

Source Protection Planning Bulletin – Threats related to on-site sewage (septic) systems



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Introduction

The purpose of the *Clean Water Act, 2006* (“the Act” or “CWA”) is to protect Ontario’s existing and future drinking water sources, as part of an overall commitment to safeguard human health and the environment. A key focus of the legislation is the preparation of locally developed terms of reference, science-based assessment reports and source protection plans. For additional information on the CWA and how the terms of reference and assessment reports were developed, readers may refer to the Ministry of the Environment’s website www.Ontario.ca/cleanwater.

The source protection plans will consist of a range of policies that together will reduce the risks posed by threats to water quality and quantity. This document is one in a series of planning bulletins intended to assist local source protection committees in preparing source protection plans and policies.

Purpose

This document provides information to assist source protection committee (SPC) members when writing source protection plan policies to address drinking water threats related to on-site sewage (septic) systems, as well as information about septic system maintenance inspection programs under the Building Code. Please refer to the Source Protection Planning Bulletin on Provincial Instruments (currently under development) for information about sewage systems requiring a Certificate of Approval under the *Ontario Water Resources Act*.

Together, the Act and its regulations (“the legislation”), in particular the General Regulation - Ontario Regulation 287/07 (“the Regulation”), establish a legal framework for drinking water source protection in Ontario. Amendments to the Regulation setting out some of these requirements took effect on July 1, 2010. All section references relate to the Regulation unless otherwise stated.

While every effort has been made to ensure the accuracy of the information in this document, it should not be construed as legal advice or relied on as a substitute for the legislation.

Regulatory Requirements

The legislation sets out the requirements for the content of a source protection plan and enables tools to address threats to drinking water. Source protection plans must include policies to address all significant drinking water threat activities identified in the

assessment report¹. This means that source protection plans must include policies for those areas where sewage systems are, or would be, significant drinking water threats.

Under O. Reg. 287/07, tools enabled under Part IV of the *Clean Water Act, 2006* can not be applied to threats related to sewage, including septic systems, and waste facilities (subsections 23(2) and(3)) to avoid duplicating the existing risk management measures available through provincial instruments and the Building Code. This means that source protection committees can not include policies in their source protection plans that rely on prohibition (under section 57 of the Act) or risk management plans (s. 58) to address these threats. There are, however, other policy options available to address these threats, discussed later in this document.

When a source protection committee is developing policies related to septic systems, a key consideration is that it is the “discharge from the system” that poses a risk to drinking water (as set out in the Tables of Drinking Water Threats, which are part of the [Director’s Technical Rules: Assessment Report](#)). The septic system itself is a risk management measure, because when it is functioning properly, it reduces or eliminates pathogens in the discharge from septic systems. Therefore, an inspection to find out if a septic system is functioning may be all that is needed to determine whether it “ceases to be” a significant drinking water threat. The standards for the design, installation and proper maintenance of a septic system are set out in Ontario’s Building Code.

Ontario Building Code: On-site Sewage (Septic) System Maintenance Inspection programs

Private on-site sewage systems (small systems contained on one lot with a daily design flow of 10,000 L/day or less) are subject to the requirements of Ontario’s Building Code. When the CWA was passed, the Building Code was amended to require the development and implementation of an on-site sewage system maintenance inspection program. The septic system maintenance inspection program under the Building Code supports the implementation of the CWA by providing a consistent approach for determining if on-site sewage systems across the province are functioning properly. Systems in designated areas (described below) are now required to be inspected once in every five years, on a reoccurring basis. If an inspection indicates that a septic system is not functioning as designed, the Building Code provides the authority for inspectors to issue an order for maintenance, replacement or upgrading where necessary, to ensure they continue to protect drinking water sources.

The Building Code establishes a mandatory five year, on-site sewage system maintenance inspection program to be administered by principal authorities² in designated areas. The Building Code also governs discretionary maintenance inspection programs that principal authorities may establish in non-designated areas.

