

APPLETREE



Hooksett Residential Well Health Consultation

APPLETREE – Who we are and how can help

Our team includes staff from the New Hampshire Department of Environmental Services (NHDES) and the New Hampshire Department of Health and Human Services, Division of Public Health Services (NH DPHS). We have expertise in health risk assessment, toxicology, health education, community engagement, and project management. Through funding from the Agency for Toxic Substances and Disease Registry (ATSDR), we can work with communities to reduce exposure to environmental hazards, and in turn reduce risk for negative health outcomes associated with exposure.

Background

Routine sampling conducted in Hooksett for a State project showed uranium present in groundwater at high levels. Drinking water with high levels of uranium puts people at risk for negative health outcomes. Groundwater is a source of water for people who get their drinking water from residential wells. Some residents of Hooksett are served by a public water system, which means that there are rules, regulations and processes in place to ensure that the water they drink is safe; however, many residents get their water from residential wells. While there are guidelines and recommendations related to residential well water-quality, testing and treatment is not required.

NHDES worked in coordination with NH DPHS, and with the United States Environmental Protection Agency (EPA) to develop and implement a plan to sample residential well-water in the Hooksett Community. The goal of the sampling was to understand the extent of exposure to harmful contaminants, and to develop health-based recommendations to reduce exposure and risk.

Identified contaminants of concern and associated health risks

Contaminant	Associated health risk
Uranium	Certain cancers, kidney damage
Radon	Certain cancers
Manganese	Neurological effects in infants and children
Arsenic	Certain cancers, diabetes, heart disease, and skin lesions; short term exposure among pregnant women associated with impact to fetal growth and increased infections in first year of life of infants
PFAS	Increased cholesterol, changes in liver enzyme levels, altered hormone function, delayed growth in infants, and potentially certain cancers, associated with chronic exposure to certain PFAS

The preceding table includes detail about contaminants found in private drinking water wells in Hooksett. For the most part, increased risk is associated with long-term exposure, meaning continued exposure to a high level of the contaminant over the course of many years.

Testing of residential wells in Hooksett shows that residents of the community are more likely to be exposed to high levels of uranium and radon compared to other New Hampshire residents, and some residents are also exposed to other contaminants of concern. Contaminants such as uranium, radon, arsenic and manganese are naturally occurring in the environment. Other contaminants, such as PFAS, are manufactured and can make their way into drinking water sources through air and groundwater.

Recommendations to reduce exposure and risk

It is important to note that increased risk does not mean that a negative health outcome will definitely occur. Instead, an increased risk translates to an increased chance or likelihood of a negative health outcome occurring. The good news is that there are actions that residents can take to reduce exposure and risk. NHDES and NH DPHS recommend the following actions:

1. **Test your well water:** NHDES was unable to sample wells of all homeowners in Hooksett, and testing was limited to certain contaminants. Additional water testing is recommended to determine whether or not treatment is needed. We recommend routine well testing every 3-5 years (except for bacteria and nitrates, which should be checked annually). NHDES can be contacted for discussion of test results.
2. **Test your home air for radon gas:** The high levels of uranium and radon in drinking water for homes in the area mean that homes are more likely to have high levels of radon in the air. We recommend that homeowners test their home for radon in the air.
3. **Install treatment to reduce exposure to contaminants in water and air:** We strongly recommend treatment of residential well water when contaminant levels are higher than health guidelines and standards. Similarly, we recommend treatment when there is a high level of radon found in the home.

Resources

Our team can provide support as you take these recommended actions.

To learn more about drinking water quality, testing and treatment and for help with interpreting your water quality test results, visit the [NHDES Private Wells webpage](#).

To learn more about radon in your home, visit the [NH DPHS Radon webpage](#).

NHDES APPLETREE Team: Karen Craver, MPH, karen.m.craver@des.nh.gov

New Hampshire Radon Program: Kathleen Bush, Ph.D., kathleen.f.bush@dhhs.nh.gov