

## 10.7 ROAD SALT

### Definition

The application, handling and storage of road salt is a prescribed drinking water threat listed in O. Reg. 287/07 under the *Clean Water Act, 2006*. Road salt is any product containing sodium and/or chloride that is used to maintain roads, parking lots and pedestrian areas. Most road salt is used as a de-icer or an ice prevention agent, but can also be used for dust suppression. The most commonly used products for de-icing and preventing ice formation on roads are sodium chloride and calcium chloride because they are effective and inexpensive. Road salt application works by breaking the bond formed between the pavement and the ice/compacted snow. Salt prevents this bond from forming because it reacts with moisture to create a layer of salty water (brine) which has a freezing point below zero degrees Celsius.

### Why is Road Salt a Threat to Drinking Water Sources?

Chemicals from the application, handling and storage of road salt could make their way into drinking water sources. The Ministry of the Environment and Climate Change's *Tables of Drinking Water Threats* identifies the following sub-threat activities:

- The application of road salt (see circumstances #88-95)
- The handling and storage of road salt (see circumstances #1433-1444)

The Ministry of the Environment and Climate Change's *Tables of Drinking Water Threats* identify the chemicals that could make their way from the application or storage and handling of road salt under certain conditions into drinking water sources. Sodium and chloride can threaten drinking water sources in certain situations by making it unpalatable or unsafe. The aesthetic Ontario Drinking Water Objective (ODWO) for sodium is 200 milligrams per litre (mg/L). However, since sodium intake can present a health issue for some people, the local Medical Officer of Health must be notified by the municipality when concentrations are greater than 20 mg/L. At concentrations above 250 mg/L, chloride imparts a salty taste to drinking water.

See **Table 10-9** for when and where the application, handling and storage of road salt may be a significant drinking water threat. Note: to determine if a specific activity is a significant drinking water threat consult the *Tables of Drinking Water Threats* for the specific circumstances that must be met for the activity to be a threat. These activities may also be significant drinking water threats anywhere within an Issue Contributing Area (ICA) for Sodium or Chloride. If the activity meets the description in Column 2 of the *Tables of Drinking Water Threats* it is a significant drinking water threat irrespective of vulnerability score.

Prescribed Drinking Water Threat	Road Salt Threat Sub-Category	Area and Vulnerability Score (VS)
The application, handling and storage of road salt	The application of road salt	<ul style="list-style-type: none"> <li>• WHPA-A</li> <li>• WHPA-B (VS = 10)</li> <li>• WHPA-E (VS ≥ 9)</li> <li>• Anywhere in an ICA for Sodium or Chloride</li> </ul>
	The storage of road salt	<ul style="list-style-type: none"> <li>• WHPA-A</li> <li>• WHPA-B (VS = 10)</li> <li>• WHPA-E (VS ≥ 9)</li> <li>• Anywhere in an ICA for Sodium or Chloride</li> </ul>

**Table 10-9: When/where road salt may be a significant drinking water threat**

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-1	Application of Road Salt (Unassumed Roads and Private Parking Lots)	RMO	H	<p><b>Part IV, s.58</b></p> <p>For unassumed roads and private parking lots with greater than 200 square metres, the application of road salt is designated for the purpose of s.58 under the <i>Clean Water Act</i>, requiring risk management plans, where the threat is, or would be significant, in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future).</li> </ul> <p>Without limiting other requirements, risk management plans shall include a goal to minimize salt usage through alternative measures, while maintaining roadway safety for users.</p>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-7)</p> <p>Existing: 1 year/ 5 years (T-6)</p>	GEN-1 GEN-2 SAL-3 SAL-9	MON-2
SAL-2	Application of Road Salt (Public Roads)	RMO	H	<p><b>Part IV, s.58</b></p> <p>For public roads, the application of road salt is designated for the purpose of s.58 under the <i>Clean Water Act</i>, requiring risk management plans, where the threat is, or would be significant, in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future).</li> </ul> <p>Without limiting other requirements, risk management plans shall include provisions for:</p> <p>a) the reduction of salt usage through best management practices such as alternative de-icer materials (with lower sodium and chloride) and/or contemporary technology; and</p> <p>b) the use of trained individuals in the application of road salt (could include technicians and technologists and others responsible for salt management plans, winter maintenance supervisors, patrollers, equipment operators, mechanics, and contract employees).</p>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-7)</p> <p>Existing: 1 year/ 5 years (T-6)</p>	GEN-1 GEN-2 SAL-3 SAL-9	MON-2

