peterborough

City of Peterborough - Significant Drinking Water Threat Assessment

Background and Purpose:

As part of the City of Peterborough's Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI-ECA) for Wastewater Collection Systems and Stormwater Management Systems, respectively, a formal procedure is required to safeguard the City's drinking water source from activity that poses a Significant Drinking Water Threat (Threat). This Threat is more specifically identified under the *Clean Water Act, 2006* (*CWA*) as the *Establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage* and includes various sub-Threat categories.

The procedure is summarized below and expands on the standard process outlined by the MECP (Appendix A) and ensures Threats are identified and managed in accordance with the current Trent Source Protection Plan.

Procedure:

1. Confirm that the infrastructure will be City owned.
2. Consult the MECP Source Protection Information Atlas to determine if the proposed works are within the Intake Protection Zone for the Peterborough Municipal Surface Water System.
    a. If Yes, proceed to Step .
    b. If No, Threats are not possible and no further assessment is required.
3. Refer to the 2013 version of the Technical Rules on MECP's Source Water Protection Information Portal to determine if activities associated with the proposed works meet the prescribed circumstances for any sub-category of the Threat identified as the *Establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage*.

    Note: When using the Information portal "search" by "Threat Sub Category". Select "Significant" under risk level and choose both "Chemical and Pathogen" as a parameter of concern. Export results and isolate categories in the IPZ-2 (9) and IPZ-1(10)

    a. If Yes, proceed to Step 4.
    b. If No, Threats are not possible and no further assessment is required.
4. Identify and implement the applicable Trent Source Protection Plan Policy(ies).
5. Consult the Source Protection Standard Operating Policy to identify required mitigation measures and complete **Table 1: Significant Drinking Water Threat Assessment Tracking** below.

peterborough

Table 1: Significant Drinking Water Threat Assessment Tracking

Note: Table 1 needs to be updated on or before December 31 of each calendar year for all projects that year to meet the requirements of the CLI-ECA.

Project Name	Significant Drinking Water Threat	Trent Source Protection Policy#	Mitigation Measures	Date of alteration

peterborough

APPENDIX A:

Identification of Risks to Sources of Drinking Water

Components of sewage systems may present a risk to municipal drinking water sources, and therefore be subject to source protection plans made under the *Clean Water Act, 2006* (CWA). This document is intended to assist owners and operators of sewage systems to identify which components of their systems can present a risk as well as comply with relevant conditions in their Environmental Compliance Approval to protect sources of drinking water.

Introduction

The purpose of the *Clean Water Act* is to protect Ontario's sources of drinking water as part of an overall commitment to safeguard human health and the environment. Under the CWA, communities across the province are protecting their existing and future drinking water supplies through prevention – by developing collaborative, watershed-based source protection plans that are locally driven and based on science. The plans apply within 38 source protection areas across Ontario, covering the areas where 95% of the population live.

These plans identify the ***vulnerable areas*** around municipal drinking water sources (i.e. wells or surface water intakes) where certain activities such as operating sewage works, fuel storage or manure spreading pose a risk of contaminating the source.

You can learn more about source protection in Ontario and the locally developed source protection plans at: www.ontario.ca/page/source-protection.

Drinking Water Threats

Ontario Regulation 287/07 under the CWA lists 22 ***drinking water threats***; activities that can contaminate or deplete a drinking water source. One of these activities is "***the establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage***." Depending on the circumstances, sewage works may be a ***significant drinking water threat***. Every significant threat is addressed by policies in the local source protection plan.

The new Consolidated Linear Infrastructure Environmental Compliance Approvals (ECAs) for both municipal sanitary sewage collection systems as well as municipal stormwater management systems contain special requirements that apply to elements of the works that are significant drinking water threats. Whether you are designing a new sewage collection or stormwater collection system, expanding an existing system, or conducting normal operations and maintenance, it is important to be able to identify where components of your system (e.g.

sanitary sewers, pumping stations, holding tanks, stormwater outfalls, etc.) may be significant drinking water threats, in order to comply with the ECA.

Below are some resources that can help you do this.