¹ Please refer to “Source Protection Planning Bulletin: Overview of Source Protection Plan Requirements,” September 2010, for information about source protection plan requirements.

² Principal authorities as defined in section 1(1) of the *Building Code Act, 1992*, include: municipalities, planning boards, local health unit, a conservation authority, or the Crown.

The on-site sewage system maintenance inspection provisions of the Building Code, for the purposes of the CWA, came into force on January 1, 2011. The effective date for inspections required under the CWA and the Building Code is dependent on the approval date of the local assessment report. Within mandatory program areas, inspections must be completed within five years of the approval of the assessment report. Some provisions related to the Lake Simcoe Protection Plan will come into effect at a later date.

Details of the inspection protocol, developed jointly by MMAH and MOE, and training for building officials will be released by Ministry of Municipal Affairs and Housing (MMAH) in early 2011. The purpose of the inspection is to determine whether an on-site sewage system is in compliance with the operation and maintenance requirements of section 8.9 of Division B of the Building Code. In the areas where on-site sewage systems have been identified as a significant threat, the inspection may be prioritized for systems that pose the greatest risk to source water, based on factors like the distance from a well or intake, whether the system is licensed and the age of the system.

Inspectors can notify property owners of the intention to inspect their property, and let them know of any applicable fees, the inspection procedure and contact information. This advance notice gives the property owner the opportunity to be on site for the inspection and to gather information and records to assist with the inspection, or undertake remedial work prior to the inspection.

On-site sewage system maintenance inspections generally follow a progressive audit approach. This means that initial inspections tend to be non-intrusive tests, but when concerns are identified, a more detailed inspection would be carried out. Generally, the initial inspection includes looking at the size of the dwelling and assessing whether the septic system is the correct size, locating the system's components and identifying any obvious or outward signs of malfunction or failure. Known as a Phase I inspection, this initial inspection would generally avoid significant disturbance to the system and the surrounding soil area. However, this does not preclude the use of minimally intrusive sampling techniques, such as boring holes, in order to determine whether the system is in compliance with the Building Code. The Phase I inspection includes locating the system and its components (if the location of these are not known) and may include an initial inspection of the holding tank.

A Phase II inspection may be appropriate when the initial inspection identified that the system is at risk of malfunction or failure, or to find out why a system is malfunctioning or failing. The Phase II inspection is more intensive and can include a detailed examination of the components and testing the function of the system using techniques like leak diagnostics, flow trials and dye tracing tests. If the inspector finds that the septic system is not in compliance with the operation and maintenance requirements of the Building Code, the inspector has the option of issuing an order for immediate compliance or setting a date for compliance.

Under the Building Code, a properly functioning and maintained septic system:

- reduces or eliminates the release of pathogens into soil, groundwater, surface water and air;

- minimizes the risk of malfunction, damage or failure of a sewage system;
- provides adequate treatment of sanitary sewage and effluent; and
- minimizes the risk of injury as a result of contact with sanitary sewage or partially treated effluent.

Mandatory Septic Inspection Program

The mandatory inspection program will be required for designated areas defined under the CWA. Designated areas are those areas where septic systems are, or would be, a significant drinking water threat as identified in approved assessment reports, based on the vulnerability of the wellhead protection areas and intake protection zones. In the designated areas where inspections are mandatory, each septic system will be inspected once every five years.

Discretionary Septic Inspection Program

Amendments to the Building Code also provide principal authorities the discretion to establish maintenance inspection programs for on-site sewage systems *outside* of the areas where septic systems are, or would be, a significant drinking water threat. Details of the discretionary maintenance inspection programs, including the scope of application or the frequency of inspections, are not prescribed in the regulation. Principal authorities have the flexibility to determine these aspects and the geographic extent of the program themselves. If a municipality chooses to establish a program, all residents and businesses in the discretionary areas will be required to have their septic systems inspected.

Implementation and Enforcement

Both the mandatory and discretionary programs would be enforced by principal authorities under the Building Code. The enforcement of the maintenance inspection programs will be fully funded by the principal authority responsible for the designated areas. Under the Building Code, enforcement bodies may charge fees to recover the costs of the inspection programs.

