

DRINKING WATER THREATS FACTSHEET

Establishment, Operation or Maintenance of a system that collects, stores, transmits, treats or disposes of sewage (with the exception of septic systems)

What is the Threat?

This threat category includes a wide range of activities primarily under the control of municipalities. These activities include:

- Discharge of stormwater from a stormwater management pond
- Sanitary sewers and related pipes
- Sewage treatment plant (STP) effluent discharges, including lagoons
- Storage of sewage (e.g., wastewater treatment plant storage tanks)
- Industrial effluent discharges
- STP bypass discharge
- Combined sewer discharge

Discharge of Stormwater from a Stormwater Management Pond

Stormwater refers to rainwater runoff, water runoff from roofs, snowmelt and surface runoff. Stormwater can be managed by a hierarchical approach - at the source, through conveyance, and finally end-of-pipe collection systems for quality and quantity – often under a stormwater management plan. Twenty chemicals and pathogens are included in the Ministry of the Environment and Climate Change (MOECC) Tables of Drinking Water Threats (2009) for stormwater management facilities. Any of these contaminants can make their way into surface water and groundwater and threaten the safety of a drinking water source.

Sanitary Sewers and Related Pipes

These pipes collect sanitary waste from all the serviced buildings in the area and direct the wastewater to a treatment plant where the water is treated before being discharged into surface waters. Leaks in sewer lines as a result of tree roots, soil slippage, sewage backup, improperly constructed pipelines, or age of system are a threat to drinking water because raw sewage may mix with other waste products.

Sewage Treatment Plant Effluent Discharges (including lagoons)

Sewage treatment plants (STP) treat the collected sewage from households, commercial establishments, industries and institutions. Treatment may be primary, secondary or tertiary with each level improving the quality of the plant effluent. The effluent can be directly released to a watercourse or waterbody.

Storage of Sewage (treatment plant tanks)

Many STP have underground and/or above ground tanks used in the treatment process or to store sewage prior to or after treatment. These storage tanks may leak or spills may occur, potentially contaminating the groundwater or surface water.



Industrial Effluent Discharges

Industrial sewage works are any works for the collection, transmission, treatment or disposal of effluent generated from industrial operations. These works include, but are not limited to:

- Process and cooling water streams, including discharges from heat pump systems;
- Industrial sewage lagoons and biological treatment plants;
- Wastewater treatment systems for sectors such as pulp and paper and meat processing facilities;
- Quarry and mine dewatering systems and wash plants;
- Landfill leachate treatment systems;
- Groundwater remediation treatment systems, including mobile units; and
- River/harbour dredging projects with treatment facilities on-shore.

Sewage Treatment Plant Bypass Discharge

Sometimes the capacity at a sewage treatment plant is overwhelmed and partially treated or untreated sanitary waste is released into the receiving water body. This occurrence is generally as a result of an extreme wet weather event (i.e., significant rainfall or snowmelt) where the sanitary sewer network is not completely isolated from stormwater. Bypasses can be of untreated or partially treated wastewater. Combined sewers or sewer networks with inflow/infiltration issues are the root cause of bypasses.

Combined Sewer Discharge

Some older sewer systems combine the collection of sanitary wastes and stormwater together in one pipe. During periods of high rainfall and snow melt, water flows may rise above the capacity of the combined sewer system and some flow may be released to water bodies. Pathogens and toxic chemicals could be released during these overflows.

Where are these Activities a Threat?

Wellhead Protection Areas

These activities, with the exception of industrial effluent discharges, STP bypass discharge, and combined sewer discharge, could be Significant Drinking Water Threats in WHPA-A and B. The storage of sewage could also be a threat in WHPA-C.



Intake Protection Zones

These activities, with the exception of sanitary sewers and related pipes, could be significant drinking water threat in IPZ-1.

How are these Threats Being Managed?

These activities are a crucial part of a municipality's infrastructure. Therefore, existing activities, where they could be a Significant Drinking Water Threat, are managed through existing Environmental Compliance Approvals (ECA) administered by the MOECC. The MOECC is directed to review and amend the ECA to ensure that these activities cease to be Significant Drinking Water Threats (policies 2.07, 2.09, 2.10, 2.12, and 2.19).

Future activities, where they could be a Significant Drinking Water Threat, shall be prohibited through ECA administered by the MOECC. The MOECC is directed to review and amend, if necessary, the ECA to reflect these policies (policies 2.08, 2.11, 2.13 and 2.20). Future sanitary sewers and related pipes are an exception and will be managed through the ECA administered by the MOECC.

Low and moderate threats will be addressed through education and outreach (policy 1.01).

For More Information

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