Chapter 4 - Policies for all Vulnerable Areas

4.1 Overview

As mentioned in Chapter 2, it is in a community's interest to protect the amount and quality of the source water before it is treated, tested and distributed throughout a community, and before it is drawn from private wells. This is true whether or not activities that are significant threats to drinking water can arise based on the vulnerability score assigned to a given area.

The Source Protection Committee hopes that thinking about how our activities might impact the sources of drinking water for communities and individuals will become second nature for everyone, just like wearing seatbelts and recycling cans.

This chapter identifies actions that should be taken by municipalities, provincial ministries and the Cataraqui Source Protection Authority to protect sources of drinking water in the Cataraqui Source Protection Area. Depending on local circumstances, some municipalities may already have similar policies, programs and procedures in place.

These actions apply to all of these vulnerable areas in the Cataraqui Source Protection Area, unless otherwise stated: wellhead protection areas, intake protection zones, highly vulnerable aquifers and significant groundwater recharge areas as shown on **Schedules A through K**. These policies are in addition to those dedicated to each of the specific vulnerable areas in Chapters 5, 6 and 7.

The policies in this chapter fall into six general categories:

1. raw water quality sampling
2. provincial and municipal emergency and spill response
3. education and outreach programs
4. incentive programs
5. research initiatives
6. provincial and municipal programs, policies and procedures.

The Source Protection Committee strongly recommends that these policies be given due consideration by the implementing bodies and be put into action in the interest of protecting sources of drinking water across the Cataraqui Source Protection Area for everyone.

4.2 Raw Water Quality Sampling

Water sampling for specific parameters is one way to monitor trends in raw (untreated) water quality over time related to drinking water threat activities on the landscape and natural background levels. The data can be used by water treatment plant operators to adjust their systems,

and it can be used by others to investigate and manage human activities that may be contributing to poor water quality. For example, nitrates in groundwater may be related to the application of commercial fertilizer to land.

If municipalities undertake additional sampling to assess the potential impact of drinking water threats on raw water quality, consideration should be given to developing a regime that accounts for seasonal variations in the source water including periods when relevant drinking water threat activities are active and inactive.

The following policies were prepared under section 22(7) of the *Clean Water Act*.

The existing Drinking Water Surveillance Program is a voluntary Ministry of the Environment program operated in cooperation with participating municipalities to monitoring water quality at municipal drinking water systems. This long-standing program may be an avenue for municipalities to explore whether there are any impacts on source water quality from existing drinking water threats.

The letter code at the end of each policy number indicates whether the policy is a legal requirement or a recommendation.

- CW indicates that policy must be complied with
- HR means have regard to
- NB refers to polcies that are not legally binding but are recommended.

4.2.1-NB a. The Ministry of the Environment should evaluate the need to expand the Drinking Water Surveillance Program and review the mandate of the program to include monitoring for contaminants originating from the threat activities identified in Assessment Reports. If the program is expanded, the Ministry should seek opportunities to include additional drinking water system owners.

b. Action to implement this analysis should be initiated within two years of the Source Protection Plan taking effect.

c. The Ministry should include information about this policy in an annual summary of actions taken to achieve outcomes of source protection policies and make it available to the Cataraqui Source Protection Authority.

While the Ministry of the Environment is considering the merit of changes to the Drinking Water Surveillance Program local considerations can be made. The Cataraqui Source Protection Authority should use information in the Assessment Report to discuss potential additional monitoring with drinking water treatment plant operators to begin building datasets necessary to assess the potential impact of land-based activities on the raw water quality. The following policy is to identify local monitoring priorities.

4.2.2-NB a. The Cataraqui Source Protection Authority should reach out to owners and operators of municipal residential drinking water systems to provide information about the potential benefits of enhancing raw water quality sampling at their systems and work with them to develop a location-appropriate sampling protocol that is based on operator knowledge, and the drinking water issues and prevalent drink-

ing water threats within the wellhead protection area or intake protection zone as identified in the Assessment Report.

b. The dialogue needed to implement this policy should commence within one year of the Source Protection Plan taking effect.

4.3 Emergency and Spill Response

A discharge or spill associated with any of the prescribed drinking water quality threats and local transportation-related threats in the wellhead protection areas and intake protection zones could adversely affect the quality of a community's drinking water supply. Depending on the activity, circumstance and limitations of the *Clean Water Act*, policies to manage spills can be binding or not.

