



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



Code of Practice for the Environmental Management of Road Salts (2004)

- 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

Page 3



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

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

Page 4



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

Overview of National Targets

PERFORMANCE INDICATORS and NATIONAL TARGETS for 2019 and 2024

Target # 1: Adoption of the Code	<ul style="list-style-type: none"> 220 road organizations reporting regularly
Target # 2: Review of salt management plans	<ul style="list-style-type: none"> 100% of road organizations annually review their salt management plan
Target # 3: Salt Storage – Road Salts	<ul style="list-style-type: none"> 100% of road salts stored under a permanent roof and on impermeable pads
Target # 4: Salt Storage - Treated Abrasives	<ul style="list-style-type: none"> 75 % (by weight) of treated abrasives covered
Target # 5: Salt Application – Electronic controllers	<ul style="list-style-type: none"> 95 % of vehicles equipped with groundspeed electronic controllers
Target # 6: Salt Application – Optimization of deicers	<ul style="list-style-type: none"> (a) 75 % of vehicles equipped for pre-wetting (b) 95 % of organizations using pre-wetting or pre-treated salt
Target # 7: Salt Vulnerable Areas	<ul style="list-style-type: none"> 95 % of road organizations have identified their salt vulnerable areas and prepared an action plan by 2024

Page 5

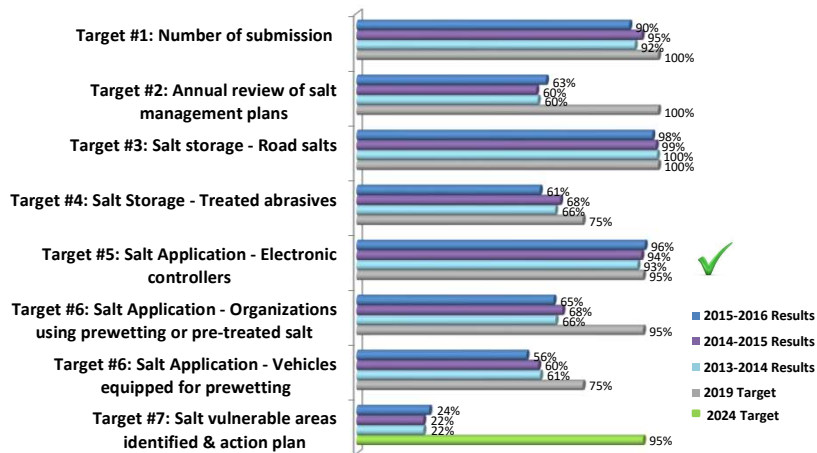


Environment and Climate Change Canada

Environnement et Changement climatique Canada

Canada

Progress to Date: Overview of Results against National Targets



Page 6



Environment and Climate Change Canada

Environnement et Changement climatique Canada

Canada

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

Page 7



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

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

Page 8



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

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

Page 9



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

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

Page 10



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada

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

Page 11



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada