HAMPSTEAD WATER RESOURCES COMMITTEE

Fact Sheet: Understanding Groundwater Contaminants, Pollution & Prevention

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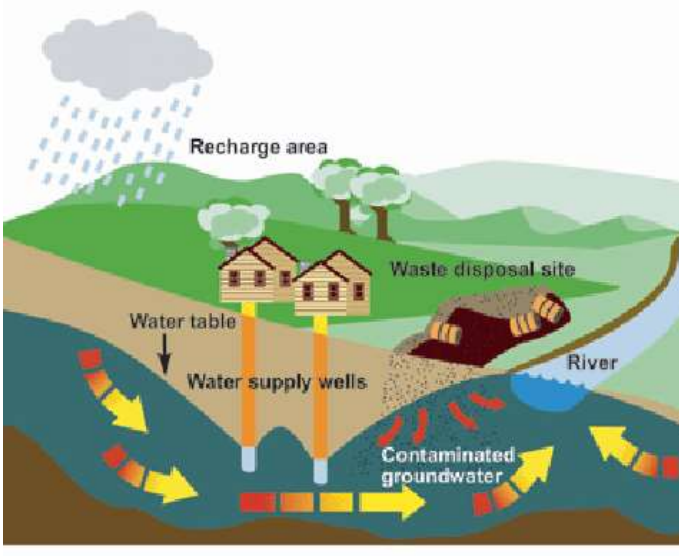
Understanding Groundwater Contaminants, Pollution, and Prevention

Groundwater is a vital resource. It is the drinking water source for about 75 percent of New Hampshire residents and most of Hampstead's drinking water is from groundwater resources. Virtually any activity whereby chemicals or wastes may be released to the environment, either intentionally or accidentally, has the potential to pollute groundwater. Natural sources of groundwater contamination also exist. When groundwater becomes contaminated, it is difficult and expensive to clean up. Protecting public health from groundwater contamination and pollution requires a combination of prevention, testing and treatment.

How Does Groundwater Become Contaminated?

Groundwater is water that is found underground within the pores, cracks and spaces within soil, sand and rock. Water moves through these spaces at different speeds depending on the size of the spaces and their interconnections. Groundwater is replenished by rain and snowmelt that fill up these spaces within the soil. The physical properties of the ground such as thickness, rock or sediment type, location and land uses present, play a large part in determining whether contaminants from the land will reach the groundwater.

Groundwater Contamination Pathways



Source: US Geological Survey

As water flows through the ground, contaminants such as arsenic, radon, mercury, iron, and manganese are dissolved and may later be found in high concentrations in the water. These naturally occurring contaminants can be safely removed from drinking water at homes and businesses with filtration technologies.

When pollutants are in an area where they can sink into the ground (known as a permeable surface) they can impact groundwater supplies. Pollutants can be located either above ground or just below ground. Groundwater pollution can also occur when pollutants flow off

impervious surfaces (hard surfaces such as roads, parking lots, and rooftops) with rain, snowmelt or stormwater. Groundwater pollution sources from human activity include waste disposal sites, industrial and manufacturing facilities, septic systems, underground fuel storage tanks, road salt, fertilizers, pesticides and deposition from the atmosphere. Some of the most common groundwater contaminants produced by humans include bacteria, chloride, nutrients (phosphorus and nitrogen), and chemical byproducts or additives such as PFOAs and MtBE.

Common Groundwater Contaminants

Human Sources	Naturally Occurring Sources
Bacteria, including e.coli	Arsenic
Chloride (from road salt)	Radon
Nitrogen	Mercury
Phosphorus	Iron
PFAS compounds: Per- and Polyfluoroalkyl Substances (PFOAS)	Manganese
Petroleum component, including MtBE a gasoline additive banned in NH in 2007	

Contaminants produced by human activities are found throughout modern life and persist in the environment, particularly in water. **Preventing these contaminants from release into the environment is far less costly and better for human and ecosystem health than trying to remove them or mitigate their impact once released.** Prevention relies on strict controls on the production, use and handling of contaminants.

How Can You Prevent Groundwater Contamination?

There are several ways to help protect yourself and your community from existing groundwater contamination and preventing future contamination.

Individual Actions:

- Get your private well tested annually or read your water supplier's annual water quality report. More information is available at the NH Department of Environmental Services *Be Well* webpage at https://www4.des.state.nh.us/DWITool/Welcome.aspx
- Eliminate or minimize the use of hazardous chemicals, fertilizers, and pesticides. If they must be used, handle them in accordance with manufacturer's specifications and store them safely indoors so that spills or leaks cannot soak into the ground or be washed away by precipitation.
- Properly dispose of all waste: do not dump chemicals down the drain or onto the ground.
- Have your septic system inspected every three to five years and have it pumped when necessary.
- Have any underground fuel tanks tested for leaks and replace them with above ground tanks if possible.

Community Actions:

- Encourage or require businesses to follow best management practices to prevent potential contamination.
- Ensure land use planning regulations and decisions prioritize the protection of groundwater sources from activities that may be potential sources of contamination.
- Continue to host household hazardous waste collections to ensure opportunities for proper waste disposal.
- Incorporate protection of groundwater resources when conserving open spaces.
- Invest in routine monitoring of surface and groundwater resources throughout Hampstead.

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