Source Protection Tools

STEP 1: Use the Source Protection Information Atlas (SPIA) to find out if the Works are located in a source protection area or vulnerable area.

Select the link to explore SPIA: Source Protection Information Atlas

Learn more about source protection **vulnerable areas** in the Help and Resources tab in

- SPIA is an online mapping tool that will provide source protection details for any point or property in Ontario including the specific ***source protection area, vulnerable area and vulnerability score***.
- Vulnerable areas include:
    - Wellhead Protection Areas (WHPA) around groundwater wells
    - Intake Protection Zones (IPZ) around surface water intakes
    - Issues Contributing Areas (ICA)
    - Event Based Areas (EBA)
    - Significant Groundwater Recharge Areas (SGRA) and Highly Vulnerable Aquifers (HVA)
    - Learn more about these vulnerable areas in the **Help and Resources** tab in SPIA – A Document of Definitions.

- Vulnerability score:
    - An assigned number (2 to 10) which indicates how vulnerable (i.e. sensitive) the drinking water source is to contamination.
    - The vulnerability of a drinking water source is affected by the natural characteristics of the system, such as the type of soil and rock in the area, how quickly water can travel through it, the type of source (e.g. lake or river), water flow and wind conditions, rainfall, the slope of the land, land cover, soil type and the source vulnerability (e.g. depth of intake or well, distance from shoreline).
    - Generally, the higher the vulnerability score, the more sensitive the drinking water source.

- You can use SPIA to determine the vulnerable areas and vulnerability score for a single point (e.g. a pumping station) or an ***entire*** property (e.g. a wastewater treatment plant). There may be more than one vulnerable area or vulnerability score within a single property.

- SPIA will provide a link to the local source protection plan for any result within a source protection area.
- If you have questions or require assistance using SPIA, use the ***Help and Resources*** tab at the bottom of the SPIA page.

STEP 2: Use the Threats Tool to find out if the Works pose a risk to sources of drinking water.

- The 22 prescribed drinking water threats are categorized into threat subcategories in the Tables of Drinking Water Threats, which are amended from time to time. These tables set out the circumstances including ***vulnerability scores***, where activities pose a risk to drinking water.
- The Threats Tool is an interactive online tool that allows users to quickly search the Tables of Drinking Water Threats.
- The Threats Tool was created to allow users to easily identify significant, moderate or low threats to municipal drinking water sources.
- This Tool allows users to search the Tables of Drinking Water Threats by:
    - Vulnerable zone (WHPA, IPZ) and vulnerability score
    - Threat category (i.e. sewage) and subcategory (e.g. sanitary sewers)
    - Parameters of concern (chemical and pathogens).

Access the Threats Tool here: http://swpip.ca/

Alternatively, you can use the Help and Resources link in the Source Protection Information Atlas

- Search the Threats Tool for the current or proposed sewage works using the *Search* function. For Works eligible for pre-authorization, the currently applicable subcategories under the sewage threat are below:
    - Wastewater Collection Facilities and Associated Parts: Sanitary Sewers (includes sanitary forcemain, rising main, gravity sanitary sewer, or partially separated sanitary sewer that forms part of a wastewater collection facility, not including its appurtenances);
    - Sewage Pumping Station or Lift Station Wet Well, a Holding Tank or a Tunnel that store sewage;
    - Combined Sewer Overflow (CSO) outfall, a Sanitary Sewer Overflow (SSO) from a manhole or a sewage pumping station overflow (PSO) from a wet well;
    - Stormwater drainage system or stormwater management facilities including Low Impact Developments (LID) and outfalls.

- Search for **significant, moderate and low threats** in both the chemical and pathogen table.
- The results will show which ***vulnerable area*** and ***vulnerability score*** the chemical and / or

pathogen is a significant drinking water threat. For example:

  - Sanitary sewers and associated parts are a significant drinking water threat when located in wellhead protection areas (WHPAs) scoring 10, as well as in certain kinds of Issue Contributing Areas (nitrogen, phosphorus, *E. coli*) and Event Based Areas (sanitary trunk sewer breaks).
  - Stormwater Management Facilities and Drainage Systems outfalls may be a significant threat when located in surface water intake protection zones (IPZs / WHPA-Es) scoring 8 or greater, or when located in WHPAs scoring 10 depending on the Storm Water Management Facility associated land uses and proportion of impervious areas, as well as certain Issue Contributing Areas.