Policy Options for Source Protection Plans under the Clean Water Act

Source protection plans must include policies for all areas where a specific drinking water threat activity could be significant. SPCs will first need to decide whether to manage or prohibit a specific drinking water threat so that it ceases to be, or never becomes significant. This may result in different policies for threats that exist today, and those that may be established in the future. This section provides a brief overview of the policy tools available to SPCs to address on-site sewage (septic) systems in their source protection plan.

Specify Actions Policies

To ensure effective implementation, source protection plan polices need to consider local capacity for implementation and reflect the scope of municipal authority under the Municipal Act and the Building Code. For the areas where on-site sewage systems are significant threats or would be a significant threat if established in the future, source protection plan policies 1) could support the implementation and administration of the mandatory on-site sewage system maintenance inspection programs that are required under the Building Code and implemented by principal authorities. A source protection plan policy could also 2) direct a municipality to establish a by-law using their authority under the Municipal Act, requiring landowners to hook-up to municipal services if this is a feasible option.

When conducting on-site sewage system maintenance inspections, principal authorities will be guided by the inspection protocol under the Building Code. The Building Code provides a specific scope of authority to these principal authorities. An SPC can not write policies to specify actions that would require the creation of new authorities not currently provided by the Building Code. This means that committees cannot write policies that would go above and beyond the authority granted to an inspector under the legislation, nor direct specific actions that an inspector would carry out, including the content of remediation notes and orders. However, a committee could 3) write a policy that supports the implementation of the inspection protocol³.

If a committee wishes to address moderate and low threats related to septics, they may write a policy to encourage municipalities to use their discretion to establish an on-site sewage system re-inspection program for areas in their municipal jurisdiction where septic systems are a moderate or low threat to drinking water. This would in effect “level the playing field” over time by applying the same rules to all vulnerable areas in a community, regardless of whether on-site sewage systems would be rated a significant, moderate or low drinking water threat. However, if the on-site sewage system re-inspection program were applied to all vulnerable areas in a municipality, the building inspector would begin by inspecting those systems that are located in the designated areas where septics have been identified as significant threats.

³ The inspection protocol for the on-site sewage maintenance inspection program will be circulated to SPCs as soon as it is publicly available.

Some municipalities have proactively implemented on-site sewage system re-inspection programs. For example, the Township of Huron-Kinloss initiated the Huron-Kinloss Community Septic Inspections (HK-CSI) program in the spring of 2007, which was funded through a local levy. The goal of this program is to encourage regular maintenance of on-site sewage systems through mandatory inspections. This program includes the inspection of on-site sewage systems (including outhouses/pit privies) within the municipality. The systems are inspected on a rotating basis with an effort to inspect every system over a six to seven year period. The Township set up [a blog](#) to answer questions about the program over the internet. Committees are encouraged to look at existing programs to help write effective policies and build on municipal successes.

Land Use Planning Approaches

Policies that rely on land use planning approaches under the *Planning Act* can be used to address future occurrences of this activity, in areas where septic systems would be significant drinking water threats. *Planning Act* restrictions and permissions apply to land uses, buildings, and structures (septic systems are considered structures under the *Planning Act*), regardless of ownership; therefore, these controls bind future owners, unless an amendment is approved. Many municipalities already address land uses around sources of drinking water, for example, by placing restrictions on high-risk land uses in wellhead protection areas or near surface water intakes⁴.

A committee could write a policy that directs the municipality to:

- 4) require specific setbacks or separation distances from municipal intakes and wellheads;
- 5) ensure that lot sizes are sufficient to meet servicing needs over the long term; and/or
- 6) prohibit future septic systems in areas⁵ where this threat is significant.

The policy may also include reference to how it would be implemented by the municipality through the *Planning Act*, such as directing the municipality to identify specific areas that would be subject to site plan control⁶ (section 41 of the *Planning Act*). Site plan control allows a municipality to address the layout of a site when new uses or structures are being established. This gives the municipality more control over the location of any future septic systems. This approach could be used to determine the location of buildings, structures (including septic systems) and other uses in areas where this threat is significant, moderate or low. A site plan would delineate areas where future septic systems would be permitted. These permissions would be registered on the land title.

