

SMART ABOUT SALT COUNCIL

ESTABLISHMENT OF A TRAINING, CERTIFICATION
AND ACCREDITATION VERIFICATION PROGRAM
TASK 1 - JURISDICTIONAL SCAN

MAY 21, 2018

DRAFT





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DRAFT
PROJECT NO.: 18M-00698-00
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1 INTRODUCTION

1.1 OVERALL PROJECT

The objective of the Assignment is to develop a verification program that authenticates chloride application processes during winter maintenance operations in line with SAS programs and practices. The verification program will consider available resourcing, leading practices, and stakeholder capacities to support continued reductions of chloride levels. There will be a particular focus on implementation in the Lake Simcoe Watershed.

The list of task is as follows:

1. **JURISDICTIONAL SCAN:** WSP will complete a jurisdictional scan to understand how anti-icing and de-icing products such as salt are managed and application rates and practices monitored and/or verified.
2. **INTERVIEWS:** As we understand it, the purpose of this task is to ascertain stakeholder's perspective on implementing a salt audit program in the Lake Simcoe Watershed.
3. **DRAFT VERIFICATION FRAMEWORK:** Using the information gathered through the scan, a verification framework to validate the use of leading practices in winter maintenance with particular emphasis on the SASC's training, certification and accreditation programs.
4. **SOLICIT FEEDBACK:** stakeholders will be asked their opinions on the draft verification framework.
5. **TEST VERIFICATION FRAMEWORK:** winter maintenance professionals, facility operators, and other key stakeholders will test the verification framework.
6. **PILOT VERIFICATION FRAMEWORK:** the verification framework will be tried on facilities and/or contractors over a winter season with at least one pilot being done in a priority sub-watershed in the Lake Simcoe watershed.
7. **FINALIZE VERIFICATION FRAMEWORK:** the feedback obtained by the pilot program will be used to finalize the verification framework.
8. **ASSIST IN OUTREACH:** outreach and marketing materials will be developed for the verification program.

This report covers the following tasks:

1. Jurisdictional Scan

2 TASK 1 - JURISDICTIONAL SCAN

The purpose of the scan was to provide information on how anti-icing and de-icing products such as salt are managed and application rates and practices monitored and/or verified as well as a review of other verification programs associated with the application of leading practices, for example pesticide management. This report includes:

- A description of the methods for undertaking the jurisdictional review
- The results of the search of internet-available documents, webinars and professional publications:
 - Identifying training, certification and accreditation programs related to the adoption of leading practices in environmental management in North America and Ontario in particular
 - Identifying anti-icing and de-icing use training, certification and accreditation programs and documenting the key components of each program.
 - Identifying approaches to auditing chloride certification and accreditation programs:
 - Develop a list of contacts / subject matter experts that were found in the jurisdictional review.

2.1 METHODOLOGY

This jurisdictional scan was conducted through a combination of an internet search, LISTSERV query, and telephone interviews. The intent was to locate programs similar to Smart about Salt (SAS) and investigate their verification and auditing methods. The search was limited to North America to maintain a relevance in regards to snow and ice conditions, road and parking lot infrastructure, and legislative culture. For this reason programs in Europe were not included.

The internet search was conducted by referencing known portals of winter maintenance information, such as the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the Transportation Research Board (TRB). The search was then widened to include commercial pages, program websites, and government databases. The focus was on finding and investigating road salt application certification projects and their training, verification, and accreditation processes. Materials consulted included academic papers, training presentation documents, news articles, and web pages.

LISTSERV is a software application which distributes messages to subscribers on an electronic mailing list. For this project, a query was posed on the SNOW-ICE list serve which focuses on communication between winter maintenance professionals. The responses were considered through the context of the scope and intent of the project and were investigated accordingly.

From the above, organizational representatives were identified and telephoned to provide clarity/expand on their online information.

The salt training programs listed below were selected on the basis of their similarity to Smart About Salt (SAS), namely the in-class training style, examination, intent, background, and intended audience of owners, operators, and managers. Emphasis was placed on those programs with unique and effective auditing and verification methods that would be potentially transferable to SAS.

As expected there were a lack of verification and authentication programs among road salt certification programs, and therefore the search was expanded to other service certificate providers with similar contracted business models, authentication needs, operational methods, and leading practices.

2.2 FINDINGS

The objective of this project is to develop an audit or verification program that verifies chloride application processes while considering available resourcing and the desire/need to have leading practices adopted broadly with stakeholder



capacities to support continued reductions of chloride levels in watersheds over the long term. As part of that the following review was conducted to understand how anti-icing and de-icing products such as salt are managed and how those application rates and practices are monitored and/or verified. This report has examined both road salt application certification programs as well as other certification programs to best understand their current application, monitoring, and verification processes, as well as the opportunities and weaknesses inherent in individual programs and the system in general. It has selected the programs which are most similar to the SASC in terms of goals, resources, and operations and whose verification and auditing programs could be most transferable.

The report summarizes these programs and highlights their requirements and process for certification and/or accreditation, how they encourage program participation, the challenges in implementation, the impacts on the environment and salt use, and the verification and auditing process including timescales and criteria.