- Alternatively, you can search by vulnerable area to see which activities would be significant drinking water threats.
- Please note that the above guidance reflects the 2021 Director's Technical Rules which are amended from time to time.

Consider the ***vulnerable areas*** and ***vulnerability scores*** at your site and any overflow or discharge locations against the circumstances specified for drinking water threats to assess if the Works are a significant, moderate or low drinking water threat at that location.

Issues Contributing Areas (ICA) are geographic areas within an existing vulnerable area where activities and conditions may contribute to a parameter of concern identified in the raw water. Certain types of sewage works can contribute to the parameter of concern (chemical or pathogen) and can be either a low, moderate, or significant threat within the protection zone where the ECA activities are located. If the parameter causing the issue is associated with the sewage works proposed at the site – namely chloride, nitrogen, phosphorus and *E. coli* for Stormwater Management Facilities and Drainage Systems, and nitrogen, phosphorus and *E. coli* for sanitary sewers, sewage pumping stations and CSOs – then the activity typically poses a significant threat ***regardless*** of the vulnerability score. Check the Assessment Report and Source Protection Plan to confirm any local refinements to the list of activities that may contribute to an issue.

If you have any questions, or need assistance during the threat assessment, please contact the source protection authority listed in the plan for assistance. Additionally, ***Conservation Ontario*** has resources available at https://conservationontario.ca/conservation-authorities/source-water-protection.

The location within a vulnerable area (e.g. WHPA-A score 10) and type of work (e.g. sanitary sewers and associated parts) and the risk associated with the Works (i.e. significant, moderate

or low drinking water threat) can be used for the source protection reporting requirements within your ECA as included in **Section 7** (7.2) of the Sanitary Sewers ECA or **Section 8** (8.2) of the Stormwater ECA.

STEP 3: Check the Source Protection Plan

Access Conservation Ontario's Source Protection Plans and Resources

- If you have determined that one or more of your sewage system components are a significant drinking water threat within your municipality after using SPIA and the Threats Tool there may be source protection policies which apply.
- Use the ***source protection area*** identified on SPIA to look up the corresponding ***Source Protection Plan*** to see what policies may apply.
- Source protection plans contain policies for the activities that pose a significant risk to drinking water. The Plan may also contain policies for activities that pose a moderate or low risk.
- Determine if there are any source protection plan policies which relate to your proposed Works (there may be more than one).
- If you have questions regarding the source protection plan policies, please contact the Source Protection Authority listed in the plan for assistance.

STEP 4: Incorporate features into the Works to mitigate risks to sources of drinking water

- If any of the works are a significant drinking water threat and source protection plan policies apply, features should be incorporated in the design, operation, and maintenance that mitigate the risk to drinking water sources as indicated in your ECA, such as:
    - Adopting design, construction, operation and maintenance considerations included in the ministry's Standard Operating Policy for Sewage Works (section 1.2.8) and implementing any actions summarized in the Standard Operating Policy for Source Protection Prescribed Instruments published on the Environmental Registry (posting #012-2968), as amended from time to time. The Sewage SOP was developed in 2014, reflecting the Director's Technical Rules and drinking water threat circumstances in effect at that time and is available using the archive search tool.
    - Features and considerations included in the MECP Design Criteria document section 1.3 – Protection of Water Supplies
    - Any source protection plan policy requirements pertaining to the Works

- *MECP includes **guidelines and conditions** for significant drinking water threats as part of its provincial obligations under source protection plan policies:*
    - For ***new, altered or modified works***: refer to the design criteria guidelines for significant drinking water threats. This may include requirements for operations, maintenance, record keeping, and reporting.
- Fulfil reporting and other requirements included in your ECA including those in ***Section 7*** *(Sanitary Sewers ECA)* or ***Section 8*** *(Stormwater ECA)* for the protection of drinking water sources.