

GROSS BETA RADIATION IN PRIVATE WATER WELLS FREQUENTLY ASKED QUESTIONS



Q: What are the sources of gross beta radiation in water wells?

A: Certain rock types have naturally occurring trace amounts of mildly radioactive elements. Sources of gross beta particles include the natural decay of uranium and thorium in rocks and soil; and potassium (K-40) which is found in bananas and other foods and is the largest source of natural radioactivity in humans.

Q: What are the potential health effects from drinking water containing gross beta radiation?

A: EPA has classified all radioactive contaminants as known human carcinogens. The Kansas Department of Health and Environment assessed the rate for all cancers combined for Hamilton, Kearny and Finney counties and did not find a higher cancer rate compared to the state. Whether this contaminant will have an impact on your health or the health of your family will depend on several factors including how high the concentrations are, how long you have been exposed to contaminated water, and whether you were exposed by drinking, breathing in, or touching contaminated water. Whether or not a person develops health effects will also depend on several other factors including diet, lifestyle, general health status, smoking status, and exposures to other contaminants. If you are concerned, you should talk to your health care provider and develop a plan for screening.

Q: What levels are considered acceptable for gross beta radiation found in water wells?

A: For public water supply systems, the EPA established a maximum drinking water contaminant level of 4 millirems per year for gross beta radiation. For more information on how this contaminant level was developed please refer to EPA's Federal Register 40 CFR Parts 9, 141, and 142 National Primary Drinking Water Regulations; Radionuclides; Final Rule: <https://www.govinfo.gov/content/pkg/FR-2000-12-07/pdf/00-30421.pdf>.

Q: Should I test my private water well for gross beta radiation?

A: If you use your private well for drinking water purposes you should have your well tested. You can contact your local KDHE office to ask for assistance in sample collection and testing (http://www.kdheks.gov/befs/dist_office.html). Additionally, you can go to KDHE's Private Water Well website http://www.kdheks.gov/wellwateraware/local_resource_map.htm to access contact information for certified water well testing labs, sampling protocols, testing procedures and guidance documents.

Q: What if my test shows elevated levels of gross beta radiation in my private well? How do you treat it and what are the costs?

A: If elevated levels are found, consider using bottled water for drinking and cooking, research how to connect your home with a local public water supply or consider in-home treatment methods. Please visit https://www.watersystemscouncil.org/download/wellcare_information_sheets/well_water_testing_&_treatment_information_sheets/DrinkingWaterTreatmentsandCostsFINAL.pdf for more information on treatment for homeowners, including estimated treatment costs.

Q: Are the public water supplies in my community safe?

A: Yes. The Safe Drinking Water Act (SDWA) authorizes and permits the Environmental Protection Agency (EPA) to set national standards for drinking water contaminants. Through the Kansas Department of Health and Environment all public water supply systems are required to monitor and comply with those standards.

Q: Are there ways to mitigate the health impacts for people who have been consuming water with elevated gross beta radiation for a long period of time?

A: If you are concerned, you should talk to your health care provider.

Q: If livestock drink contaminated water is the meat or milk contaminated?

A: The brevity of lifetime for cattle limits the time for any mineral residue buildup. There are no studies that show a mineral buildup in the meat or milk.

Q: If root vegetables are grown in areas with soil or water contamination is it safe to eat?

A: The brevity of lifetime for plants limits the time for any mineral residue buildup. Generally, if the amount measured in soil and water used to grow produce is low, the amount deposited in the produce would likely fall below the detection limits.

Sources:

- Kansas State University Extension. 2003. MF1142 Organic Chemicals and Radionuclides in Drinking Water.
- U.S. EPA. Undated. Radionuclides (Beta Particles and Photon Emitters) Fact Sheet. Available at: <https://safewater.zendesk.com/hc/en-us/sections/202346477-Beta-particles-and-photon-emitters>. Accessed on July 13, 2019.
- Health Physics Society. Undated. Are our bodies radioactive fact page. Available at: <https://hps.org/publicinformation/ate/faqs/faqradbods.html>. Accessed on July 17, 2019