



PFAS in Source Water: Preparing for New Regulations

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The City of Guelph is the largest Canadian city to depend almost exclusively on groundwater as a drinking water source. Given the historic high quality of Guelph's source water, limited treatment facilities have traditionally been needed to support the provision of municipal drinking water to City residents. While the City's management of their drinking water source aligns with the requirements of Ontario's Clean Water Act (2006), this Act to date does not explicitly regulate PFAS (per- and polyfluoroalkyl substances) as a specific category or with specified regulated standards – a gap that is not unique to Ontario. The widespread use of these persistent synthetic chemicals in manufacturing for over eight decades has led to their ubiquitous presence in various environmental media, creating concerns regarding potential impacts to source water and drinking water. Public Health Ontario has acknowledged the presence of PFAS in the environment and the need for exposure reduction measures; however, Ontario's regulatory framework, as well as those of other provinces, are still evolving to address these substances more comprehensively.

In August 2024, Health Canada (HC) finalized their Drinking Water Objective (DWO) at a concentration orders of magnitude lower than the previous federal drinking water guidelines and screening values. As the provinces have been working with the federal government to develop approaches for regulating PFAS in drinking water, it is expected that Ontario (and potentially other provinces) will soon release updated guidelines for PFAS in drinking water, which may align with the new DWO. Given the anticipated decrease in the PFAS guideline and the ubiquitous presence of these chemicals, the City of Guelph recognized the potential for unplanned capital expenditures (i.e., new drinking water treatment facilities). As such, the City decided to pro-actively undertake a screening approach to evaluate the potential for PFAS concentrations in their source water to exceed the HC DWO. This work was completed as part of the City's risk management and capital planning efforts.

This presentation will explore the process by which screening effort was completed, including the risk evaluation completed for each supply well, the approach applied to identify and select monitoring wells for inclusion in the program, and the unique protocol developed to support collecting representative samples from deep municipal monitoring wells. It will outline how the approach

aligns with the Source Water Protection framework, review the learnings and recommendations that have been derived from the program, and provide perspective to other municipalities and drinking water providers in Canada regarding the options and approaches for preparing for regulatory and policy changes related to PFAS.

Krista Barfoot

Krista Barfoot is a PFAS and contaminated sites specialist at SLR Consulting, with almost 30 years of experience. Holding a Doctor of Philosophy (Ph.D.) from the University of Guelph, she is a Chartered Chemist (C.Chem.) per the Association of the Chemical Profession of Ontario and a Qualified Person for Risk Assessment (QPRA) under O. Reg.153/04. Experienced in PFAS investigative and analytical approaches, risk assessment considerations, and remediation techniques, her PFAS project experience includes aqueous film forming foam release sites, landfills, brownfield sites, wastewater treatment plants, and drinking water supply assessments. Her work has included consideration of impacts to agricultural products, and food and water consumption exposure pathways. Recent efforts have also included supporting clients with meeting their PFAS reporting obligations under the Canadian Environmental Protection Act. Dr. Barfoot is engaged and holds leadership positions in a number of industry associations, including the Ontario Environmental Industry Association (ONEIA) and Canadian Brownfields Network (CBN). Dr. Barfoot is Past President of the CBN and Co-Chair of ONEIA's PFAS Committee.

Albanie Douglas

Albanie Douglas is a Hydrogeologist and Risk Management Inspector (RMI) for the Sourcewater Protection Program with the City of Guelph, and a practicing member of the Professional Geoscientists of Ontario (PGO) with over 18 years of experience. She has extensive experience in water supply development and contaminant transport through her professional career, and more recently has acquired a broadened knowledge of PFAS under the evolving regulatory framework. Her knowledge of contaminant transport stems from acquiring a Masters of Science in Contaminant Hydrogeology.