranium is not a health concern as uranium is not readily absorbed through the skin.

How Can I Make Sure That My Well Water Safe For Drinking?

Uranium testing should be your first step. Based on the results, your decision may be to install a treatment system or find an alternative water source. To find out if you have uranium in your drinking water, the Montana Department of Environmental Quality recommends that you contact a certified laboratory for cost and "how to sample" information. Uranium analysis is usually less than $30 and requires no special collection techniques. To obtain a list of State-certified laboratories, go to the Source Water Protection links page (http://www.deq.mt.gov/wqinfo/swp/Links.asp), click on Montana Certified Drinking Water Labs under the header labeled "**Water Quality**". Note that not all labs analyze for uranium.

If you do have uranium at a concentration greater than the EPA drinking water standard of 30 micrograms per liter (ug/l), DEQ recommends that you install a treatment system in your home.

Why Should I Buy a "Point of Use" Reverse Osmosis System?

A "point of use" treatment system typically treats a small amount of water and makes it available through a separate drinking water tap at the kitchen sink. Most units can also provide water to the icemaker and water dispenser in the refrigerator.

"Point of use" reverse osmosis (RO) treatment will remove many different contaminants from your drinking water, including uranium. Testing shows that reverse osmosis treatment will remove 90-99 percent of uranium. Point of use RO systems are available from a variety of hardware or home improvement stores and typically cost under $300 for the unit plus installation (you can save money by doing the installation yourself). A point of use RO system will produce about 7 to 14 gallons a day of drinkable water. This amount of production should meet the cooking and drinking needs of a standard household. RO units are usually preceded by a water softener where the water is hard or very hard in order to extend filter life. RO maintenance includes an annual change of the filters.

To fix a uranium problem it is necessary only to treat the water you drink. Whole house treatment units (ion exchange) are available, but are not usually necessary because uranium gets into the body through ingestion. It is safe to shower in because uranium is not absorbed across your skin. Also, uranium does not "evaporate" from the water into the air you breathe.

Additional Contacts: Where can you get help?

- Montana DEQ Source Water Protection Program. (406) 444-6697
- County Environmental Health Department or Sanitarian's Office under *County Government* listings in the phone book.
- Montana State University Extension Water Quality Program. (406) 994-6589

References:

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