The following policies are to ensure that those agencies and municipal departments (e.g., utilities, public works and emergency response teams) that respond to emergencies and spills have up-to-date information and procedures that would help improve provincial and/or local response to these situations.

Spills and emergency response plans are a key component of the Plan.

4.3.1-NB a. The Ministry of the Environment should update its spill prevention, spill contingency plans and emergency response plans, including procedure cards, to identify municipal wellhead protection areas and intake protection zones in the Cataraqui Source Protection Area within one year of the Source Protection Plan taking effect.

b. The Ministry should also undertake a program analysis to determine what, if any, procedural changes are required to ensure that drinking water sources will be protected through the Ministry's response to spills in these areas.

c. In order to monitor the implementation of **a**. and **b.**, the Ministry should include information about this policy in an annual summary of actions taken to achieve source protection objectives and make it available to the Cataraqui Source Protection Authority. It is recommended that the summary include information about spills that might have an adverse impact on a source of drinking water in a wellhead protection area or intake protection zone, including a summary of any resulting contamination and the results of any site remediation required.

Municipal plans, which are the subject of the following two policies, should outline actions to be taken within the wellhead protection areas and intake protection zones in the event of contaminant releases. Examples of the municipal plans that could be updated are emergency management plans, emergency response plans, public works department supplementary plans and Drinking

Water Quality Management System Operational Plans. It is intended that the events covered will include occurrences such as accidents where transported contaminants are unexpectedly spilled, water and related chemicals are released as a result of firefighting and equipment malfunctions cause unplanned contaminant discharges.

4.3.2-CW a. The City of Kingston, Township of South Frontenac, Frontenac County, Town of Gananoque, Township of Leeds and the Thousand Islands, Township of Front of Yonge, United Counties of Leeds and Grenville, Township of Elizabethtown-Kitley and the City of Brockville shall update their respective Emergency Management Plans and/or the appropriate department supplemental plans to identify the location of the Wellhead Protection Area(s) and/or Intake Protection Zone(s) within their jurisdictions, and review and update the procedures to better manage the risk to the drinking water source in the event of an emergency, spill as defined by section 91 of the *Environmental Protection Act*, or unauthorized discharge where the local transportation-related threat would be significant.

b. The updates specified in **a.** must occur within two years of the Source Protection Plan taking effect.

4.3.3-NB a. All municipalities that contain all or part of a Wellhead Protection Area or an Intake Protection Zone should review and update their respective Emergency Management Plans and/or the appropriate department supplemental plans to identify the location of these vulnerable areas within their jurisdictions to better protect the drinking water sources in the event of an emergency, spill as defined by section 91 of the *Environmental Protection Act*, or unauthorized discharge along highways, railway lines or shipping lanes.

b. The updates specified in **a.** should occur within two years of the Source Protection Plan taking effect.

Municipalities affected by this policy include:

- Brockville
- Elizabethtown-Kitley
- Frontenac County
- Frontenac Islands
- Front of Yonge
- Gananoque
- Greater Napanee
- Kingston
- Leeds-Grenville
- Leeds and the Thousand Islands
- Lennox and Addington
- Loyalist
- South Frontenac.

4.4 Education and Outreach Programs

Source Protection Road Signs

Spills along highways and arterial roads could have critical impacts on the municipalities' abilities to provide safe drinking water. The proximity of the road to the wells or intakes may leave them susceptible to spill contamination. Road signs are one tool that may be useful to help prevent and respond to spill events.

People may be less likely to illegally dump unwanted waste (e.g., old paint, waste oil) in the vulnerable areas if they are aware that a drinking water source could be impacted. Also, emergency

responders would be reminded that drinking water treatment plant operators should be contacted in the event of a spill so that action to temporarily suspend drinking water distribution can be taken, if necessary.

The Ministry of Transportation and the Ministry of the Environment are working with source protection areas and regions across Ontario to determine the design standard and appropriate placement criteria for road signs that will identify wellhead protection areas and intake protection zones. The following policy was made pursuant to section 22(7) of the *Clean Water Act*, and should be implemented in conjunction with other education and outreach policies outlined in this Plan.

