

1. *What is the Threat to Drinking Water?*

This paper provides the background information for prescribed drinking water threats 12 (the application of road salt), 13 (the handling and storage of road salt), and 14 (the storage of snow).

The elimination or reduction of sodium and chloride entering surface water and/or groundwater is the main reason for addressing these threats.

Threats related to Road Salt

Road salt as a drinking water threat means any product used to maintain roads and pedestrian areas that contain one or both of sodium and chloride. The most commonly used products are sodium chloride and calcium chloride because they are effective and inexpensive. Road salt can be used in road maintenance as either a dust suppressant or a deicer/ice prevention agent. Policies developed for this threat should apply to all road salt applications for road maintenance.

Road Salt as a Dust Suppressant

Dust from unpaved roads can result in negative environmental and economical implications (i.e. loss of fine particles from unpaved roads can reduce the longevity of the road and increase maintenance costs). The use of a dust suppressant allows for rate of road deterioration to be lessened (Federation of Canadian Municipalities and National Research Council, 2005).

Environmentally sensitive areas (i.e. sources that drain into sources of drinking water) should be considered when determining the suitability of a dust suppressant (Federation of Canadian Municipalities and National Research Council, 2005). In determining the suitability of a dust suppressant, it may be prudent to determine a buffer zone in order to prevent these products from reaching an open body of water or a groundwater aquifer (Federation of Canadian Municipalities and National Research Council, 2005).

An example of a dust suppressant is brine as a consequence of exploration for and extraction of oil and natural gas. Brine, a waste product requiring disposal, is naturally occurring water laden with sodium, calcium, magnesium and chloride (State of Michigan, 1984). Within the Thames-Sydenham and Region Source Protection Area, Lambton County currently uses brine.

Road Salt as Deicer/Ice Prevention Agent

Winter road salt application works by breaking the bond formed between the pavement and the ice/compacted snow. As snow accumulates on the road and is compacted by traffic, it forms a bond with the pavement,

NOTE TO THE READER

This document is one of a series of threat policy discussion papers for the Thames- Sydenham and Region in support of Source Protection Plan development. Each discussion paper looks at the nature of one or more types of drinking water threat, describes the local occurrence of those threats, assesses existing policies/programs, and introduces related 'policy concepts' for source protection planning. 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.

This version is considered to be a working draft because it will be revised as the policy development process progresses. This discussion paper represents the best information available to the SPC upon which they will base their policy decisions.

Contents

- What is the Threat to Drinking Water?
- What causes the activity to be a drinking water threat?
- What is the local scale of the drinking water threat?
- Applicable legislation, policies and programs
- Gaps in existing legislation, policies and programs
- Policy considerations
- Proposed policy ideas
- References
- Tables
- Policy examples

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collect litter and settle coarse sediments and a larger secondary area to settle finer particles. An absorbent boom can be placed in the forebay to capture any oil and grease in the site drainage. The outlet from the pond should be controlled to regulate the release of runoff to the receiving waterbody/off the property. These best management practices can be used in association with regulatory requirements and other guidelines (such as Ontario Ministry of Environment Procedure B-4) to minimize potential impacts on the environment are also included within this document.

b) Provincial

Ontario Environmental Protection Act (Government of Ontario, 1990)

Section 14 of the Ontario *Environmental Protection Act* prohibits the discharge of a contaminant into the natural environment if the discharge causes or may cause an adverse effect. An adverse effect is defined by Ontario Regulation 339 as one or more of:

- (a) impairment of the quality of the natural environment for any use that can be made of it,
- (b) injury or damage to property or to plant or animal life,
- (c) harm or material discomfort to any person,
- (d) an adverse effect on the health of any person,
- (e) impairment of the safety of any person,
- (f) rendering any property or plant or animal life unfit for human use,
- (g) loss of enjoyment of normal use of property, and
- (h) interference with the normal conduct of business”.

As of 2006, no cases related to road salt have been successfully prosecuted under the *Act*. Also, if a road authority can demonstrate “all reasonable care” to prevent the adverse effect (i.e. voluntary compliance with the Code of Practice for Environmental Management of Road Salts) acquittal from all charges would be provided (Riversides, 2006).