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-3	Application of Road Salt	Planning Approval Authority	A	<p><b>Land Use Planning</b></p> <p>Where the application of road salt to roads and parking lots would be a significant drinking water threat, the planning approval authority shall:</p> <ol style="list-style-type: none"> <li>1) Prohibit the establishment of new parking lots with greater than 2000 square metres in:                             <ul style="list-style-type: none"> <li>• WHPA-A not in an Issue Contributing Area for Sodium or Chloride (future);</li> </ul> </li> <li>2) Prohibit the establishment of new parking lots with greater than 200 square metres in:                             <ul style="list-style-type: none"> <li>• WHPA-A in an Issue Contributing Area for Sodium or Chloride (future); and</li> </ul> </li> <li>3) Require a salt management plan, which includes a reduction in the future use of salt, as part of a complete application for development which includes new roads and parking lots where the application of road salt is significant in any of the following areas:                             <ul style="list-style-type: none"> <li>• WHPA-B (VS = 10) (future); or</li> <li>• WHPA-E (VS ≥ 9) (future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (future).</li> </ul> </li> </ol> <p>Such plans should include but not be limited to mitigation measures regarding design of parking lots, roadways and sidewalks to minimize the need for repeat application of road salt such as reducing ponding in parking areas; and directing stormwater discharge outside of vulnerable areas where possible.</p>	See Maps 1.1 - 1.21	<p>Future: Immediately (T-9)</p> <p>Amend OPs for conformity and ZBLs within 3 years of OP approval (T-8)</p>	SAL-1 SAL-2 SAL-9	MON-1

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-4	Application of Road Salt	MOECC	K	<p><b>Specify Action</b></p> <p>Where the application of road salt is, or would be, a significant drinking water threat, the Ministry of the Environment and Climate Change in consultation with other provincial ministries and municipal associations should promote best management practices for the application of road salt, to protect sources of municipal drinking water in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future).</li> </ul>	See Maps 1.1 - 1.21	Existing & Future: Consider within 2 years (T-15)	SAL-9	MON-4
SAL-5	Application of Road Salt	MOECC	K	<p><b>Specify Action</b></p> <p>Where the application of road salt is, or would be, a significant drinking water threat, the Ministry of the Environment and Climate Change in consultation with other provincial ministries and municipal associations should develop a licensing and accreditation program for Snow and Ice Contractors for the application of road salt, to protect sources of municipal drinking water in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future).</li> </ul>	See Maps 1.1 - 1.21	Existing & Future: Consider within 2 years (T-15)	SAL-9	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-6	Application of Road Salt (Provincial Highways)	Ministry of Transportation	K	<p><b>Specify Action</b></p> <p>For provincial highways where the application of road salt is, or would be, a significant drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future);</li> </ul> <p>the Ministry of Transportation should:</p> <p>a) continue the proactive implementation of their salt management plans with their supporting de-icing contactors and the use of best management practices within wellhead protection areas;</p> <p>b) update their salt management plan, as required, to ensure consistency with the most current versions of Environment Canada’s Code of Practice for the Environmental Management of Road Salts and Transportation Association of Canada’s Synthesis of Best Practices;</p> <p>c) investigate and implement where practical, alternative products and mitigation practices and technologies for road salt application and the management of highway runoff and infiltration;</p> <p>d) in consultation with the Source Protection Authority, consider the information contained in the CTC Source Protection Assessment Reports for the siting and prioritization of future assessments related to road salt application and the management of highway runoff and infiltration. In particular, an assessment of application rates and options for reducing the application of salt should be undertaken at those wells in Orangeville immediately adjacent to Highways 9 and 10; and</p> <p>e) forward upon request to the Source Protection Authority the results of monitoring data on specific pilot projects.</p>	See Maps 1.1 - 1.21	Existing & Future: Consider within 2 years (T-15)	SAL-9	MON-4