4.4.1-NB

a. The Ministry of Transportation, in collaboration with the Ministry of the Environment and in consultation with Source Protection Authorities, should design a sign to meet the appropriate Provincial standards to identify the locations of wellhead protection areas and intake protection zones.

b. The Ministry of Transportation should manufacture, install and maintain the signs along Provincial Highways within Wellhead Protection Areas with a vulnerability score of 10, and within Intake Protection Zones with a vulnerability score of 8 or higher.

The A.L. Dafoe (Greater Napanee) intake with Highway 33 and Lennox Generating Station in the background.

c. The Ministry of Transportation should consider installing and maintaining the signs along Highway 33, where there is provincial jurisdiction, within the A.L. Dafoe, Bath, Fairfield and Sandhurst Shores Intake Protection Zones.

d. Municipalities would be responsible for the purchase, installation and maintenance of appropriate signs designed by the Province in collaboration with the Source Protection Authorities. These signs should be placed, at a minimum, where municipal arterial roads are located within Wellhead Protection Areas or Intake Protection Zones.

e. The above policy should be implemented within two years of the Plan taking effect.

Local Initiatives

Education and outreach programs in the vulnerable areas are crucial to the success of source protection plan implementation. The end goal is to build support through understanding and integration of practices to protect sources of drinking water from contamination and over-use.

Communication of key source protection messages from trusted professional sources in a manner that is practical and relevant to target audiences is considered an essential component of source protection plan implementation. The following policies (one for significant drinking water threat areas and one for those that are moderate and low) developed under section 22(7) and of the *Clean Water Act* recognizes that there are many local and provincial groups that manage education and outreach programs aimed at protecting the natural environment and water.

The following groups should be approached by the Cataraqui Source Protection Authority to help deliver sector-specific source water protection information:

- local farm organizations and the Ministry of Agriculture, Food and Rural Affairs
- Canadian Oil Heat Association, local fuel distributors and marinas
- Ontario Marine Operators Association
- Health Units
- Well Aware Program
- Ontario Groundwater Association, licensed well technicians and water treatment specialists
- municipalities and their utility operators.

The Cataraqui Source Protection Authority can play an integral role in coordinating the implementation of the Cataraqui Source Protection Plan so that there is consistent messaging and a centralized location for source protection information across the CSPA. The Authority could also deliver, specific education and incentive programs to fill gaps.

4.4.2-CW a. The Cataraqui Source Protection Authority **shall** consider coordinating its targeted efforts, as well as those of local partners, and communicate via Conservation Ontario with those provincial partners, who deliver relevant education and outreach programs so that educational resources are updated to include related drinking water source protection information for use in the wellhead protection areas and intake protection zones **where significant drinking water threats can or do occur**.

b. An initial meeting or series of meetings of local and provincial partners should occur within six months of the Source Protection Plan taking effect.

c. The appropriate organization should develop or update programs accordingly within two years of the Source Protection Plan taking effect, and provide the Source Protection Authority with a report describing the actions it has taken to do so.

d. The Source Protection Authority should prepare a report that includes a description of what steps are being taken to determine the extent to which the program has achieved its objectives, and suggestions to improve the effectiveness of the education and outreach program.

4.4.3-NB **a.** The Cataraqui Source Protection Authority **should** consider coordinating its targeted efforts, as well as those of local partners, and communicate, via Conservation Ontario, with those provincial partners who deliver relevant education and outreach programs so that educational resources are updated to include related drinking water source protection information for use vulnerable areas **where moderate or low drinking water threats can or do occur**.

b. Clauses **b.**, **c.**, and **d.** of policy **4.4.2-CW** also apply here.

Municipal Waste Management Programs

The overall impact of waste on sources of drinking water can be reduced by producing less and ensuring proper disposal.

4.4.4-NB **a.** All municipalities in the Cataraqui Source Protection Area should evaluate their waste management programs and improve them as necessary in order to reduce the impacts of improper disposal of wastes on sources of drinking water within two years of the Source Protection Plan taking effect.

b. The waste management programs should:

- **i.** encourage landowners, tenants, and small business operators to properly dispose of waste products and
- **ii.** ensure that local hazardous waste collection programs are accessible and convenient, and provide information to encourage the use of non-toxic (green) household products.

c. If the foregoing is undertaken by the municipality, the municipality should provide the Cataraqui Source Protection Authority with a copy of the program evaluation within 60 days of its completion or after its endorsement by Council, if applicable.