[Guideline C-9: Approval of Waste Management Systems for Dust Suppression using a Waste Material \(Ministry of Environment, 2010\)](#)

[The use of road salt is most commonly as a deicer/ice prevention agent but it can be used as a dust suppressant. The Ministry of Environment Environmental Assessment and Approvals Branch has developed guidelines to control the use of waste material as a dust suppressant. The legislative authority for this guideline is the Environmental Protection Act R.S.O 1990 \(S.27 and S.32\) and Ontario Regulation 347 \(S.2 and S.5\) \(MOE, 2010\).](#)

[Guideline C-9 only applies to the carriers applying the waste \(s. 27 of EPA and s. 2 of O. Reg. 347\) and not the sites receiving the waste as a dust suppressant \(s. 5\(2\) of O. Reg. 347\). This guideline is enforced by both municipalities and the Ministry of the Environment. Municipalities require the carrier to have a C of A for a dust suppressant system using waste and MOE Approvals Branch reviews the applications and issues the C of A with the appropriate conditions \(MOE, 2010\). The C of A identifies the type of waste that is being used as well as where it is being applied. S. 5\(4\) of O. Reg. 347 prohibits the use of waste oil as a dust suppressant \(MOE, 2010\).](#)

Ontario Regulation 339 of the Environmental Protection Act: Classes of Contaminants – Exemptions (Government of Ontario, 1990)

Level of Government	Legislation/Policies/Programs	Gaps
		potential to inundate surface water/groundwater systems with large volumes of water as well as contaminate surface and groundwater however there are no regulatory requirements such as those for monitoring water quality.
Federal	Transportation Association of Canada Best Practices	<ul style="list-style-type: none"> • These documents help road authorities to develop their own Salt management Plans however the use of this is voluntary and is not enforced.
Municipalities	Municipal Salt Management Plan	<ul style="list-style-type: none"> • Most winter maintenance plans don't contain significant detail about snow melting or storage • Salt Management Plans don't apply to private contractors although some municipalities require private contractors to comply with plans • Some municipalities don't have resources or knowledge to implement Salt Management Plans • Compliance with Salt Management Plans is difficult to monitor • Salt Management Plans are only required for municipalities that use more than 500 tonnes of salt. There is no legislative body responsible for compliance.
	Planning Services	<ul style="list-style-type: none"> • There are often limited municipal resources to ensure that site plan control requirements for designated snow storage areas are being met. • In many cases these sites are serviced by private snow removal companies that may not be informed about the snow storage requirements.

6. Policy Considerations

- The primary consideration for reducing or eliminating drinking water threats related to the application, handling and storage of road salt and storage of snow is to make sure contaminated runoff does not enter surface water and/or groundwater.
- The source protection plan will need to include a high-level policy approach (“a catch-all policy”) to address those “would be” drinking water threats that are unlikely to occur in a given vulnerable area (such as large-scale snow storage below grade in a rural subdivision).
- Policies need to take into account that road salts can be used as a deicer/ice prevention agent as well as a dust suppressant;
- Application of road salt
 - Application of road salt is widespread and necessary to protect public health and safety on roadways;
 - Potential alternatives for salt include brackish water (from oil well operations) (done in Lambton County); beet juice from US (supplier from Tillsonburg); pre-app brine, magnesium chloride and sand. It is important to look at these alternatives critically since they may contribute to other health and environmental issues;
 - Computerized control and GPS could help with proper application of salt.
 - Application rates for parking lots can be set much lower than current common practices; Niagara Region is doing this.
 - Weather, temperature, time of year, etc, can affect the amount of material applied.

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	<ul style="list-style-type: none"> • Create a land use designation for salt storage facilities. • Require site plan control to reflect required Risk Management Plans for snow storage where it is a significant threat including designated snow storage areas for private development that take into consideration the sensitivity of vulnerable area. • Land use planning shall be consistent with the Risk Management Plans and Prohibition policies through Restricted Land Uses
Prescribed Instruments	<ul style="list-style-type: none"> • Not applicable for salt • Require or encourage (depending on the level of threat) MOE to take additional considerations its review of applications for C of A under the Ontario Water Resources Act for melt and storm water management facilities. • <u>Under Ontario Regulation 347 General Waste Management, municipalities need to continue to require the carrier of dust suppressants apply for C of A for a dust suppressant system using waste.</u> • <u>Under Ontario Regulation 347 General Waste Management, MOE need to continue to review Certificate of Approval applications for the carrying of dust suppressants. The issuance of the C of A may have appropriate conditions. Conditions should make carriers aware of the issues related to applying dust suppressants in areas that are significant drinking water threats.</u> • <u>Under the Aggregate Resources Act Policy A.R 5.00.14 (Salt Storage and Snow Dumps on Licensed/Permitted Sites) salt may be temporarily stored on a licensed or permitted site. MNR should not allow temporary salt storages where the storage of salt is a significant drinking water threat.</u>
S.57 Prohibition	<ul style="list-style-type: none"> • Prohibit existing and future salt storages which would be significant threats
S.58 Risk Management Plans	<ul style="list-style-type: none"> • Risk management for salt storage would not be necessary if salt storages (existing and new) were prohibited in those areas where they were a significant threat.
S.59 Restricted Land Uses	<ul style="list-style-type: none"> • Require prescreening of planning applications for activities related to the application and storage of road salt, and the storage of snow where the activity is considered a significant threat
S. 26 p.1 Other-Specify Action (Municipal Operations/ Infrastructure)	<ul style="list-style-type: none"> • Encourage road authorities to have salt management plans which include identification of vulnerable areas and means of managing the threat in areas where the threat would be significant. <u>These plans should include the use of road salt for dust suppression.</u> Roads authorities will be encouraged to involve the Risk Management Official in the development of the Salt Management Plan in those areas where it involves a significant threat. • Apply best management practices to design and operation of road maintenance yards
S. 26 p.1 Other-Govern Research and Establish Pilot Programs	<ul style="list-style-type: none"> • Encourage research into vegetation which reduces the salt runoff and infiltration • Suggest locations where pilot or test projects could be established within vulnerable area in the region.