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-7	Handling and Storage of Road Salt	RMO	G	<p><b>Part IV, s.57, s.58</b></p> <p>Where the handling and storage of road salt is, or would be, a significant drinking water threat (excluding incidental quantities for personal use), the following actions shall be taken:</p> <p>1) The handling and storage of road salt is designated for the purpose of s.57 under the <i>Clean Water Act</i>, and is therefore prohibited where the threat would be significant in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (future); or</li> <li>• WHPA-B (VS = 10) (future); or</li> <li>• WHPA-E (VS ≥ 9) (future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (future).</li> </ul>	See Maps 1.1 - 1.21	Future: Immediately (T-5)	GEN-1	MON-2
			H	<p>2) The handling and storage of road salt is designated for the purpose of s.58 under the <i>Clean Water Act</i>, requiring risk management plans, where the threat is significant in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing); or</li> <li>• WHPA-B (VS = 10) (existing); or</li> <li>• WHPA-E (VS ≥ 9) (existing); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing).</li> </ul>		Existing: 1 year/ 5 years (T-6)	GEN-1 GEN-2 SAL-9	MON-2

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-8	Application of Road Salt	Municipality	E	<p><b>Education and Outreach</b></p> <p>The municipality shall deliver education and outreach materials and programs where the application, handling and storage of road salt is, or would be, a significant drinking water threat, targeted towards:</p> <p>a) owners/tenants of residences and small businesses where the application, handling and storage of road salt (existing, future) is, or would be, a significant drinking water threat about the impact of salt on municipal drinking water and what they can do to reduce their use of salt to ensure that the activity ceases to be, or does not become, a significant drinking water threat; and</p> <p>b) commercial and industrial sectors to address the importance of source protection planning and the impacts of road salt on drinking water sources, with the key message being responsible salt storage and application, and the use of contemporary technology; in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (existing, future); or</li> <li>• WHPA-B (VS = 10) (existing, future); or</li> <li>• WHPA-E (VS ≥ 9) (existing, future); or</li> <li>• the remainder of an Issue Contributing Area for Sodium or Chloride (existing, future).</li> </ul> <p>Where appropriate education and outreach materials prepared by the Ministry of the Environment and Climate Change are available, the municipality shall deliver those materials.</p>	See Maps 1.1 - 1.21	Existing & Future: Implement within 2 years (T-10)	GEN-8 SAL-9	MON-1
	Handling and Storage of Road Salt	MOECC	K					MON-4



Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-9	Application of Road Salt Handling and Storage of Road Salt	SPA Municipality	F	<p><b>Monitoring</b></p> <p>Where the application, handling and storage of road salt (existing, future) is, or would be, a significant drinking water threat in an Issue Contributing Area for Sodium or Chloride the following actions shall be taken:</p> <p>a) the responsible Source Protection Authority, in partnership with affected municipalities, shall conduct an investigation on the source and nature of sodium or chloride threats, contingent on funding;</p> <p>b) the municipality shall undertake monthly sampling of sodium and chloride levels in raw water at affected wells and report the results to the Source Protection Authority; and</p> <p>c) the Source Protection Authority in partnership with affected municipalities shall assess the information for any increasing trends and advise the Source Protection Committee on the need for new source protection plan policies to be developed to prevent future drinking water Issues.</p>	See Maps 1.2 1.3 1.16	Existing & Future: Initiate within 2 years (T-16)	SAL-1 SAL-2 SAL-3 SAL-4 SAL-5 SAL-6 SAL-7 SAL-8	MON-3 MON-1