Ontario Pesticide Education Program

The application, handling and storage of pesticides can be significant drinking water threats in parts of all wellhead protection areas, and the intake protection zones where the vulnerability score is greater than 8 (i.e., Brockville, James W. King, Sydenham). These activities are not significant threats in vulnerable areas where the vulnerability score is less than 8.

Ontario Regulation 63/09 (Ontario's Cosmetic Pesticides Ban) requires that all pesticide operators and vendors be licensed and certified to purchase, sell or apply pesticides. Certification programs are conducted through the Ontario Pesticide Education Program by the University of Guelph. Some pesticides users, such as golf courses, are also regulated by Integrated Pesticide Management Council of Canada.

Among other matters, the pesticide education materials could inform pesticide applicators of how to find out if their lands are in a wellhead protection area or intake protection zone where the application, handling and/or storage of specific pesticides may be regulated through a risk management plan or prohibited under the *Clean Water Act*.

The following policy specifies action under subsection 26(1)(v) of Ontario Regulation 287/07 (General).

4.4.5-NB **a.** The Ministry of the Environment should work with the Ontario Pesticides Education Program Committee to evaluate the need to incorporate drinking water source protection information into the education materials for the Ontario Pesticides Education Program to address the storage, handling and application of pesticides to land during the next program update, or within five years of the Source Protection Plan taking effect, whichever comes first.

b. In order to monitor the implementation of **a**, the Ministry should include information about this policy in an annual summary of actions taken to achieve implementation of this policy.

4.5 Incentive Programs

Financial Incentives

As previously stated, education and outreach programs should be implemented for the vulnerable areas to increase awareness of the importance of protecting sources of drinking water from contamination and over-use by changing people's attitudes. It is recognized that people may need financial assistance to make changes to their practices and processes that are associated with the handling and storage of liquid fuel, and on-site sewage systems and/or wells that are transport pathways.

The availability of financial incentive programs in the Cataraqui Source Protection Area is highly variable (i.e., eligibility requirements including the applicable area, sector and type of project is rarely consistent from one year to the next). This means that landowners in the vulnerable areas that are impacted by the source protection policies do not have the benefit of a stable funding program. The policies below outline incentive programs and are made under subsection 26(4) of Ontario Regulation 287/07 (General).

4.5.1-NB **a.** The Ministry of the Environment should consider extending and expanding the Ontario Drinking Water Stewardship Program to address the most prevalent risks

to drinking water in the Province where property owner driven projects would be effective and where local stakeholder input demonstrates need for such a program.

4.5.2-NB a. The Cataraqui Source Protection Authority in cooperation with local stakeholder groups should consider establishing a local incentive program, within two years of the Source Protection Plan taking effect, that would include funding to off-set the cost of the following activities in the highly vulnerable aquifers and significant groundwater recharge areas, and in the wellhead protection areas where there are moderate or low drinking water threats:

i. Making improvements to liquid fuel storage tanks

ii. Replacements and repairs suggested as a result of the on-site sewage system maintenance inspection or other priorities as defined by the implementation bodies

iii. Properly decommissioning (e.g., plugging) unused wells and upgrading wells to resolve sub-standard construction.

Recognition for Proactive Landowners and Businesses

Public recognition of the good work being done by landowners and businesses, who are making changes to their properties and practices to reduce the risk of their activities on the environment, would provide positive reinforcement in the community and across Ontario of the importance of protecting sources of drinking water.

The following policy is made pursuant to Section 22(7) of the *Clean Water Act*.

4.5.3-NB a. The Ministry of the Environment should consider developing a province-wide recognition program to officially acknowledge proactive industries and businesses that have made improvements to their properties and practices to protect and conserve the quality and quantity of source water in their communities.

b. The strategic action outlined in **a.** should occur within five years of the Source Protection Plan taking effect.

4.6 Research Initiatives

Research on Sewage System and Well Separation

On-site sewage systems are used extensively throughout the Cataraqui Source Protection Area especially in the highly vulnerable aquifers and significant groundwater recharge areas. There are two primary management tools used to protect groundwater from on-site sewage system impacts. The requirements and methods in these documents may not be sufficient in the Cataraqui Source Protection Area due to the highly vulnerable nature of its groundwater.

The Ontario Building Code specifies separation distances as well as design and construction specifications. These minimum separation distances may not be enough to prevent cross contamination between drinking water wells and on-site sewage systems.

