SULFATE IN PRIVATE WATER WELLS FREQUENTLY ASKED QUESTIONS

Kansas Department of Agriculture | Kansas Department of Health and Environment | Kansas Water Office

Q: What are the sources of sulfate in water wells?

A: Sulfate is a combination of sulfur and oxygen. The sulfate mineral dissolves over time and is released into groundwater. Sulfur odor is produced when non-harmful sulfur-reducing bacteria digest a small amount of the sulfate mineral.

Q: What are the potential health effects from drinking water containing sulfate?

A: Sulfate can have a laxative effect on people unaccustomed to sulfate in their drinking water, which may lead to dehydration. The United States Environmental Protection Agency (US-EPA) considers sulfate a secondary water contaminant, with no direct threat to human health.

Q: What levels are considered acceptable for sulfate found in water wells?

A: For public water supply systems, the EPA established a secondary maximum contaminant drinking water level of 250 milligrams per liter (mg/L) for sulfate. The National Secondary Drinking Water Standard is a non-enforceable guideline regarding contaminants that may cause cosmetic or aesthetic effects in drinking water. For more information on how this contaminant level was developed please refer to EPA's Contaminant Candidate List Regulatory Determination Support Document for Sulfate: https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_sulfate_dwreport.pdf

Q: Should I test my private water well for sulfate?

A: If you use your private well for drinking water purposes you should have your well tested. You can contact your local KDHE district 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 sulfate 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. The three most common methods for homeowners to remove sulfate are distillation, anion exchange, and reverse osmosis. 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. For a current list of reverse osmosis units NSF (National Sanitation Foundation) International certified for treatment of sulfate, visit http://info.nsf.org/Certified/DWTU/Listings.asp?ProductFunction=058%7CTDS+Reduction&. Currently there are no distillation or anion exchange products currently NSF International certified for treatment of sulfate.

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

A: Yes. The Safe Drinking Water Act (SDWA) authorizes and permits 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. There is no contamination standard for sulfate because it is considered a secondary water contaminant. For more information on secondary drinking water standards go to https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals#table-of-secondary.

Q: Are there ways to mitigate the health impacts for people who have been consuming contaminated water for a long period of time?

A: Whether these contaminants will have an impact on your health or the health of your family will depend on a number of 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 a number of 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 about all of these factors and develop a plan for screening.

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. 1995. EP-29 Quality Water: Sulfate—Sulfide. Available at http://www.kdheks.gov/nps/lepp/download/EP29Sulfate.pdf. Accessed on July 16, 2019.

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