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- Threat: The Storage of Snow
- Circumstances Storage of Snow (based on significant threats only)
- o 0.01hectares (ha) to 0.5 ha;
 - o Greater than 0.5 ha to 1 ha;
 - o Greater than 1 ha to 5 ha; and
 - o Greater than 5 ha.

Policy Tool	Policy ideas
Education and Outreach	<ul style="list-style-type: none"> • Meet with road authorities to identify vulnerable area • Encourage municipalities and private operators to consider source water vulnerability in locating snow storage and encourage them to implement best management practices • Develop contacts with snow operators (and landscaping companies) to make sure that the messages are reaching the private contractors • Consider trends and science with regards climate change in salt and snow management plans
Incentive Programs	<ul style="list-style-type: none"> • The committee discussed the possibility of incentive programs and determined that it is not as high a priority as other incentive programs
Land Use Planning	<ul style="list-style-type: none"> • Create a land use designation for hauled (off site) snow storage facilities. • Require site plan control to reflect required Risk Management Plans for snow storage where it is a significant threat including designated snow storage areas for private development that take into consideration the sensitivity of vulnerable area. • Land use planning shall be consistent with the Risk Management Plans and Prohibition policies through Restricted Land Uses
Prescribed Instruments	<ul style="list-style-type: none"> • Require or encourage (depending on the level of threat) MOE to take additional considerations its review of applications for C of A under the Ontario Water Resources Act for melt and storm water management facilities. • Require MNR to continue to prohibit the importing of snow removal material to a licensed/permitted site under Aggregate Resources Act Policy A.R 5.00.14 (Salt Storage and Snow Dumps on Licensed/Permitted Sites).
S. 57 Prohibition	<ul style="list-style-type: none"> • Prohibit existing and future salt storages which would be significant threats • Prohibit hauled snow storage where it would be significant threat
S.58 Risk Management Plans	<ul style="list-style-type: none"> • Require risk management plans for snow storage where this is or would be a significant drinking water threat. The RMP shall include salt BMP.
S.59 Restricted Land Uses	<ul style="list-style-type: none"> • Require prescreening of planning applications for activities related to the storage of snow where the activity is considered a significant threat
S. 26 p.1 Other-Specify Action (Municipal Operations/ Infrastructure)	<ul style="list-style-type: none"> • Apply MOE guidelines and Transportation Association of Canada best practices or other BMP when locating new snow disposal sites, and take into consideration vulnerable areas. • Apply best management practices to design and operation of road maintenance yards

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Appendix B-Policy Examples

Appendix B will be added when the SPC gets to the appropriate stage in the policy discussions. The draft policies presented in appendix B are placeholder policies based on the policy ideas noted above. They are presented in this document to facilitate policy discussion at the upcoming SPC meeting. And subsequent review and comment by the Municipal Source Protection Policy Advisory committee.

Policy Number	12-1
Sub- Threat(s)	Application, Handling and Storage of Road Salt
Circumstance	Road salt is applied to roads, highways or parking lots and may result in the release to groundwater or surface water. The application of road salt is a significant threat to drinking water when the total impervious area is >80%. Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant, Moderate and Low
Body Responsible for Implementing	Municipal Watershed partnership with Conservation Authority to lead. The implementation of this policy in this manner builds on the strengths and efficiencies of the Conservation Authorities as a partnership of the municipalities in the watershed.
Threat Status	Future
Land Use	All land use that could be associated with the application, handling and storage of road salt.
Legal Effect	Conform (significant), Strategic (Moderate, Low)
Policy Tool	Education and Outreach
Policy Idea	<p><u>Enhance existing education and outreach programs, or if they do not exist, develop new programs</u> to promote Best Management Practices to protect drinking water sources from the chemical risks of the application, handling and storage of road salt including:</p> <ul style="list-style-type: none"> • Promotion of education and outreach programs specifically developed for the application, handling and storage of salt to the public-at-large; • Promotion of the development of municipal Salt Management Plans. Employee education should be included in these Plans. Trends and science with regards to climate change should also be considered when developing these plans. The implementation of the Salt Management Plans would be based on Best Management Practices which includes consideration of source water vulnerability; • Promotion of salt management through education sessions targeted at snow removal contractors;