Procedure D-5-4: Technical Guideline for Individual On-site Sewage Systems: Water Quality Impact Assessment (Ministry of the Environment, 1996) provides technical guidance about locating septic systems in rural subdivisions with five or more lots. Although Procedure D-5-4 is regularly applied to the Cataraqui Source Protection Area, it includes a statement that it should not be applied to areas that are obviously hydrogeologically sensitive (i.e., karstic areas, areas of fractured bedrock exposed at surface, areas of thin soil cover or areas of highly permeable soils) like those of the Cataraqui Source Protection Area.

The research resulting from the following policy that was developed under subsection 26(1)(iv) of Ontario Regulation 287/07 (General) could help to develop separation distances and a water quality impact assessment that would be effective for our local context.

4.6.1-NB a. To assist in identifying the best risk management measures and standards to address significant, moderate and low drinking water threats related to on-site sewage systems (i.e. septic systems and holding tanks) locally, the Cataraqui Source Protection Authority, in collaboration with the Ministry of Municipal Affairs and Housing, the Ministry of the Environment, academic institutions and other stakeholder groups should consider conducting research to determine how effluent from on-site sewage systems is transported and attenuated in fractured bedrock environments. This research is recommended to support the improvement of risk management measures for managing effluent from on-site sewage systems in fractured bedrock environments, whether they occur in wellhead protection areas, intake protection zones, highly vulnerable aquifers or significant groundwater recharge areas.

b. The research should be completed within ten years of the Source Protection Plan taking effect.

c. Research findings should be:

- **i.** considered by the Ministry of Municipal Affairs and Housing in future reviews of the Ontario Building Code
- **ii.** considered by the Ministry of the Environment in future reviews of provincial guidelines for water quality impact assessments for individual on-site sewage systems and
- **iii.** shared with local municipalities and health units for use in their decision-making processes.

Research on Discharge from Water Softeners

Discharge from water softeners was identified as a local drinking water threat in the Cataraqui Source Protection Area. Hard water is prevalent throughout the CSPA, which means that many

homes have water softeners to obtain more acceptable water hardness. A literature review indicated that there is no agreement in the scientific community about the best method for disposing of water softener backwash (e.g., whether it should be discharged onto the ground or into a septic system). The Ontario Building Code states that water softener backwash can be disposed in a septic system if it is designed to accept it, but there is no clear indication of said proper design. Improperly designed septic tanks can corrode as a result of water softener backwash, and the backwash can change the density of the liquid in the septic tank such that proper settling is impeded.

Research completed as per the following policy made under subsection 26(1)(iv) of Ontario Regulation 287/07 (General) could definitively identify the most effective disposal method for water softener backwash discharge and enable creation of more specific standards under the Ontario Building Code.

4.6.2-NB a. The Ministry of the Environment and Ministry of Municipal Affairs and Housing, in cooperation with the Ontario Rural Wastewater Centre and the water softener industry, should consider undertaking a research study to determine the most effective method for disposing of water softener backwash in the hydrogeologic and climatic setting of the Cataraqui Source Protection Area/Eastern Ontario to add to the risk management measures available to protect drinking water sources. Discharge from a water softener can be a significant, moderate and low drinking water threat in the wellhead protection areas and intake protection zones in the CSPA.

b. The Ministry of Municipal Affairs and Housing should use the study results to analyze the need for a review of the Ontario Building Code to specify how water softener backwash should be disposed.

c. A proposal to undertake this strategic action should occur within five years of the Source Protection Plan taking effect, and be shared with the Cataraqui Source Protection Authority at that time.

4.7 Provincial and Municipal Programs, Policies and Procedures

Salt Management Plans

Winter in the Cataraqui Source Protection Area brings with it a number of specific activities that can negatively impact the quality of our sources of drinking water. These activities include:

- the application of road salt
- the handling and storage of road salt
- the storage of snow.

The *Clean Water Act* designates these activities as prescribed drinking water threats.

The majority of road salt is used as a de-icer or an ice prevention agent. The most commonly used products are sodium chloride and calcium chloride because they are effective, inexpensive, readily available and easy to use. The main reason road salt is considered a threat is due to the potential for these products to run off roads and parking areas and enter into sources of drinking

water. More than half of the road salt applied to roads infiltrates through soil into the groundwater, the remainder is transported in surface runoff (RiverSides Stewardship Alliance and Sierra Legal Defence Fund, 2006). This is most noticeable in urbanized areas and along major roads.

