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Well Water Contamination

Well water pump and bucket. *Public domain image.*

What is well water contamination?

Since wells draw water from underground sources, well water contamination indicates groundwater pollution. Many of the same nutrients and bacteria from animal manure that run off into surface waters can also seep into groundwater. Nitrate contamination is a particular concern in groundwater because nitrates are water-soluble and highly mobile in soil.

What causes well water contamination?

Well water gets contaminated if there is pollution in groundwater sources. CAFOs contaminate groundwater supplies when animal waste leaches through the soil. Manure lagoons usually have a clay liner to prevent leaks, but these liners still permit a significant amount of seepage to groundwater. According to the National Farmers Union, lagoon seepage may accumulate to over four million gallons of wastewater each year. Leaching can also occur when manure is overapplied to soil.

Certain soil types are more susceptible to groundwater contamination because of their ability to absorb liquids. Sandy and gravelly soil types (called Group A soils) produce greater groundwater contamination concerns because there is more space between soil particles to allow liquids to seep through.

Furthermore, karst topography makes Missouri prone to groundwater pollution and thus well water contamination. “Karst topography” refers to underground features like caves and sinkholes which form where rock types are erodible. Groundwater may exist closer to the

surface in these features, and therefore come in contact with pollutants before they have the chance to be filtered through layers of soil. More than half of Missouri is underlain by carbonate rock which may contain karst features. Read more about karst topography from the National Park Service (NPS) here.

Why should you be worried?

Regulation. In some parts of the state, Missourians rely almost exclusively on groundwater sources of drinking water and groundwater contaminants like nitrates, *E. coli* and other bacterial pathogens may go undetected because they usually do not affect the color or odor of water. If your drinking water comes from a public source, you should not be concerned because public water is tested and treated for contamination under the Safe Drinking Water Act (SDWA). However, private water sources are not regulated under SDWA and an estimated 1.4 million Missourians pump drinking water from private wells. If your drinking water comes from a private well, you should have it tested today – especially if you leave near a CAFO.

Human health. Groundwater contaminants pose serious human health concerns. Nitrate contamination can cause blue baby syndrome and is linked to higher rates of cancer and illness in adult populations. Bacteria can cause a variety of illnesses which may produce fever, vomiting, and diarrhea.

What can you do?

1. **Get your private well water tested through the Missouri State Public Health Laboratory (MSPHL).** The MSPHL will test private water supplies for *E. coli*, coliforms, and iron bacteria by request. You may also request a 'mineral nutrients and metals test' which includes nitrates among about 30 other criteria. You can contact your local public health agency or the Bureau of Environmental Epidemiology through the Missouri Department of Health and Senior Services (DHSS) to receive a test request form, water sample collection kit and instructions. There is a $10 handling fee to send in your samples for testing. See the DHSS' webpage on private drinking water testing for contact information and details.

2. **Get your private well water tested through the Springfield-Greene County Health Department (SGCHD).** The SGCHD tests private well water samples for both nitrates and "standard bacteria" and provides step-by-step instructions for proper collection. You can drop off your sample at 227 E Chestnut Expwy Springfield, MO 65802 between 8:00 AM and 5:00 PM Monday through Wednesday or between 8:00 AM and 3:00 PM on Thursday. Call the Department at 417-864-1672 to request a testing kit and ask any additional questions.

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