

Ministry of the Environment, Conservation and Parks

# Potential Hazardous Events for Municipal Residential Drinking Water Systems to Consider in the DWQMS Risk Assessment

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## 1.0 Background

A risk assessment must be conducted for all municipal residential drinking water systems, as part of the operational plans for those systems. These operational plans form the basis upon which third party auditors assess conformance to the Drinking Water Quality Management Standard.

This approach includes identification of potential risks and risk mitigation strategies for items such as system security, water treatment, and the impacts of climate change. This document lists the potential hazardous events and associated hazards that are, at a minimum, required to be assessed as part of these risk assessments.

## 2.0 Definitions

All Systems - all municipal residential drinking water systems, including distribution-only systems.

Treatment Systems - all municipal residential drinking water systems that include equipment used to provide primary and/or secondary disinfection of the drinking water, including those with groundwater and/or surface water sources unless otherwise noted.

### 3.0 Potential Hazardous Events

System Type	Description of Hazardous Event / Hazard
All systems	Long Term Impacts of Climate Change
All systems	Water supply shortfall
All systems	Extreme weather events (e.g., tornado, ice storm)
All systems	Sustained extreme temperatures (e.g., heat wave, deep freeze)
All systems	Chemical spill impacting source water
All systems	Terrorist and vandalism actions
All systems	Cybersecurity threats
Distribution Systems	Sustained pressure loss
Distribution Systems	Backflow
Treatment Systems	Sudden changes to raw water characteristics (e.g., turbidity, pH)
Treatment Systems	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system).
Treatment Systems and Distribution Systems providing secondary disinfection	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
Treatment Systems using Surface Water	Algal blooms