Snow plowed from roads and parking lots can be contaminated with salt, oil, grease and heavy metals from vehicles, litter and airborne pollutants. Therefore it must be stored and disposed of in an appropriate manner. Storing large quantities of snow in one location concentrates the contaminants in melt water, which results in a greater impact on the surrounding environment.

The road authorities in the Cataraqui Source Protection Area have road salt management plans that address the activities listed above, with the exception of the Township of Frontenac Islands and the Township of South Frontenac.

Although the roads in the Township of Leeds and the Thousand Islands are covered by the Salt Management Plan for the United Counties of Leeds and Grenville, the measures recommended to protect the Lansdowne aquifer from the Township public works yard in WHPA-B are outside the scope of the County's current plan.

Some examples of practices that could be included in any salt management plan are locating new salt and snow storage areas outside of vulnerable areas where they would be significant drinking water threats, implementing or maintaining best management practices where these activities currently happen, prioritizing street sweeping within the vulnerable areas, and training staff to maintain the appropriate application of road salt and good yard maintenance procedures.

The purpose of the following policies made under subsection 26(1)(v) of Ontario Regulation 267/07, is to make sure that the vulnerable areas identified in the Assessment Report are given due consideration in these salt management plans, focusing on reducing the potential for future contamination of drinking water sources from this source of salt.

4.7.1-NB a. The Ministry of Transportation and their supporting de-icing contractors should continue the proactive implementation of their salt management plans and to continue the use of best management practices within wellhead protection areas and intake protection zones in the Cataraqui Source Protection Area, where the application, handling and storage of road salt and the storage of snow can be a moderate or low drinking water threat.

b. The Ministry should continue its on-going investigation and implementation of innovative practices and new mitigative technologies regarding the application of road salt and the management of infiltration and runoff.

c. The Ministry is requested to actively consider the creation of a pilot project using new practices and mitigative technologies for the application of road salt and/or the management of runoff that could benefit drinking water sources within the Cataraqui Source Protection Area.

d. When various parts of this policy are implemented by the Ministry of Transportation, the Ministry should publish related information in a reasonable timeframe in a location that is readily accessible to the Cataraqui Source Protection Authority.

4.7.2-NB **a.** All municipal road authorities in the Cataraqui Source Protection Area should review and update the salt management plans applicable to their respective jurisdictions to account for the sensitivity of the vulnerable areas within their jurisdictions. The updated plans should take into consideration the level of risk that the salt operations (i.e., application, handling and storage) and snow storage pose to the source water where these activities are moderate or low drinking water threats.

b. The Township of Frontenac Islands, Township of Leeds and the Thousand Islands, and Township of South Frontenac should each establish a salt management plan, as per **a.**.

c. The plan should be consistent with the Environment Canada Code of Practice for the Environmental Management of Road Salts, as amended from time to time, and the Transport Association of Canada Salt Management Guide and Synthesis of Best Practices for Road Salt Management, as amended from time to time.

d. The establishment or update of the salt management plans should occur within three years of the Code of Practice being updated.

e. If the foregoing is undertaken by the municipal road authority, a copy of the plan must be provided to the Cataraqui Source Protection Authority within 60 days of its completion or after its endorsement by Council, if applicable.

Management of Hauled Sewage

In the Cataraqui Source Protection Area, approximately 36 per cent of the population lives in a rural area that is not serviced by municipal water and sanitary sewers. There are also many businesses that are connected to private services. It is estimated that there are more than 23,000 septic systems and/or holding tanks in the CSPA. The number of septic systems will increase with the creation of new rural lots over time. Septic tanks should be pumped out every three to five years as part of regular septic system maintenance.

The material that is pumped out of the tanks, called hauled sewage or septage, is raw and untreated. Most septic pumping companies in the Cataraqui Source Protection Area take the septage to a wastewater treatment facility where it is stabilized to reduce pathogens before being applied to land as biosolids. There are limited facilities in the CSPA that can accept septage. Some of these facilities are located in or adjacent to an intake protection zone or wellhead protection area. Septage can also be applied untreated to land that meets provincial guidelines through an environmental compliance approval. This could happen in parts of the highly vulnerable aquifers and significant groundwater recharge areas, as well as in Bath IPZ-2, Sandhurst Shores IPZ-2, and Lansdowne WHPA-C and WHPA-D, where this activity would be a moderate or low drinking water threat depending on the vulnerable area.