Table 1 is a summary of the key components of road salt and other certification programs. The summary contains the core components that compose and differentiate the programs such as the applicable areas to which the program training is focused, the training requirements and methods, the exam requirements, whether there is third party auditing and/or self-reporting, who the programs are tailored towards, and any additional comments. The names of the programs are listed in the first column and the table has been separated into road salt programs and other programs. It should be noted that the two program listed as 'Smart Salting Level 1 Certification' and 'Smart Salting Level 2 Certification' are part of a joint venture run by the Minnesota Pollution Control Agency. For the purposes of this report they have been separated as they have unique goals, accreditation processes, and requirements. In addition, completion of either program is not contingent on completion of the other. Therefore it was deemed more pragmatic to present them as separate programs to better highlight their individual operations. Following the table are details of each program.



Table 1. Summary of Findings of Road Salt and Other Certification and Verification Programs

| PROGRAM NAME | ORGANIZATION | APPLICABLE AREAS | | | | TRAINING REQUIRED | | EXAM REQUIREMENT | THIRD PARTY AUDITING | SELF-REPORTING | LEVEL | | APPLICANT | | COMMENT |
|--|--|------------------|-----------|---------|-------|-------------------|--------|------------------|----------------------|----------------|----------------|------------|-------------|---------------------------------|--|
| | | Roads | Sidewalks | Parking | Other | In class | Online | | | | Organizational | Individual | Applicators | Applicator supervisors/managers | |
| Road Salt Programs | | | | | | | | | | | | | | | |
| Smart Salting Level 1 Certification | Minnesota Pollution Control Agency | X | X | X | | X | | | | | X | X | X | | Education program |
| Smart Salting Level 2 Certification | | X | X | X | | X | X | | | X | X | | X | | Online self-assessment program |
| Green SnowPro | New Hampshire Department of Environmental Services | X | X | X | | X | | X | | X | | X | X | | Education, exam, and reporting program. Upon completion participants may receive a certification of liability protection for operators and owners provided by the government of New Hampshire. |
| Winter Salt Certification | City of Madison | X | X | X | | X | | X | | X | X | X | X | | Education, exam and reporting program |
| Salt Application Verified Equipment Program (SAVE) | Toronto and Region Conservation Authority | X | X | X | | | | | X | | X | X | X | | Equipment (spreader) calibration |



| PROGRAM NAME | ORGANIZATION | APPLICABLE AREAS | | | | TRAINING REQUIRED | | EXAM REQUIREMENT | THIRD PARTY AUDITING | SELF-REPORTING | LEVEL | | APPLICANT | | COMMENT |
|--|---|------------------|-----------|---------|-------|-------------------|--------|------------------|----------------------|----------------|----------------|------------|-------------|---------------------------------|---|
| | | Roads | Sidewalks | Parking | Other | In class | Online | | | | Organizational | Individual | Applicators | Applicator supervisors/managers | |
| Other Programs | | | | | | | | | | | | | | | |
| Industrial Greenhouse Gas Verification Process | Government of British Columbia | | | | X | | | | X | X | X | | | X | Industrial Greenhouse Gas Emission Monitoring |
| Green Certification Program | Nursery Salt Growers Association of Ontario | | | | X | | | | X | | X | X | | X | Agriculture and Sod Production |
| GreenPro | QualityPro | | | | X | | X | X | X | X | | | X | X | Pest Management |

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2.2.1 SMART SALTING CERTIFICATION

Organizers/owners: Minnesota Pollution Control Agency

Contact:

Brooke Asleson
Minnesota Pollution Control Agency
(651) 757- 2205

Website:

- [https://stormwater.pca.state.mn.us/index.php/Smart_Salting_\(S2\)_training_information#MPCA_Smart_Salting_Level_1_Certification:_Snow_and_ice_control_best_practices](https://stormwater.pca.state.mn.us/index.php/Smart_Salting_(S2)_training_information#MPCA_Smart_Salting_Level_1_Certification:_Snow_and_ice_control_best_practices)

SUMMARY

- An education and outreach tool designed to teach winter maintenance staff the best management practise in order to reduce their salt use while maintaining road safety. Includes a mandatory online self-reporting mechanism.
- This is a voluntary program and certification is not contingent upon answers to the assessments. The goal is to encourage participants to evaluate their salt use and identify areas for improvement.
- Program consists of two separate components known as ‘Smart Salting Level 1’ and ‘Smart Salting Level 2’
 - Level 1 consists of one in-class training session which focuses on either high and low speed snowplows operations intended for those who operate on roadways or those who operate on sidewalks and parking lots
 - Level 2 consists of the completion of an online self-assessment regarding salt use for the most recent winter maintenance system

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

- Level 1:
 - One in-class training session
- Level 2
 - Online self-reporting of best management practices used for most recent winter season
 - Online self-reporting of salt savings assessments used for most recent winter season
 - Completion of application sheet

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- Level 1
 - Certification: Applicants receive a certificate upon completion which can be used to advertise to potential employers that they have completed a course in the best management practices of road salt use and that their salting applications may cause less harm to local waterways than other contractors
 - Monetary incentives: The course focuses on reducing salt overuse through education of best practise which may reduce the amount of salt an organization or contractor must purchase per season
- Level 2
 - Certification: Applicants receive a certificate upon completion which can be used to advertise to potential employers that they have completed the online assessment and are actively tracking the environmental impact of their salt use
 - Organization name is added to an online directory of those who have completed the Smart Salting Level 2 Certification

