Code of Practice for the Environmental Management of Road Salts

Ontario Good Road Association
Managing Winter Operations Workshop
Mississauga
October 19, 2017

Environment and Climate Change Canada

Outline

• Code of Practice
• Performance Indicators and National Targets
• Study on Chloride Monitoring in Surface Waters
• Guide for the Management of Salt Vulnerable Areas

- Objective: To assist road organizations in managing road salts to reduce environmental impacts while maintaining roadway safety
- Applies to public organizations that use more than 500 t/yr or that have salt vulnerable areas
- Key components:
  1) Development of Salt Management Plans
     - When Salt Vulnerable Areas are identified, level of vulnerability and need for additional measures should be considered
  2) Implementation of best practices
  3) Record-keeping and annual reporting
  4) Periodic Review of Progress
- A Review of Progress (2005-2009) was published in 2012; next review scheduled in 2019

Performance Indicators and National Targets

- Published in December 2014
- Objective: To increase environmental protection and help monitor progress in specific areas of the Code
- National targets will form the basis for the next performance evaluation (2019)
- Annual reports submitted by road organizations are used to monitor and measure progress in the implementation of the targets and other best management practices
Overview of National Targets

<table>
<thead>
<tr>
<th>PERFORMANCE INDICATORS and NATIONAL TARGETS for 2019 and 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target # 1: Adoption of the Code</strong></td>
</tr>
<tr>
<td><strong>Target # 2: Review of salt management plans</strong></td>
</tr>
<tr>
<td><strong>Target # 3: Salt Storage – Road Salts</strong></td>
</tr>
<tr>
<td><strong>Target # 4: Salt Storage - Treated Abrasives</strong></td>
</tr>
<tr>
<td><strong>Target # 5: Salt Application – Electronic controllers</strong></td>
</tr>
</tbody>
</table>
| **Target # 6: Salt Application – Optimization of deicers**   | (a) 75% of vehicles equipped for pre-wetting  
   (b) 95% of organizations using pre-wetting or pre-treated salt |
| **Target # 7: Salt Vulnerable Areas**                        | 95% of road organizations have identified their salt vulnerable areas and prepared an action plan by 2024 |

Progress to Date: Overview of Results against National Targets

- **Target #1: Number of submission**
  - 95%
- **Target #2: Annual review of salt management plans**
  - 75%
- **Target #3: Salt storage - Road salts**
  - 100%
- **Target #4: Salt Storage - Treated abrasives**
  - 95%
- **Target #5: Salt Application - Electronic controllers**
  - 95%
- **Target #6: Salt Application - Organizations using prewetting or pre-treated salt**
  - 95%
- **Target #6: Salt Application - Vehicles equipped for prewetting**
  - 95%
- **Target #7: Salt vulnerable areas identified & action plan**
  - 95%
Study on Chloride Monitoring in Surface Waters (ECCC Contract)

• Investigated changes in chloride concentrations before and after implementation of the Code (2004) and salt use after 2004

• Chloride concentration data used:
  – Federal and provincial water quality monitoring networks across Canada
  – Stations with data for at least 5 years before and after the Code (103 stations – 15 stations in AB, 1 in MB, 86 in ON, 1 in PEI)

• Chloride concentration results:
  – Concentrations increased at most stations leading into 2004, but have been stable at most stations since
  – Mean concentrations were higher at 84% of the stations after 2004

Study on Chloride Monitoring in Surface Waters (Con’t)

• Salt use data used:
  – 220 road organizations with at least 5 years of data
  – Various data sources, including municipal, provincial and federal organizations

• Salt use results:
  – 9% of road organizations with increased use since 2004
  – 89% of road organizations with no significant change since 2004
  – 2% of road organizations with decreased use since 2004
Management of Salt Vulnerable Areas

• Road organizations asked for clearer guidance for identifying and protecting salt vulnerable areas (SVAs)
• ECCC has been working to develop that guidance:
  1. A practical risk-based approach to guidance material was developed to take into account exposure levels and impacts on all types of receptors (groundwater, drinking water, aquatic life, species at risk, vegetation)
  2. A GIS mapping tool for protection of aquatic life was developed and assessed at one site (Lake Simcoe, Ontario)
  3. Contract currently in place will build on work completed in 1 & 2 to develop a practical framework and decision tool for the management of SVAs that will serve as step-by-step guidance for road organizations and will:
     ▪ Include all the phases of the process: identifying and categorizing SVAs, planning for mitigation
     ▪ Address all environmental receptors using current expertise
     ▪ Aim to make an online web application
     - Work on this contract should be completed in Spring 2018

Management of Salt Vulnerable Areas (Con’t)

• Work completed to date:
  ▪ A comprehensive analysis and summary of findings from the literature review
    ▪ Examination of current status of identification and protection of SVAs
    ▪ Transport pathway of road salts
    ▪ Impacts of road salts on the environment
    ▪ Other available tools and models that could provide add-ons to existing model for drinking water, species at risk and valued land
  ▪ Interviews and survey with industry experts to collect information on current practices, strengths and weaknesses, and point of view

• Next Steps:
  ▪ Develop and describe a step-by-step procedure for SVA identification and management
    ▪ Includes creation of complementary method with a graphical interface
  ▪ Assessment of the mapping tool for protection of aquatic life
Thank you!

Environment and Climate Change Canada Road Salt Website:
http://www.ec.gc.ca/sels-salts/

Contact:
Environment and Climate Change Canada
Products Division
Industrial Sectors, Chemicals and Waste Directorate
Environmental Protection Branch
351 St. Joseph Boulevard
Gatineau, Québec, K1A 0H3
Tel: 1-888-391-3426
Email at: ec-products.produits-ec@canada.ca