⁴ For more information on how source protection can be incorporated into local planning, please refer to the Source Protection Planning Bulletin on land use planning approaches (currently under development).

⁵ After a source protection plan is approved, municipalities would conform to these policies by implementing them through the suite of planning tools available under the *Planning Act*, including official plan policies, zoning by-laws, site plan controls, or the development permit system.

⁶ Site plan control may be applied to specific classes of development including single dwellings and septic systems.

Incentive, Education and Outreach Programs

Many municipalities, in cooperation with local health units and conservation authorities, have already proactively developed educational materials explaining the benefits of a properly functioning septic system and regular system maintenance, including pumping out septic tanks. Committees may wish to discuss the possibility of drafting policies to 7) direct responsible groups to maintain or expand incentive programs where appropriate or 8) suggest other strategies for providing education or reaching out to homeowners with septic systems. This will help to focus existing programs on vulnerable areas. Should nutrient treatment units receive provincial certification in the future, committees may also wish to include policies that encourage property owners to upgrade existing septic systems by adding a nutrient treatment unit.

Research

If a drinking water issue related to nutrients has been identified at a drinking water system, and the issue contributing area is large or includes many properties, a policy that governs research is another option. The policy may direct that 9) research be carried out to determine where and which properties within the issue contributing area are contributing the most to the drinking water issue. A complementary policy that 10) directs actions to the largest contributors of nutrients can also be included. This could be an education and outreach program to motivate property owners to take action to reduce their nutrient contributions, or another policy tool discussed above. Alternatively, the source protection plan could be amended⁷ to redefine the issue contributing area, based on the results of the research, and could include new policies to address the “big” contributors. Policies would still be required for all contributors, but the nature of the policies may be different.

Monitoring

The source protection plan must also include monitoring policies to track the implementation of policies that address significant drinking water threats. For example, a policy could direct a municipality to provide an annual report on the results of the on-site sewage system maintenance inspection program, including the number of inspections, the number of failures and remediation notices, the number of system pump-outs and compliance orders issued, if any. They could also direct a conservation authority or municipality to report on the number of educational materials distributed, or the number of septic system pump outs by carrying out telephone or mail surveys of community residents.

⁷ The assessment report becomes part of the source protection plan once the plan is prepared and submitted to the Minister for approval.

Important Considerations

Nutrient Loading

According to the Director's Technical Rules, the discharge of nutrients from an on-site sewage system can only be a significant threat when a drinking water issue caused by nutrients has been identified in the assessment report and an issue contributing area has been delineated. Through the maintenance inspection program discussed on page 3 and 4, proper maintenance of systems (e.g. pumping out holding tanks) and replacement of non-functioning systems will minimize the discharge of pathogens from septic systems. While maintenance may also reduce the discharge of nutrients, it is unclear how much. The Province is currently conducting research on the effectiveness of systems in reducing nutrient loading. Depending on the results of this research, certain types of septic systems may be certified to address nutrients.

Summary

This bulletin has provided an overview of options for source protection plan policies to address drinking water threats related to on-site sewage (septic) systems. For information on other aspects of source protection plan preparation, please refer to the corresponding bulletins in this series, presently under development.

Additional Sources of Information

Ministry of the Environment's Clean Water Act Website www.ontario.ca/cleanwater
Clean Water Act, 2006 and **O. Reg. 287/07 "General"** on the **e-Laws Website**
(www.e-laws.gov.on.ca)

The Ministry of Municipal Affairs and Housing, who is responsible for the administration of the Building Code, has provided information about the septic inspection programs on its website: <http://www.mah.gov.on.ca/Page8820.aspx>

Building Code Regulation: http://www.e-laws.gov.on.ca/html/source/regs/english/2010/elaws_src_regs_r10315_e.htm