THE ACCREDITATION/CERTIFICATION PROCESS

- Level 1
 - 1 One in class training session
 - 2 Certification is emailed or mailed to applicants
- Level 2
 - 1 Self-complete a best management practices and salt savings assessment of the previous winter season using an online Winter Maintenance Assessment Tool (See Appendix A-1)
 - 2 Submit the best management practices and salt savings assessment as well as an application sheet
 - 3 Certification is emailed or mailed to applicants

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION

- Certification is permanent pending yearly resubmission of the online best management practices and salt savings assessment.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

The following information was obtained from a phone conversation with Brooke Asleson on the 16th of May, 2018.

- For the completion of the online assessment for Level 2 participants have noted that not having the time to complete the assessment was often a constraint. Designating a dedicated workshop to complete the online form has been found to be helpful in this regard.

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

A pilot project for this program done in Dakota County for the 2008/2009 and 2009/2010 winter seasons found a reduction in salt usage of 50 tons per event. To evaluate the training, a KAP (knowledge, attitudes and practices) study was administered beforehand to establish a baseline. Thirty-two Dakota County snowplow drivers took the survey before receiving the winter maintenance training. They were asked thirty-five questions about their winter maintenance practices. The study was repeated after two winter maintenance seasons and the results were compared. Fourteen months post-training, KAP results documented measureable improvements in driver knowledge, attitudes and practices related to specific application activities. The study confirmed that for the pilot the winter maintenance training fostered many changes in driver behavior and knowledge. The study also demonstrates the utility of the KAP method to document specific results related to social outcomes for water quality and training projects (See Appendix A-2).

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Not applicable

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not applicable

2.2.2 GREEN SNOWPRO

Organizers/owners: Government of New Hampshire, New Hampshire Department of Environmental Services (NHDES)

Contact:

Ted Diers
Watershed Management Bureau, NHDES
Ted.diers@des.nh.gov
603-271-3289

Website:

<https://www.des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/salt-applicator-certification.htm>

SUMMARY

- This is a training program focused on efficient and environmentally friendly winter maintenance practices centering on snow and ice removal. Upon completion participants may apply for a certification provided by the government of New Hampshire which provides liability protection for operators and owners (See Appendix A-3).
- Commercial applicators may elect to be annually certified by the department. Applicator certificates are issued by the department.
- The certificate is currently offered at two levels: Master and Individual
 - A Master certification is issued to the owner or chief supervisor of a business that employs or contracts one or more commercial applicators. The owner or chief supervisor must meet the requirements for certification.
 - An Individual certification is issued to a commercial applicator who meets the requirements for certification and does not employ or otherwise supervise other commercial applicators
- As of June 1st, 2018 two new levels of certification will be offered: Subordinate and Uncertified Subordinate:
 - A Subordinate certification is issued to an individual who meets the requirements for certification and is employed by a commercial applicator holding a master certificate.
 - An Uncertified Subordinate is an individual who has completed the required training but has not received a certification.

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

- Participation in a one day training course
- Successful completion of an exam
- Yearly completion and submission of a Salt Applicator Initial or Renewal Certification form to the NHDES (See Appendix A-4)
- Yearly reporting of total salt usage to NHDES online salt accounting system (See Appendix A-5)
- Completion of a bi-yearly refresher course

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- Liability exemption certificate
 - As of November 2013 Commercial Salt Applicators certified under RSA 489-C (Salt Applicator Certificate Option chapter of the Water Management and Protection Legislation) and those property managers or owners who hire them are granted liability protection under damages arising from snow and ice conditions

- Organization name is added to an online directory of those who have completed the Green SnowPro training
- Participants receive marketing material in the form of a Green Snow Business Flier for property owners and managers (See Appendix A-6).
- Annual fees for certificates obtained under a Master certificate are significantly less than the fees for a master certificate.

THE ACCREDITATION/CERTIFICATION PROCESS

- 1 Attendance at a 5 hour mandatory training session
- 2 Completion of an exam
- 3 Submission of the Salt Applicator for Initial or Renewal Certification form to the NHDES
- 4 Yearly submission of total salt usage into SnowPro's salt accounting system (See Appendix A-5)
- 5 Attendance at a bi-yearly two hour refresher course to renew certification
- 6 Any business holding a Master certificate ensure that all commercial applicators operating under its master certificate receive the required training and shall provide the required recordkeeping on behalf of all commercial applicators.

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION

- Every year in June applicants must fill out and submit the Salt Applicator for Initial or Renewal Certification Form to the NHDES to renew their certification.
- In order to maintain their certification every two years applicants are required to attend a two hour professional development course available in multiple formats.
 - UNH Technology Transfer refresher course.
 - Attendance at the Annual New Hampshire Salt Symposium.
 - Snow and Ice Management Association on-line refresher course.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

The following information was obtained from a phone interview with Ted Diers of the NHDES on the 16th of May, 2018.