Developing a plan to manage septage would not only help to protect the sources of drinking

water associated with the above vulnerable areas, but it would also support section 1.6.4.1 of the Provincial Policy Statement, about planning for sewage and water services.

4.7.3-NB **a.** Where the application of untreated septage (i.e. hauled sewage) to land, sewage treatment plant effluent discharges and on-site sewage treatment systems (i.e. septic systems and holding tanks) are moderate or low drinking water threats, and there is limited or no capacity at local wastewater treatment facilities in the Cataraqui Source Protection Area, municipalities should consider taking the following actions to protect their sources of drinking water within five years of the Source Protection Plan taking effect:

i. managing the treatment or stabilization of untreated septage at existing wastewater facilities and/or

ii. upgrading existing or constructing new facilities to handle demand and/or

iii. encouraging the use of alternative treatment or stabilization technologies.

b. Where this policy is implemented by a municipality, the municipality should provide the Cataraqui Source Protection Authority with a timely update.

Provincial Stormwater Management Guidelines

Stormwater is runoff from precipitation or snow melt. As it flows over the ground surface it picks up any pollutants that are unprotected such as sand, road salt, oil, fertilizer and pesticides. By its nature stormwater exists throughout the Cataraqui Source Protection Area, but is only typically managed (i.e., treated for quantity and/or quality) in the built up areas using stormwater facilities (e.g., ponds).

The Stormwater Management Planning and Design Manual (2003) provides technical and procedural guidance for the planning, design, and review of stormwater management practices, and is a reference document used in the review of applications for approval under section 53 of the *Ontario Water Resources Act*. The policy that follows encourages the Ministry of the Environment to incorporate additional considerations and requirements for stormwater management facilities in wellhead protection areas, highly vulnerable aquifers and significant groundwater recharge areas. Discharge from a stormwater management facility can be a significant drinking water threat depending on the vulnerable area, predominant land use and drainage area.

4.7.4-NB **a.** The Ministry of the Environment should review the Stormwater Management Planning and Design Manual (2003) to determine how it could be improved to provide a greater level of protection to groundwater from the discharge of stormwater from a stormwater retention pond, especially in wellhead protection areas, highly vulnerable aquifers and significant groundwater recharge areas.

b. The strategic action outlined in **a.** should be implemented at the next review of the design manual or within five years of the Source Protection Plan taking effect, whichever comes first.

c. In order to monitor the implementation of **a**, the Ministry should include infor-

mation about implementation of this policy in an annual summary of actions to achieve outcomes of source protection policies and make it available to the Cataraqui Source Protection Authority.

Fuel Storage Standards and Safety

The reliance on liquid fuel to heat homes and to power vehicles and machinery means the presence of fuel storage tanks is common throughout the Cataraqui Source Protection Area. Liquid fuels are highly mobile, and flow with groundwater or surface water for great distances making them difficult and very costly to clean up. Without adequate management, spills and leaks can impact our sources of drinking water.

This is of particular concern in the Cataraqui Source Protection Area due to the highly vulnerable nature of the groundwater. With little soil cover and extensive fracture-networks contaminants spilled on the ground surface easily soak into the ground and travel along the fractures to reach and pollute drinking water supplies.

At the provincial scale, fuel storage and handling is regulated by Ontario Regulations 213/01: Fuel Oil and 217/01: Liquid Fuels, as well as the associated codes. The Ministry of Consumer Services is responsible for this legislation and has delegated enforcement to the Technical Standards and Safety Authority (TSSA). A review of the provincial requirements and research about the causes of fuel spills and leaks was completed and it was determined that gaps exist in the current regulatory framework. The following three policies, made under subsection 26(1)(v) of Ontario Regulation 287/07 (General) are intended to fill these gaps by improving the provincial fuel handling and storage safety net, as well as information sharing between local source water protection practitioners and the TSSA.

It is noted that the storage of liquid fuel for home heating purposes is the most common activity identified as a drinking water threat in the Cataraqui Source Protection Area. Management of this most common type of significant drinking water threat will be realized through implementation of risk management plans in the wellhead protection areas. The use of risk management plans for home heating oil storage and also for private fuel outlets is intended to serve as an interim measure until provincial legislation fills this gap.