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<p>Policy Number</p>	<p>12-1</p> <ul style="list-style-type: none"> • Promotion of Source Protection focusing on identification of vulnerable areas through the education of road authorities; • Promotion and further implementation of salt reduction programs such as the not-for-profit Smart About Salt program; • Development of education and outreach programs to raise awareness of operator accreditation through the Smart About Salt program and the benefits of using accredited operators; • Creation of a municipal database of snow operators and landscaping companies. This would allow the development of contacts within the winter maintenance industry to ensure that Best Management Practices are being used when applying, handling or storing road salt; • Development of education and outreach programs to raise awareness of the cost effectiveness of smart salt application; • Development of education and outreach programs specifically targeting property owners who apply their own salt or contract out the service; • <u>Development of education and outreach programs that promote the use of alternate methods and products to using road salt as a deicer/ice prevention agent and a dust suppressant;</u> • <u>The implementation of this policy through the existing municipal partnership of the Conservation Authority will allow these programs to be built on existing watershed education and outreach in an efficient manner. The municipalities will be encouraged to be involved in the program development and delivery depending on their individual needs, however the program(s) should be developed in a consistent manner across the region.</u>
<p>Implementation schedule</p>	<p>Within 2 years of the approval of the Source Protection Plan</p>
<p>Monitoring Policy</p>	<p>The implementing body shall report to the SPA the number of educational packages offered as well as a description of the actions/measures they have taken to implement the education/outreach in the previous year. Measures of tracking of the uptake by the target audience will also be included in this report.</p>

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Policy Number	12-2
Sub- Threat(s)	Application, Handling and Storage of Road Salt
Circumstance	Road salt is applied to roads, highways or parking lots and may result in the release to groundwater or surface water. The application of road salt is a significant threat to drinking water when the total impervious area is >80%. Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Conservation Authority, Municipality, MTO
Threat Status	Existing and Future
Land Use	All land use that could be associated with the application, handling and storage of road salt.
Legal Effect	Strategic
Policy Tool	Incentives
Policy Idea	Various agencies (i.e. Conservation Authority, municipality and MTO) shall be encouraged to participate in the promotion and funding of salt efficiency programs such as Smart About Salt.
Implementation schedule	Within 2 years of the approval of the SPP.
Monitoring Policy	

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Policy Number	12-3a
Sub- Threat(s)	Storage of Road Salt
Circumstance	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of road salt.
Legal Effect	Conform
Policy Tool	Land Use Planning
Policy Idea	A land use designation specifically for salt storage facilities shall be created by the municipality. Land use planning shall be consistent with policies 12-5 (S.57 Prohibition) and 12-6 (S.58 Risk Management Plans).
Implementation schedule	From the date of the Source Protection Plan approval, all planning decisions shall be in conformity. Updates shall be initiated in all Official Plan within 6 months of the Source Protection Plan approval with the goal to be completed within 2 years of the SPP approval date. Zoning by-laws shall be updated within 3 years of the SPP approval date.
Monitoring Policy	Municipalities shall report to the CA on new policies incorporated in Official Plans and any new by-laws relevant to source water protection. All municipalities must report even if it is to indicate that no changes were required. Where no changes were required, the report is to describe how the existing OP and bylaws meet the requirements of this policy.

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Policy Number	12-3b
Sub- Threat(s)	Storage of Road Salt
Circumstance	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Moderate
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of road salt.
Legal Effect	Strategic
Policy Tool	Land Use Planning
Policy Idea	New road salt storage should be encouraged to be outside other groundwater vulnerable areas with a score of 6 or greater (which would include HVA).
Implementation schedule	From the date of the Source Protection Plan approval, all planning decisions shall be in conformity. Updates shall be initiated in all Official Plan within 6 months of the Source Protection Plan approval with the goal to be completed within 2 years of the SPP approval date. Zoning by-laws shall be updated within 3 years of the SPP approval date.
Monitoring Policy	Municipalities shall report to the CA on new policies incorporated in Official Plans and any new by-laws relevant to source water protection. All municipalities must report even if it is to indicate that no changes were required. Where no changes were required, the report is to describe how the existing OP and bylaws meet the requirements of this policy.