- Inconsistent reporting and variable workforces make accurate data collection and tracking difficult.
- Facility owner reference often skews towards using greater amounts of salt on their properties.
- Chemical plowing is often still more efficient for small snow falls or short ice events.

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

No information available.

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Certified applicators holding an individual certificate shall report the information specified. The information required to be reported describes the salt usage during the preceding winter as follows:

- The total amount of salt used, in tons of solid salt and gallons of salt brine.
- The name of each town in which salt was applied and, for each, the number of acres of paved surface maintained.
- The type and amount of each salt alternative used.

Certified applicators holding a master certificate shall report the following information to the salt accounting system no later than June 1 of each year.

- The name of each commercial applicator applying salt under the supervision of the master certificate holder.
- The total amount of salt used, in tons of solid salt and gallons of salt brine.

- The name of each town in which salt was applied and, for each, the number of acres of paved surface maintained; and
- The type and amount of each salt alternative used.

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

“Just cause” to revoke a certificate includes the following:

- a. Submitting false or misleading information regarding any application for initial or renewal certification.
- b. Failing to submit annual reports as required by Env-Wq 2204.02.
- c. Obtaining certification through fraud, deceit, or intentional falsification. or
- d. Failing to use reasonable care, judgment, and application of his/her knowledge in performance of his/her duties.

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2.2.3 WINTER SALT CERTIFICATION

Organizers/owners: City of Madison

Contact:

Phil Gaebler
Water Resources Specialist
pgaebler@cityofmadison.com
608-266-4059

Website:

<https://www.cityofmadison.com/live-work/sustainability/winter-salt-certification>

SUMMARY

This program teaches and encourages winter maintenance professionals to reduce their winter salt use to the lowest amount necessary to keep parking lots, roads, sidewalks, and driveways safe.

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

- Submission of an application
- Submission of a description of current de-icing practices
- Reporting and tracking of salt use per event
- A yearly salt savings report including:
 - List of salt clearing practices being used
 - Description of the areas managed
 - Average application rates reported as lb/1000 sf or lb/lane mile
- Attendance of a five hour winter maintenance training session once every five years
- Successful completion of a written exam
- Written agreement to use best management practices to reduce environmental impact

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- A tiered system of certification encourages maximum participation in an organization
 - Bronze: 30% of field staff certified
 - Silver: 60% of field staff certified and yearly salt reporting
 - Gold: 90% of field staff certified and yearly salt reporting
- Organization name is added to an online directory of those who have completed the Winter Salt Certification
- Certificate upon completion

THE ACCREDITATION/CERTIFICATION PROCESS

- 1 Submission of an application which includes a description of the company's current de-icing practices
- 2 Attendance at a five hour winter maintenance training session
- 3 Successfully completion of an exam
- 4 Agreement to use best management practices to reduce environmental impacts
- 5 Submission of a yearly report including
 - Salt use per event
 - Snow removal practices used
 - Description of area managed

- The average application rates
- 6 Certificate lasts five years and must be renewed after this period

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION

- The certification expires after 5 years and applicants must re-apply after this period.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

Not available

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

Not available

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Not available

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not available

2.2.4 SALT APPLICATION VERIFICATION PROGRAM (SAVE)

Organizers/owners: Toronto and Region Conservation Authority, Credit Valley Conservation, Sustainable Technologies Evaluation Program, Lake Simcoe Conservation Authority

Contact:

Robert Rozell
Program Director
rober@SAVEprogram.ca
416-795-9466

Website:

<https://sustainabletechnologies.ca/app/uploads/2016/01/Salt-brochures-v11.pdf>

SUMMARY

This is a program aimed at certifying the winter maintenance vehicles themselves through a system of on-site calibrations, audits, and education.

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

- Annual calibration and certification of equipment at authorized dealerships

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- Organization name is added to an online directory of those who have completed the certification program
- Those certified receive plate stickers for their vehicles to be used as promotional and conformational material to advertise their completion of the verification process

THE ACCREDITATION/CERTIFICATION PROCESS

- Submissions of a record user information into a provided SAVE worksheet including:

- Company name, address, phone number, contact person
- Make and model of the spreader, hydraulic or electric
- Year manufactured
- Current Auger gate opening size
- Make, model, year, and license plate of the truck
- Usual speeds at which truck operates during spreading
- Currently used controller settings for auger and spinner
- Measurement of the following
 - Spreader width
 - Salt discharge rate
- Completion of an excel worksheet which will automatically highlight the closest calculated spread rates to low, medium, and high application rates for each user entered speed.

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION

- Annual recalibration is required before the start of the winter maintenance season

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

Not available

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

Not available

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Not available

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not available

ADDITIONAL NOTES

Not available

2.2.5 BRITISH COLUMBIA'S INDUSTRIAL GHG VERIFICATION PROCESS

Name: Industrial Greenhouse Gas Verification Process

Organizers/owners: Government of British Columbia

Contacts: GHGRegulator@gov.bc.ca

Website:

http://www.bclaws.ca/civix/document/id/lc/statreg/249_2015#part2

SUMMARY

As part of their effort to reduce and track greenhouse gas emissions the Government of British Columbia has introduced a cap and trade system which applies to facilities emitting more than 25,000 tons of CO₂e per year. Those which fall under this limit are subject to the Industrial Greenhouse Gas Verification Process in an effort to ensure proper reporting and tracking of greenhouse gas emissions.