Also, risk management plans can only be used where fuel storage is a significant threat so, the Source Protection Plan must focus on other management options education and outreach for the broader community.

The next two policies suggest that Code and Regulation changes be made that could result in risk management plans for fuel storage and handling becoming obsolete and provide improved protection for all vulnerable areas.

These policies are made under subsection 26(1)(v) of Ontario Regulation 287/07 (General).

4.7.5-NB **a.** Where the handling and storage of fuel at facilities defined in Section 1 of Ontario Regulation 213/01 or Section 1 of Ontario Regulation 217/01 is or would be a drinking water threat, the Ministry of Consumer Services and the Ministry of the Environment should consider source water protection during the next scheduled code review in part by considering changes such as the use of fuel handling and storage equipment (i.e. supply tanks, supply lines, etc.) that research has shown to be resistant to leaks.

b. The Ministry of the Environment and the Ministry of Consumer Services should include information about this policy in an annual summary of actions taken to achieve the outcomes of source protection policies and make it available to the Cataraqui Source Protection Authority.

4.7.6-NB **a.** Where the handling and storage of fuel at facilities as defined in Section 1 of Ontario Regulation 213/01 or Section 1 of Ontario Regulation 217/01 is or would be a significant, moderate or low drinking water threat, the Ministry of Consumer Services and the Ministry of the Environment should consider the following changes such as:

i. An increase in the frequency of inspections conducted by fuel suppliers to ensure compliance with Ontario Regulation 213/01 and the Ontario Installation Code for Oil Burning Equipment.

ii. An increase in the frequency of inspections for licensed facilities to ensure compliance with Ontario Regulation 217/01 and the Liquid Fuels Handling Code.

iii. Licensing requirements or a registry for currently unlicensed (i.e. private fuel outlets) facilities under Ontario Regulation 217/01.

b. The Ministry of Consumer Services should provide information to the Cataraqui Source Protection Authority about any actions taken to implement this policy by February 15 of each year following the effective date of the source protection plan.

The following policy forms a link between the people responsible for local source protection plan implementation and the provincial fuel experts. Since there are currently no licensing or registration requirements for private fuel outlets the TSSA does not know their locations. However, the TSSA conduct inspections of private fuel outlets on an ad hoc basis to ensure compliance with Ontario Regulation 217/01 and the Liquid Fuels Handling Code. Local officials have information about these facilities and may want to draw upon expertise of TSSA inspectors to review the condition of the related equipment and compliance with the Regulation and Code.

4.7.7-NB In instances where the expertise of the Technical Standards and Safety Authority is needed, the Cataraqui Source Protection Authority in cooperation with local risk

management officials or municipalities should engage the Technical Standards and Safety Authority by requesting inspection of private fuel outlets where the storage and handling of fuel is a drinking water threat.

Review of Nutrient Management Regulation

There are a number of agriculture-related drinking water threats that may have a significant impact on sources of drinking water depending on local conditions and management practices, irrespective of the size of the agricultural operation. In the Cataraqui Source Protection Area, these activities are or would be significant drinking water threats in the Brockville, James W. King and Sydenham IPZ-1 and IPZ-2, and in the Cana, Lansdowne and Miller Manor WHPA-A and WHPA-B.

Ontario Regulation 267/03, (General) under the *Nutrient Management Act*, is an established and understood piece of legislation that could be used to address these nutrient-related threats instead of duplicating the process through the use of risk management plans. Risk management plans will be used to address significant drinking water threats associated with those agricultural operations that are not phased-in under the *Nutrient Management Act*, as specified elsewhere in this Plan.

Subsection 26(1)(v) of Ontario Regulation 287/07 (General) is used to create the following policy that, if implemented, would make the requirement for risk management plans to manage the types of activities that are regulated by the *Nutrient Management Act* and the associated regulation obsolete.

4.7.8-NB The Ministry of Agriculture, Food and Rural Affairs should consider amending Ontario Regulation 267/03 (General) in the future to apply to all farms in WHPAs and IPZs where the application to land, storage and management of agricultural source materials are significant drinking water threats.

The *Nutrient Management Act* was designed to reduce the potential for contamination of water and other natural resources by some agricultural practices.

The Act establishes the framework for best practices in nutrient management, such as the management of manure, and creates standards which give best management practices the force of law.

The Act also provides standards for how nutrients are stored and applied to farmland so that contamination of surface water and groundwater can be reduced.