Why test for PFA's?

This summer there was an article in the press about the Canadian government wanting municipalities to test drinking water for PFA's. In an article entitled *Guidelines for Canadian Drinking Water Quality* the argument is made that removal of PFA's from drinking water is urgent:

> The development of Guidelines for Canadian Drinking Water Quality follows a comprehensive scientific process and takes many years to finalize. In rare instances, new information on a contaminant raises concerns that need to be addressed more quickly than the guideline development process allows. In such cases, Health Canada, in collaboration with the provincial and territorial governments, may establish an objective to reduce exposure from drinking water while a guideline is revised or developed. This is the case with per- and polyfluoroalkyl substances (PFAS) (p.5) (https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/objective-drinking-water-quality-per-polyfluoroalkyl-substances/objective-for-canadian-drinking-water-quality-en-final.pdf)

PFA's (per- and polyfluoroalkyl substances) are ubiquitous in the environment. Some are volatile and airborne, others are in soil, water. plants, animals and humans. They are 'forever chemicals' – they degrade very slowly and are present in the environment for a long time. PFA's have been deemed as toxic under the Canadian Environmental Protection Act of 1999, meaning they are present in sufficient quantity in the environment to harm the environment or biological diversity and in sufficient quantity to cause a danger to human life and health.

PFA's are currently used in many industries to add water repelling qualities to the products. Here are some examples. A PFA surfactant forms a foam blanket over a fire, cutting off the oxygen, so PFA's are found in fire-fighting foam. PFA's are intentionally added to cosmetics such as foundations, cleansers, conditioners, exfoliators and creams to improve penetration of other ingredients into the skin, enhance brightness and improve the durability of makeup. PFA's are embedded in textiles to make clothing water resistant. PFA's are added to food packaging (the highest fluorine levels are found in molded fibre bowls, however the presence of PFA's in food appears to be through bioaccumulation through aquatic and terrestrial food chains, not migration from food packaging). PFA's are used in paint, ski waxes, building materials, pesticides, medical devices, military and transportation equipment and many other manufactured goods. Their widespread use is because of their ability to repel oil and water and resist degradation.

The message from the mass of scientific experiments is that exposure to PFA's has the potential to affect multiple systems and organs. Many studies have been done which link the presence of PFAs in animals to effects on body weight, kidney and liver function, the immune, endocrine and reproductive systems, the development of the nervous system, thyroid and adrenal hormones and disruption of serum lipids and glucose homeostasis.

Standard wastewater treatment plant technologies are generally ineffective at reducing or eliminating PFA's. The most effective treatment technologies for the removal of PFAs are, alone or combined, granular activated carbon, membrane filtration (reverse osmosis and nanofiltration) and anion exchange.

Since PFA's are found everywhere, it is suggested that we take a sample near the bottom of the watershed in McKellar Township (near Hurdville) to alert residents, if necessary, to the need to protect themselves by treating their drinking water sufficiently to remove PFA's.

Here are the links to some references on PFA's in the environment:

State of Per- and Polyfluoroalkyl Substances (PFAS) Report Environment and Climate Change Canada Health Canada March 2025
https://publications.gc.ca/collections/collection_2025/eccc/En84-395-2025-eng.pdf

Per- and polyfluoroalkyl substances (PFAS) and your health, Government of Canada

https://www.canada.ca/en/health-canada/services/chemicals-product-safety/per-polyfluoroalkyl-substances.html

Guidelines for Canadian Drinking Water Quality - Summary Tables,
https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html

Biosolids and Per- and Polyfluoroalkyl Substances (PFAS) Fact sheet

https://pfas-1.itrcweb.org/wp-content/uploads/2023/10/Biosolids_PFAS_Fact_Sheet_Sept2023_final.pdf

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