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

- Not available, this is a verification program only

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- This is a legal requirement in the Province of British Columbia for all single facilities or linear facilities operations omitting more than 10,000 CO₂e per calendar year

THE ACCREDITATION/CERTIFICATION PROCESS

- Not available, this is a verification program only

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION?

- Facilities which report more than 10,000 tons of CO₂e per year must report their emissions
- Facilities which report greater than 25,000 tons of CO₂e per year must have their emissions reports verified by an accredited third party
 - If emissions subsequently fall below 25,000 CO₂e per year they will be verified for the next three consecutive reporting cycles
- Emissions reports must be submitted before May 31st the year immediately following the reporting period

Assessments are conducted by a third-party compliance assessment and must include:

- Review of records
- Risk assessment
- Verification plan (and sampling plan)
- At least one site visit
- Evaluation of the emissions quantification
- Assessment of sources and magnitude of potential errors

The third party must be accredited by, and in good standing with, a member of the International Accreditation Forum, namely the Standards Council of Canada or the American National Standards Institute.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

Not available

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

Not available

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

See Appendix A-7

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not available

ADDITIONAL NOTES

Not available

2.2.6 GREEN CERTIFICATION PROGRAM

Organizers/owners: Nursery Sod Growers Association of Ontario (NSGAO)

Contact:

NSGAO
(519) 265-6742
nsga@rogers.com

Website:

<http://nsgao.com/green-certification>

SUMMARY

A third party auditing program of the best management practices for nursery sod production in Ontario. In partnership with a consulting firm this program created a set of standard best management practices for the Ontario sod industry.

REQUIREMENTS FOR CERTIFICATION/ACCREDITATION

Must meet industry specific standards for:

- Water management
- Nutrient management
- Pesticide use
- Soil condition and erosion
- Record keeping and documentation
- Worker safety
- Standard operating procedures

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- Online list of certified growers, reputational benefits

THE ACCREDITATION/CERTIFICATION PROCESS

- 1 Participation in a third-party on-site audit
- 2 Submission of an annual report
- 3 Repeat of the third-part on-site audit every three years

CRITERIA AND TIME PERIOD FOR PROGRAM VERIFICATION OR RE-CERTIFICATION

- Audits occur every three years, regardless of any other factors.

HOW ARE AUDITS/VERIFICATION CONDUCTED?

- Third party on-site audit
- Submission of an annual report
- On-site verification audit at least once every three years

WHAT ARE THE RESPONSE TIMES FOR AUDITS/PROGRAM VERIFICATIONS?

- Once every three years.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

Not available

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

Not available

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Not available

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not available

2.2.7 GREENPRO CERTIFICATION

Organizers/Owners: The National Pest Management Association

Contacts:

Certification Program Manager
703-352-6762
qualitypro@pestworld.org

Website:

<https://www.npmaqualitypro.org/media/11408/greenprogettingstartedguide.pdf>

SUMMARY

An extension of the QualityPro program focused on providing pest management that is effective but also low risk to people, property, and the environment.

REQUIREMENTS FOR CERTIFICATION AND/OR ACCREDITATION

- Signed affidavit
- Name of service
- Service agreement and ‘scope of service’
- Potential locations of services
- Examples of literature provided to clients
- Quality assurance plans

- Documented procedures and expectations for situations in which the customer is unable or unwilling to implement recommendations
- Initial physical inspection conducted by a GreenPro trained pest management professional to identify infestations and pest-conducive conditions prior to treatment recommendations, as well as a system for making findings available to the account representative and on-site contact
- Pest-specific inspection and monitoring strategies to detect low-level infestations of the pests listed in the scope of service
- Inspection documentation that includes corrective action
- Processes for both preventative and curative nonchemical management practices
- Service protocols
- Processes for both preventative and curative nonchemical management practices
- Processes for choosing and using chemical interventions

THE ACCREDITATION/CERTIFICATION PROCESS

- 1 Submission of a write up of the green service protocols for certification with a brief description of the processes in place to ensure GreenPro Principles will be adhered to.
- 2 Review by GreenPro of the application followed by an approval or denial
- 3 Successful completion of the GreenPro online examination (npmatesting.com)
- 4 Signing of the GreenPro affidavit

STRATEGIES FOR ENCOURAGING CONTRACTOR PROGRAM PARTICIPATION

- Reputational benefits
- Certificate Members also receive priority gold membership from EPA's Pesticide Environmental Stewardship Program
- Access to customizable marketing tools
- Organizational support
- Free access to those who have already completed the QualityPro training.
- GreenPro customers who operate in new and existing USGBC LEEF buildings automatically qualify for points under V4, and the Green Restaurant Association awards points through its green restaurant certification to restaurants that contract for a GreenPro service

HOW ARE AUDITS/VERIFICATIONS CONDUCTED?

Every two years both managers training is required and all employees must have an update training. Every year, 10% of companies will be audited. These companies must provide a list of all accounts serviced over the previous 12 months while using the certificate. Green pro will randomly select and audit up to ten of these accounts. 80% of those must be compliant or else the company will lose its green-pro certified status.