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-10	Moderate/ Low Threats  Application of Road Salt	Planning Approval Authority	B	<p><b>Land Use Planning</b></p> <p>Where the application of road salt would be a moderate or low drinking water threat, the planning approval authority is encouraged to require a salt management plan, which includes a reduction in the future use of salt, as part of a complete application for development which includes new roads and parking lots in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (VS = 10) (existing, future); or</li> <li>• WHPA-B (VS ≤ 10) (future); or</li> <li>• WHPA-C (future); or</li> <li>• WHPA-D (future); or</li> <li>• WHPA-E (VS ≥ 4.5 and &lt;9) (future); or</li> <li>• HVA (future); or</li> <li>• SGRA (VS ≥ 6) (future).</li> </ul> <p>Such plans should include, but not be limited to, mitigation measures regarding design of parking lots, roadways and sidewalks to minimize the need for repeat application of road salt such as reducing ponding in parking areas, directing stormwater discharge outside of vulnerable areas where possible, and provisions to hire certified contractors.</p>	See Chapter 5 of the respective Assessment Report	Future: Immediately (T-9)  Amend OPs for conformity and ZBLs within 3 years of OP approval (T-8)	N/A	N/A
SAL-11	Moderate/ Low Threats  Application of Road Salt	MOECC	J	<p><b>Specify Action</b></p> <p>Where the application of road salt is, or would be, a moderate or low drinking water threat, the Ministry of the Environment and Climate Change in consultation with other provincial ministries and municipal associations should promote best management practices for the application of road salt, to protect sources of municipal drinking water in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (VS = 10) (existing, future); or</li> <li>• WHPA-B (VS ≤ 10) (existing, future); or</li> <li>• WHPA-C (existing, future); or</li> <li>• WHPA-D (existing, future); or</li> <li>• WHPA-E (VS ≥ 4.5 and &lt;9) (existing, future); or</li> <li>• HVA (existing, future); or</li> <li>• SGRA (VS ≥ 6) (existing, future).</li> </ul>	See Chapter 5 of the respective Assessment Report	Existing & Future: Consider within 2 years (T-15)	N/A	N/A

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-12	Moderate/ Low Threats  Application of Road Salt	Municipality	J	<p><b>Specify Action</b></p> <p>Where the application of road salt on unassumed roads and private parking lots with greater than 200 square metres is, or would be, a moderate or low drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (VS = 10) (existing, future); or</li> <li>• WHPA-B (VS ≤ 10) (existing, future); or</li> <li>• WHPA-C (existing, future); or</li> <li>• WHPA-D (existing, future); or</li> <li>• WHPA-E (VS ≥ 4.5 and &lt;9) (existing, future); or</li> <li>• HVA (existing, future); or</li> <li>• SGRA (VS ≥ 6) (existing, future);</li> </ul> <p>the municipality is encouraged to:</p> <p>a) require implementation of a salt management plan which includes the goal to minimize salt usage through alternative measures, while maintaining public safety; and</p> <p>b) require the use of trained individuals in the application of road salt (could include technicians and technologists and others responsible for salt management plans, winter maintenance supervisors, patrollers, equipment operators, mechanics, and contract employees).</p>	See Chapter 5 of the respective Assessment Report	Existing & Future: Consider within 2 years (T-15)	N/A	N/A

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
SAL-13	Moderate/ Low Threats	SPA Municipality	J	<p><b>Specify Action</b></p> <p>Where the application, handling and storage of road salt is, or would be, a moderate or low drinking water threat, the municipality is requested to report the results of its sodium and chloride monitoring conducted under the <i>Safe Drinking Water Act</i> and any other monitoring programs annually to the Source Protection Authority. The Source Protection Authority shall assess the information for any increasing trends and advise the Source Protection Committee on the need for new source protection plan policies to be developed to prevent future drinking water Issues, in any of the following areas:</p> <ul style="list-style-type: none"> <li>• WHPA-A (VS = 10) (existing, future); or</li> <li>• WHPA-B (VS ≤ 10) (existing, future); or</li> <li>• WHPA-C (existing, future); or</li> <li>• WHPA-D (existing, future); or</li> <li>• WHPA-E (VS ≥ 4.5 and &lt;9) (existing, future); or</li> <li>• HVA (existing, future); or</li> <li>• SGRA (VS ≥ 6) (existing, future).</li> </ul>	See Chapter 5 of the respective Assessment Report	Existing & Future: Consider within 2 years (T-15)	N/A	N/A
	Application of Road Salt			Handling and Storage of Road Salt				