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Policy Number	12-4a
Sub- Threat(s)	Application, Handling and Storage of Road Salt
Circumstance	Road salt is applied to roads, highways or parking lots and may result in the release to groundwater or surface water. The application of road salt is a significant threat to drinking water when the total impervious area is >80%. Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	MOE
Threat Status	Existing and Future
Land Use	All land use that could be associated with the application, handling and storage of road salt.
Legal Effect	Conform
Policy Tool	Prescribed Instruments-Ontario Water Resources Act
Policy Idea	MOE shall continue to review Certificate of Approval applications for stormwater management facilities. This review shall take into consideration the implications of snow melt water and road salt. .
Implementation schedule	Within 1 year of the approval of the SPP for existing Certificate of Approvals .
Monitoring Policy	MOE shall report to the CA the number of Certificate of Approval applications that they have reviewed and the number that have included snow melt water considerations.

<u>Policy Number</u>	12-4b
<u>Sub- Threat(s)</u>	Handling and Storage of Road Salt (Dust Suppression)
<u>Circumstance</u>	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
<u>Vulnerable Area</u>	<ul style="list-style-type: none"> • <u>WHPA-A and B with a vulnerability score of 10</u> • <u>IPZ-1 with a vulnerability score of 10</u> • <u>IPZ and WHPA-E with vulnerability score of 9</u>
<u>Risk</u>	Significant
<u>Body Responsible for Implementing</u>	Municipality, MOE
<u>Threat Status</u>	Existing and Future
<u>Land Use</u>	All land use that could be associated with the handling and storage of road salt for dust suppression.
<u>Legal Effect</u>	Conform
<u>Policy Tool</u>	<u>Prescribed Instruments-Environmental Protection Act Ontario Regulation 347-General Waste Management</u>
<u>Policy Idea</u>	<p>Municipalities shall continue to require the carrier of dust suppressants to apply for C of A for a dust suppressant system using waste.</p> <p>MOE shall continue to review Certificate of Approval applications for the carrying of dust suppressants. The issuance of the C of A shall have appropriate conditions. Conditions would make carriers aware of the issues related to applying dust suppressants in areas that are significant drinking water threats. The application of road salt for a dust suppressant shall be included within salt management plans.</p>
<u>Implementation schedule</u>	For existing C of A, the implementation of this policy shall be within 1 year of the approval of the SPP. For future C of As, this policy shall be implemented immediately following the approval of the SPP.
<u>Monitoring Policy</u>	MOE shall report to the CA the number of Certificate of Approval applications that they have reviewed and the number that have included using road salt as a dust suppressant.

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<u>Policy Number</u>	12-4c
<u>Sub- Threat(s)</u>	Handling and Storage of Road Salt
<u>Circumstance</u>	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
<u>Vulnerable Area</u>	<ul style="list-style-type: none"> • <u>WHPA-A and B with a vulnerability score of 10</u> • <u>IPZ-1 with a vulnerability score of 10</u> • <u>IPZ and WHPA-E with vulnerability score of 9</u>
<u>Risk</u>	Significant
<u>Body Responsible for Implementing</u>	MNR
<u>Threat Status</u>	Existing and Future
<u>Land Use</u>	All land use that could be associated with the handling and storage of road salt.
<u>Legal Effect</u>	Conform
<u>Policy Tool</u>	Prescribed Instruments-Aggregate Resources Act
<u>Policy Idea</u>	Under the Aggregate Resources Act Policy A.R 5.00.14 (Salt Storage and Snow Dumps on Licensed/Permitted Sites) salt may be temporarily stored on a licensed or permitted site. Where the storage of salt is a significant drinking water threat, the MNR shall not allow this action to occur.
<u>Implementation schedule</u>	For existing significant threats, the implementation of this policy shall be within 1 year of the approval of the SPP. For future threats, this policy shall be implemented immediately following the approval of the SPP.
<u>Monitoring Policy</u>	MNR shall submit an annual report to the CA the number of temporary salt storages that have been identified and whether they have identified any storage location that would be in contravention of this policy.

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Policy Number	12-5
Sub- Threat(s)	Storage of Road Salt
Circumstance	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of road salt.
Legal Effect	Conform
Policy Tool	S.57 Prohibition
Policy Idea	Existing and future salt storages, where it is a significant threat, shall be prohibited within vulnerable areas. <u>This policy should apply equally to the storage of salt in any form (i.e. solid, liquid, mixed with sand).</u>
<u>Implementation schedule</u>	<u>The policy takes effect upon the approval date of the first source protection plan.</u>
Monitoring Policy	The municipality shall submit an annual report to the CA which includes whether they have identified any storage location which was used in contravention of this policy.