CHALLENGES IN IMPLEMENTING CERTIFICATION/ACCREDITATION PROGRAM

Not available

CHANGES IN CHLORIDE APPLICATION FOLLOWING CERTIFICATION

Not available

VERIFICATIONS METHODOLOGY AND INFORMATION OBTAINED

Not available

ACTIONS TAKEN AS A RESULT OF VERIFICATIONS

Not available

ADDITIONAL NOTES

Not available

2.3 SUMMARY OF FINDINGS

All of the road salt certification/verification programs reviewed were voluntary and education oriented, with emphasis placed on the benefits to the operators, property owners/managers, and the environment. These often included reduced costs from minimized salt use, reputational benefits, legal benefits, and reduced impacts to the local infrastructure and waterways.

Online self-reporting was used in over half these programs as a method for the certificate holders to track their own salt usage and operations. These self-reporting methods were not used as a verification tool. Where training was included in the certification process it always contained an in-class component and often required the successful completion of a test at the end. All the programs required re-certification ranging in timescale from one to five years.

Most of these programs did not contain a verification process. Reasoning for this ranged from the difficulties in monitoring a seasonal and transient workforce, the relative novelty of the programs, lack of resources, or that it was inconsistent with the goal of the program, which was often educational rather than regulatory. In addition, it should be noted that few of the programs had concrete data about their efficacy and impact on salt levels in local watersheds, partly due to the difficulty in isolating and monitoring this impact.

Programs outside of road salt certifications had more substantial verification processes which relied on auditing and in-person site visits. These verification process were triggered by a variety of different factors including a random selection, breach of a threshold number, or regular scheduling regardless of other factors. Verifications often included on-site visits by either a member of the certification program or a third-party. The benefits conferred by these programs included reputational benefits, access to professional networks, use of advertising material, and inclusion on a list of certificate holders. Some of these programs included punitive measures if the terms of certification were breached such as denial of benefits or certificate revocation.

—

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APPENDIX

A AUXILIARY MATERIAL

***A-1 WINTER
MAINTENANCE
ASSESSMENT TOOL***

DRAFT

APPENDIX

Winter Maintenance Assessment Tool (WMA_t) - User Home Page

Review/update your user information:

Organization:

Department:

Contact Name:

Mailing Address:

City: State:

Zip Code:

Country:

Email Address:

Phone Number:

Notes:

[Change My Password](#)

Create or modify an existing WMA_t assessment:

Number of existing assessments: **5**

[Assessment Summary](#)

Create new or select an existing assessment:

Date created: (not available)

Date last revised: (not available)

Assessment Display Mode:

- Standard mode
- Educational mode

[New Assessment](#)

[Smart Salting Level 2 Certification Status:](#)

You do not have any certification on record. To obtain certification, please finalize this (or another) assessment and click the 'Submit Reports' button provided below.

[Select Reports](#)

Please note that the WMA_t assessment pages and tools work best under the following browsers: Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Edge, or Internet Explorer (version 10 or higher).

Figure A.1 Winter Maintenance Assessment Tool (WMA_t) used by the Minnesota Pollution Control Agency's 'Smart Salting' certification program to allow participants to self-report their winter maintenance activities and salt usage. Pictured above is the home page where participants can create a new assessment. Found at <https://www.wintermaintenancetool.com/>

APPENDIX

Winter Maintenance Assessment Tool (WMA_t) - Create New Assessment

Provide information for your new assessment:

Assessment Name:

Assessment Description:

Assessment Type(s): Best management practices (BMPs)
 Salt savings calculations

Time Period(s) to Assess: 'Past' winter season: [2012-13] --> Copy input from: [Do not copy]
 'Current' winter season: [2017-18] --> Copy input from: [Do not copy]
 'Future' winter season: [2022-23] --> Copy input from: [Do not copy]

Surface Type(s) to Evaluate: High Speed Roads (>= 45 mph)
 Low Speed Roads (< 45 mph)
 Parking Lots
 Sidewalks / trails

Notes:

Create Assessment

Please note that once you click the "Create Assessment" button you will not be able to change the time periods and surface type(s) you selected on this form. Please make sure you have made the appropriate selections for your new assessment. (If you do make a mistake, it is easy to return to your main user page, delete the assessment, and start over with a new assessment.)

Figure A.2 Winter Maintenance Assessment Tool assessment creation page. Note that assessments can be customized to surface type.

APPENDIX

WMA Assessment: WSP Test (2017-18)

| Table of Contents | | << Previous Section Next Section >> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|------------------|-------------------|-----------------------|-----------------------|---|-----------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|--------------------|-----------------------|-----------------------|-------|-----------------------|-----------------------|---------------------|-------------------|------------------|-------------------|-----------------------|-----------------------|-----|-----------------------|-----------------------|----------------|-----------------------|-----------------------|----------------|-----------------------|-----------------------|----------------|
| <p>General Links:</p> <ul style="list-style-type: none">• My Home Page <p>Questionnaire Sections:</p> <p>0. General Information: • General Information</p> <p>1. Accuracy: • Calibrate (0% complete) • Application Rates (0% complete) • Controllers (0% complete) • Accumulation (0% complete)</p> <p>2. Before the Storm: • Anti-Icing (0% complete) • Plow & Apply (0% complete) • Salt Outs (0% complete)</p> <p>3. Efficiency: • Delices (0% complete)</p> <p>4. Reduce Waste: • Storage (0% complete) • Hauling (0% complete) • Loading (0% complete) • Unloading (0% complete) • Spread Pattern (0% complete) • Freeze Up (0% complete) • Cleaning (0% complete) • Equipment (0% complete) • Application Speed (0% complete) • Application Frequency (0% complete)</p> <p>5. Before Winter: • Policy Communication (0% complete) • Policy Documentation (0% complete) • Drainage (0% complete) • Readiness (0% complete) • Liquids (0% complete) • Training (0% complete) • Routes (0% complete) • Resolutions (0% complete) • Surfaces (0% complete) • Level of Service (0% complete)</p> <p>6. After Winter: • Salt Recovery (0% complete)</p> <p>Assessment Reporting</p> <p>View Reports</p> | <p>Q1.1.a. How often do you calibrate spreaders?</p> <table border="1"><thead><tr><th>Current (2017-18)</th><th>Future (2022-23)</th><th>Practice Response</th></tr></thead><tbody><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>All equipment yearly, plus periodically throughout the season</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>All equipment yearly</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Most equipment yearly</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Most equipment every other year</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>New equipment only</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Never</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Don't use spreaders</td></tr></tbody></table> <p>View Comments (0) Submit a Comment/Tip</p> <p>Scroll down for the next question...</p> <p>Q1.1.b. How many anti-icing systems (liquid only spreaders) do you calibrate?</p> <table border="1"><thead><tr><th>Current (2017-18)</th><th>Future (2022-23)</th><th>Practice Response</th></tr></thead><tbody><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>All</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>More than half</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Less than half</td></tr><tr><td><input type="radio"/></td><td><input type="radio"/></td><td>Don't have any</td></tr></tbody></table> <p>View Comments (1) Submit a Comment/Tip</p> <p>Scroll down for the next question...</p> | Current (2017-18) | Future (2022-23) | Practice Response | <input type="radio"/> | <input type="radio"/> | All equipment yearly, plus periodically throughout the season | <input type="radio"/> | <input type="radio"/> | All equipment yearly | <input type="radio"/> | <input type="radio"/> | Most equipment yearly | <input type="radio"/> | <input type="radio"/> | Most equipment every other year | <input type="radio"/> | <input type="radio"/> | New equipment only | <input type="radio"/> | <input type="radio"/> | Never | <input type="radio"/> | <input type="radio"/> | Don't use spreaders | Current (2017-18) | Future (2022-23) | Practice Response | <input type="radio"/> | <input type="radio"/> | All | <input type="radio"/> | <input type="radio"/> | More than half | <input type="radio"/> | <input type="radio"/> | Less than half | <input type="radio"/> | <input type="radio"/> | Don't have any |
| Current (2017-18) | Future (2022-23) | Practice Response | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | All equipment yearly, plus periodically throughout the season | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | All equipment yearly | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Most equipment yearly | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Most equipment every other year | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | New equipment only | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Never | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Don't use spreaders | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Current (2017-18) | Future (2022-23) | Practice Response | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | All | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | More than half | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Less than half | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="radio"/> | <input type="radio"/> | Don't have any | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3 Example screenshot of questions as during the WMA survey.

A-2 SMART SALTING CASE STUDY

Eckman, K., Nuckles, K., & Were, V. (2011). Dakota County Winter Maintenance Training KAP Study Report (pp. 1-9, Rep.). Saint Paul, Minnesota: University of Minnesota Water Resources Center.
<https://www.pca.state.mn.us/sites/default/files/p-tr1-21.pdf>

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A-3 *NHDES LAWS*

DRAFT

APPENDIX

TITLE LII ACTIONS, PROCESS, AND SERVICE OF PROCESS

CHAPTER 508 LIMITATION OF ACTIONS

Section 508:22

508:22 Liability Limited for Winter Maintenance. –

I. No commercial applicator as defined in RSA 489-C:1, II and certified under RSA 489-C:2, or owner, occupant, or lessee of land whose premises is maintained by a commercial applicator certified under RSA 489-C:2, shall be liable for damages arising from insufficiencies or hazards on any premises owned, occupied, maintained, or operated by them, even with actual notice thereof, when such hazards are caused solely by snow or ice, and the commercial applicator's, owner's, occupant's, or lessee's failure or delay in removing or mitigating such hazards is the result of its implementation, absent gross negligence or reckless disregard of the hazard, of best management practices for winter road, parking lot, and sidewalk maintenance adopted and published by the department of transportation and the department of environmental services. All commercial applicators, owners, occupants, or lessees who adopt such best management practices shall be presumed to be acting pursuant to the best management practices in the absence of proof to the contrary.