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Policy Number	12-6
Sub- Threat(s)	Storage of Road Salt
Circumstance	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of road salt.
Legal Effect	Conform
Policy Tool	S. 58 Risk Management Plans
Policy Idea	Risk Management Plans are not required if salt storages (existing and new) were prohibited in those areas where they would be a significant threat.
Implementation schedule	N/A
Monitoring Policy	N/A

Policy Number	12-7
Sub- Threat(s)	Storage of Road Salt
Circumstance	Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of road salt.
Legal Effect	Conform
Policy Tool	S. 59 Restricted Land Uses
Policy Idea	Land uses identified in the Municipal OPs and Zoning By-laws in this source protection area are designated for the purpose of s.59 of CWA in the areas of the storage of road salt is subject to s.57 prohibition under CWA.
Implementation schedule	This policy will take effect immediately after SPP becomes effective. Implementation creates a “red flag” when a municipality receives a building permit application or planning act application in the geographic areas this policy applies (needs to match the same geographic areas the RMP and s.59 policies apply).
Monitoring Policy	Monitoring is not applicable because it does not require municipal amendments or changes to Official Plans or Zoning By-Laws.

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Policy Number	12-8
Sub- Threat(s)	Application, Handling and Storage of Road Salt
Circumstance	Road salt is applied to roads, highways or parking lots and may result in the release to groundwater or surface water. The application of road salt is a significant threat to drinking water when the total impervious area is >80%. Salt stored in an area where it is impacted by precipitation or surface runoff is a threat to drinking water. When the quantity of salt stored is >5000 tonnes, it becomes a significant threat.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Existing and Future
Land Use	All land use that could be associated with the application, handling and storage of road salt.
Legal Effect	Strategic
Policy Tool	S. 26 p.1 Other-Specify Action (Municipal Operations and Infrastructure)
Policy Idea	Municipalities shall encourage road authorities to have Winter Maintenance and Salt Management Plans which include the identification of vulnerable areas and the means of managing the threats in areas where the threat would be significant. These plans should include the use of road salt for dust suppression. Road authorities will be encouraged to involve the Risk Management Official in the development of these Plans in those areas where it involves a significant threat. Municipalities shall be encouraged to apply Best Management Practices with regards to the design and operation of the road maintenance yards.
Implementation schedule	N/A
Monitoring Policy	The municipality shall report to the CA if Winter Maintenance and Salt Management Plans have been completed as well as a report identifying the Best Management Practices undertaken at the road maintenance yards.

Policy Number	12-9
Sub- Threat(s)	Application of Road Salt
Circumstance	Road salt is applied to roads, highways or parking lots and may result in the release to groundwater or surface water. The application of road salt is a significant threat to drinking water when the total impervious area is >80%.
Vulnerable Area	<ul style="list-style-type: none"> • WHPA-A and B with a vulnerability score of 10 • IPZ-1 with a vulnerability score of 10 • IPZ and WHPA-E with vulnerability score of 9
Risk	Significant
Body Responsible for Implementing	Partnership between <u>research institutions (public or private)</u> , municipalities, conservation authorities and the Province (specifically MTO). This partnership would build on the strengths and efficiencies of all parties.
Threat Status	Existing and Future
Land Use	All land use that could be associated with the application of road salt.
Legal Effect	Strategic
Policy Tool	S. 26 p.1 Other-Govern Research and Establish Pilot Programs
Policy Idea	<p><u>Collaboration between the province, research institutions, municipalities and the CA should be encouraged</u> to conduct research projects (i.e. a review of appropriate vegetation) focused on the reduction of salt runoff and infiltration along roadsides. These research projects shall be focused on areas where the application of road salt would be a threat.</p> <p><u>Research shall be encouraged to be coordinated across the province and account for work in other jurisdictions.</u></p> <p>The establishment of pilot or test project locations shall be encouraged to be launched within vulnerable areas in the Source Protection region.</p> <p>The implementation of this policy through existing and new partnerships with groups experienced in research will allow the development of research projects to occur in an efficient manner. These research projects will build on existing research and monitoring programs in the SPA in order to address the application of road salt.</p>
Implementation schedule	The development of partnerships should begin immediately once the SPP has been approved.
Monitoring Policy	The implementing body shall report to the SPA the results of the research that has been performed and how it can be incorporated in the SPP.