II. In order to receive the liability protection provided in paragraph I, a commercial applicator as defined in RSA 489-C:1, II, or an owner, occupant, or lessee of land shall keep a written record describing its winter road, parking lot and property maintenance practices. The written record shall include the type and rate of application of de-icing materials used, the dates of treatment, and the weather conditions for each event requiring de-icing. Such records shall be kept for a period of 3 years.

Source. 2013, 144:123, eff. Sept. 26, 2013.

APPENDIX

***A-4 NHDES SALT
APPLICATOR FORM***

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APPENDIX



Salt Applicator Certification Application for Initial or Renewal Certification Watershed Management Bureau



RSA 489-C; Env-Wq 2200



DES Use Only

Cert #: _____

Processed Date: _____

I. Applicant Information

| | | |
|--|---------------|---------------|
| FIRST NAME: _____ | MIDDLE: _____ | LAST: _____ |
| DAYTIME PHONE NO. (include area code): _____ | | E-MAIL: _____ |

Address

| | |
|------------------|-----------------|
| STREET: _____ | |
| TOWN/CITY: _____ | |
| STATE: _____ | ZIP CODE: _____ |

Mailing Address (if different)

| | |
|------------------|-----------------|
| STREET: _____ | |
| TOWN/CITY: _____ | |
| STATE: _____ | ZIP CODE: _____ |

II. Information for Affiliated Business (if none, enter "none" after Business Name)

| | |
|---|--|
| BUSINESS NAME: _____ | |
| DAYTIME PHONE NUMBER (include area code): _____ | |
| E-MAIL: _____ | |

Address

| | |
|------------------|-----------------|
| STREET: _____ | |
| TOWN/CITY: _____ | |
| STATE: _____ | ZIP CODE: _____ |

Mailing Address (if different)

| | |
|------------------|-----------------|
| STREET: _____ | |
| TOWN/CITY: _____ | |
| STATE: _____ | ZIP CODE: _____ |

III. Applicant's relation to the business identified in Section III (check only one):

- Applicant is the business owner
- Applicant is an employee of the business
- Applicant contracts with the business

IV. Applicant is seeking (check only one):

Initial Certification

- A master certificate (check only if you are the owner or chief supervisor accepting responsibility for training and reporting on behalf of applicators certified under your master certificate)
- An individual certificate
- An individual certificate under the master certificate held by: _____

Renewal Certification

- A master certificate (check only if you are the owner or chief supervisor accepting responsibility for training and reporting on behalf of applicators certified under your master certificate)
- An individual certificate
- An individual certificate under the master certificate held by: _____



A-5 NHDES SALT ACCOUNTING



[Home](#) | [About](#) | [Help](#) | [Sign Out \(ena.ristic@wsp.com\)](#)

New Hampshire Salt Management System



Figure 4 The New Hampshire Department of Environmental Services Salt Accounting system home page. While salt tracking is mandatory to maintain the certification (left) participants may also use the program to track their clients, site visits, and annual services (right).

APPENDIX



Site Visits

Add information about your site visit and click Submit.

Required Fields *

Client Name: * ▼

You can add or edit your clients using the [Client List](#).

Date * Time * :

Weather Condition Weather Temp

Target Liquid Rate ▼ Target Salt Rate ▼

Estimated Salt Used Units ▼

Estimated Liquid Used Gallons

Action(s) * Alternate Chemical Pre-Treat/Pre-Wet
 Anti-Ice Salt
 Clear Walks/Entry/Stairs Sand
 Evaluate/Patrol Sand/Salt
 Plow Snow Removal




Notes:

Figure 5 Example of the NHDES Salt Accounting systems input for individual site visits.

A-6 *SNOW PRO FLYER*

DRAFT

APPENDIX



Hiring a NH Certified Green SnowPro as your snow removal contractor will help protect you and your company from slip and fall claims arising from snow and ice conditions.

What can you do?
Look for a certified salt applicator at <http://des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/salt-applicator-certification.htm> or ask your current contractor to take the Green SnowPro course and become certified.

How can your organization benefit from the certification?

Reduce Your Liability
Under RSA 508:22, certified applicators and those who hire them are granted liability protection from claims arising from snow and ice conditions (slip and fall claims).

Certified Green SnowPros
NH Certified Green SnowPros are leaders in the snow removal industry who are trained in the most up to date technologies and snow management practices to ensure a high level of service and safety to their customers.

Reduce Impacts to Local Waterbodies
Once in our water supplies, there is no practical way to remove salt. Certified Green SnowPros are trained in salt reduction practices to help ensure clean water for future generations.

Why is salt reduction important?
As of 2014, 46 water bodies in New Hampshire are polluted with chloride due to road salt application. In several watersheds analyzed in the southern I-93 corridor, more than 50% of the salt load comes from private roads and parking lots. The other major sources are state and local roads and highways.

Training
For upcoming Green SnowPro Training dates <http://t2.unh.edu/green-snowpro-training-and-certification>

For more information:
Visit www.des.nh.gov and see "Road Salt Reduction" under the A-Z list.

Contact: Salt Coordinator
salt@des.nh.gov
(603) 271-5329

Figure 6 Green SnowPro marketing material given as part of the program, aimed at employers to advertise the benefits of hiring their certificate holders.

***A-7 BRITISH COLUMBIA
VERIFICATION
OPERATION***

DRAFT