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Policy Number	14-1
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant, Moderate and Low
Body Responsible for Implementing	Municipal Watershed partnership with Conservation Authority to lead. The implementation of this policy in this manner builds on the strengths and efficiencies of the Conservation Authorities as a partnership of the municipalities in the watershed.
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform (Significant), Strategic (Moderate and Low)
Policy Tool	Education and Outreach
Policy Idea	<p>Enhance existing education and outreach programs and if they do not exist, develop new programs to promote Best Management Practices to protect drinking water sources from the chemical risks of the storage of snow including:</p> <ul style="list-style-type: none"> • Promotion of Source Protection focusing on identification of vulnerable areas through the education of road authorities; • Creation of a municipal database of snow operators and landscaping companies. This would allow the development of contacts within the winter maintenance industry to ensure that Best Management Practices are being used when storing snow; • Promotion of the development of municipal Snow Storage Management Plans. Employee education should be included in these Plans. Trends and science with regards to climate change should also be considered when developing these plans. The implementation of

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<p>Policy Number</p>	<p>14-1</p> <p>the Snow Storage Management Plans would be based on Best Management Practices which includes consideration of source water vulnerability;</p> <ul style="list-style-type: none"> • Promotion of education and awareness of source water vulnerability and the implementation of best management practices to municipalities and private contractors • The implementation of this policy through the existing municipal partnership of the Conservation Authority will allow these programs to be built on existing watershed education and outreach in an efficient manner. The municipalities will be encouraged to be involved in the program development and delivery depending on their individual needs, however the program(s), should be developed in a consistent manner across the region.
<p>Implementation schedule</p>	<p>Within 2 years of the approval of the Source Protection Plan</p>
<p>Monitoring Policy</p>	<p>The implementing body shall report to the SPA the number of educational packages offered as well as a description of the actions/measures they have taken to implement the education/outreach in the previous year. Measures of tracking of the uptake by the target audience will also be included in this report.</p>

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Policy Number	14-2
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant
Body Responsible for Implementing	N/A
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Strategic
Policy Tool	Incentives
Policy Idea	The committee discussed the possibility of incentive programs and determined that it is not as high a priority as other threats.
Implementation schedule	N/A
Monitoring Policy	N/A

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Policy Number	14-3
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • <u>Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10.</u> • <u>Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.</u>
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	Land Use Planning
Policy Idea	<p>A land use designation specifically for hauled (off-site) snow storage shall be created by the municipality.</p> <p>Site Plan Control shall be required to reflect Risk Management Plans for snow storage where it is a significant threat. This would include designated snow storage areas for private development.</p> <p>Land use planning shall be consistent with policies 14.5 (S.57 Prohibition) and 14.6 (S.58 Risk Management Plans).</p>
Implementation schedule	From the date of the Source Protection Plan approval, all planning decisions shall be in conformity. Updates shall be initiated in all Official Plan within 6 months of the Source Protection Plan approval with the goal to be completed within 2 years of the SPP approval date. Zoning by-laws shall be updated within 3 years of the SPP approval date.
Monitoring Policy	Municipalities shall report to CA on new policies incorporated in Official Plans and any new by-laws relevant to source water protection. All municipalities must report even if it is to indicate that no changes were required. Where no changes were required, the report is to describe how the existing OP and bylaws meet the requirements of this policy.

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Policy Number	14-4a
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • <u>Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10.</u> • <u>Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.</u>
Risk	Significant
Body Responsible for Implementing	MOE
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	Prescribed Instruments-Ontario Water Resources Act
Policy Idea	MOE shall continue to review Certificate of Approval applications for stormwater management facilities. This review shall take into consideration the implications of snow melt water.
Implementation schedule	For existing threats, the implementation of this policy shall be within 1 year of the approval of the SPP. For future threats, this policy shall be implemented immediately following the approval of the SPP.
Monitoring Policy	MOE shall report to the CA the number of Certificate of Approval applications that they have reviewed and the number that have included snow melt water considerations.

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Policy Number	14-4b
Sub- Threat(s)	Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • <u>Completely below grade where the total storage area is</u> <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • <u>At or above grade where the total storage area is</u> <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • <u>Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10.</u> • <u>Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.</u>
Risk	Significant
Body Responsible for Implementing	MNR
Threat Status	Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	Prescribed Instruments-Aggregate Resources Act
Policy Idea	Where the (hauled off-site) storage of snow is a significant drinking water threat, the MNR shall continue to not allow the importing of snow removal material at aggregate operations as per the Aggregate Resources Act Policy A.R. 5.00.14 (Salt Storage and Snow Dumps on Licensed/Permitted Sites).
Implementation schedule	This policy shall be implemented immediately following the approval of the SPP.
Monitoring Policy	MNR shall submit an annual report to the CA indicating if any snow storage areas have been identified that would be in contravention of this policy.

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Policy Number	14-5
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	S.57 Prohibition
Policy Idea	Existing and future hauled snow storage areas, where it would be a significant threat, shall be prohibited in vulnerable areas.
Implementation schedule	The policy takes effect one year after the approval date of the first source protection plan.
Monitoring Policy	The municipality shall submit an annual report to the CA which includes whether they have identified any storage which was used in contravention of this policy.

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Policy Number	14-6
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • <u>Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10.</u> • <u>Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.</u>
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	S.58 Risk Management Plans
Policy Idea	<p>Risk Management Plans would not be required for hauled snow storage since these areas have been prohibited.</p> <p>Risk Management Plans for snow storage shall be required where this is or would be a significant threat. The RMP shall include salt BMP.</p>
Implementation schedule	<p>For existing threats, the implementation of this policy shall be within 1 year of the approval of the SPP. For future threats, this policy shall be implemented immediately following the approval of the SPP.</p>
Monitoring Policy	The Risk Management Official shall submit an annual report to the CA which includes the number of RMP required and approved.

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Policy Number	14-7
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Conform
Policy Tool	S.59 Restricted Land Uses
Policy Idea	Land uses identified in the Municipal OPs and Zoning By-laws in this source protection area are designated for the purpose of s.59 of CWA in areas of snow storage is subject to s.57 prohibition under CWA.
Implementation schedule	<p>This policy will take effect immediately after the approval date of the Source Protection Plan.</p> <p>Implementation creates a “red flag” when a municipality receives a building permit application or planning act application in the geographic areas this policy applies (needs to match the same geographic areas the RMP and s.59 policies apply).</p>
Monitoring Policy	Monitoring is not applicable because it does not require municipal amendments or changes to Official Plans or Zoning By-Laws.

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Policy Number	14-8
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant
Body Responsible for Implementing	Municipality
Threat Status	Existing and Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Strategic
Policy Tool	S.26 p.1 Other-Specify Action (Municipal Operations and Infrastructure)
Policy Idea	<p>Municipalities shall be encouraged to take into consideration vulnerable areas when locating new snow disposal sites.</p> <p>Municipalities shall be encouraged to apply MOE guidelines and Transportation Association of Canada Best Management Practices or other BMP when locating new snow disposal sites.</p> <p>Municipalities shall encourage road authorities to develop Winter Maintenance and Salt Management Plans which would include the identification of vulnerable areas and the means of managing the threats in areas where the threat would be significant. Road Authorities would be encouraged to involve the Risk Management Official in the development of these Management Plans in those areas where it involves a significant threat.</p> <p>Municipalities shall be encouraged to apply Best Management Practices with regards to the design and operation of the road maintenance yards in terms of snow storage.</p>
Implementation schedule	N/A
Monitoring Policy	The municipality shall report to the CA on the following:

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Appendix B – policy examples

Policy Number	14-8
	<ul style="list-style-type: none">• How many Winter Maintenance and Salt Management Plans have been developed• What Best Management Practices have been undertaken at the roads maintenance yards

Policy Number	14-9
Sub- Threat(s)	The Storage of Snow
Circumstance	<p>Snow storage is a threat to drinking water when it is stored:</p> <ul style="list-style-type: none"> • Completely below grade where the total storage area is <ul style="list-style-type: none"> ○ >0.01 ha to <0.5 ha ○ 0.5 ha to 1 ha ○ 1 to 5 ha ○ >5 ha • At or above grade where the total storage area is <ul style="list-style-type: none"> ○ 1 to 5 ha ○ >5 ha
Vulnerable Area	<ul style="list-style-type: none"> • Snow storage (below grade) is a significant threat in WHPAs with a vulnerability score of 10. • Snow storage (at or above grade in an area > 1ha) is a significant threat in WHPAs with a vulnerability score of 10 or an IPZ with a vulnerability score of 9 or higher.
Risk	Significant
Body Responsible for Implementing	Partnership between the Province (specifically MTO), research institutions (public and private), municipalities and conservation authorities. This partnership would build on the strengths and efficiencies of all parties.
Threat Status	Future
Land Use	All land use that could be associated with the storage of snow.
Legal Effect	Strategic
Policy Tool	S. 26 p.1 Other-Establishment of Pilot Programs
Policy Idea	<p>The establishment of pilot or test project locations shall be encouraged to be launched within vulnerable areas in the Source Protection region.</p> <p><u>The implementation of this policy through existing and new partnerships with groups experienced in research will allow the development of research projects to occur in an efficient manner. These research projects will build on existing research and monitoring programs in the SPA in order to address the storage of snow.</u></p>
Implementation schedule	The development of partnerships should begin immediately once the SPP has been approved.
Monitoring Policy	The implementing body shall report to the SPA the results of the research that has been performed and how it can be incorporated in the SPP.

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