

Green SnowPro: *The New Hampshire Experience*

Ken Edwardson, NHDES Senior Scientist
(real credit goes to Aubrey Voelker and Steve Landry)

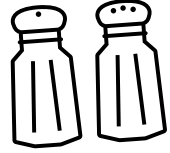


April 17, 2024

2024 Water Quality Standards Workshop
Albuquerque, New Mexico



New Hampshire's Salty History



- First in the nation to use salt for regular winter road maintenance
- Salt use has doubled in past 40 years
- Chloride impairment trend is not good (18 in 2008, 40 in 2010, 50 in 2020)
- Chloride contamination of water supply wells has increased by 150 percent over last 30 years





TOURISM



COMMUTE



EMERGENCY

WHY DO WE USE SALT?



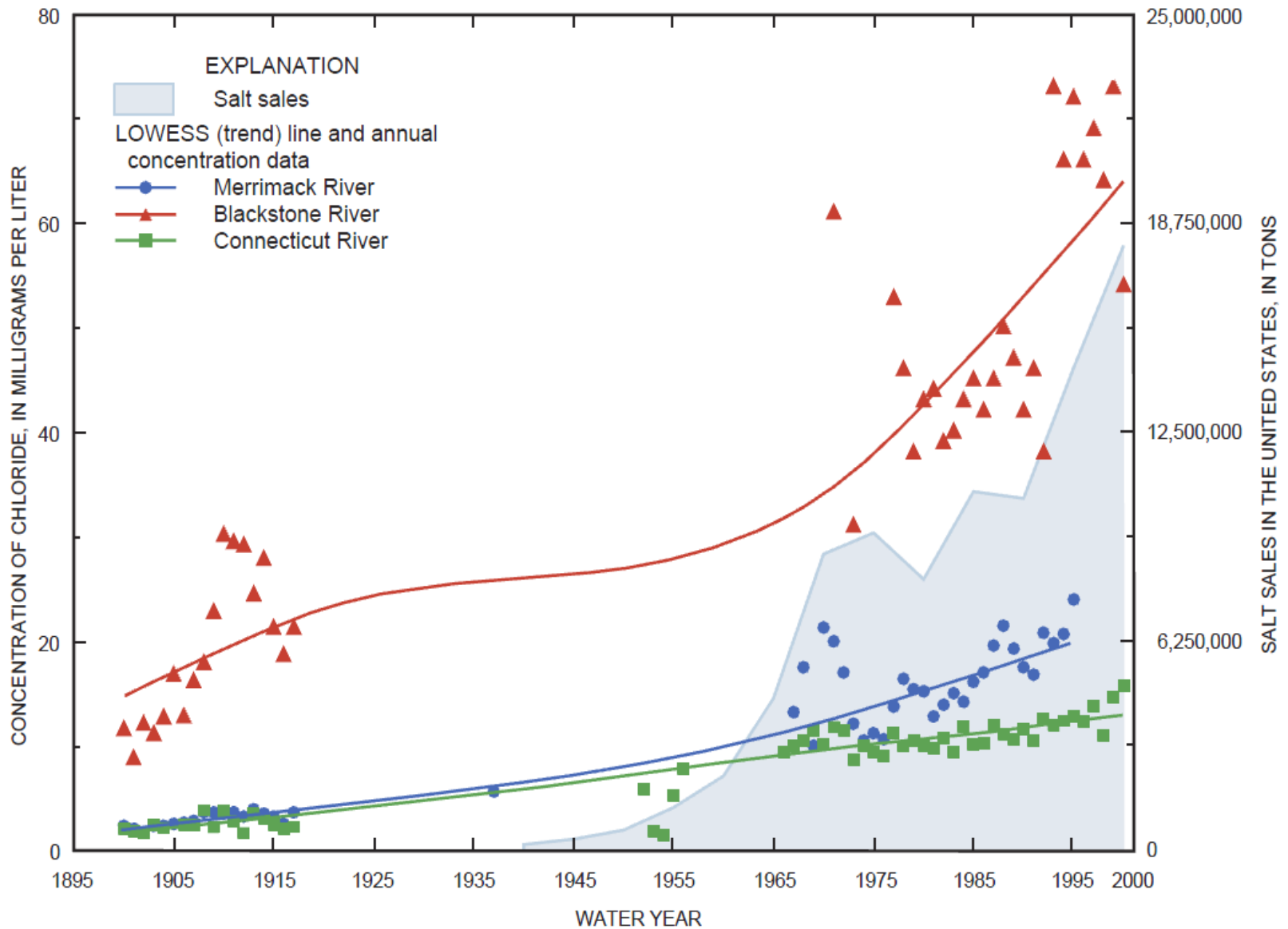
WANTS



NEEDS



Use Trends



(From 2003 Robinson et. al., Water-Quality Trends in New England Rivers During the 20th Century)



Interstate 93 Expansion - Federal Highway Administration (FHWA) approved in June 2005

Double the size of the highway

Bigger off and on-ramps.

Park-n-rides.

Drainage -- open to closed system.

More plowing = more salt.

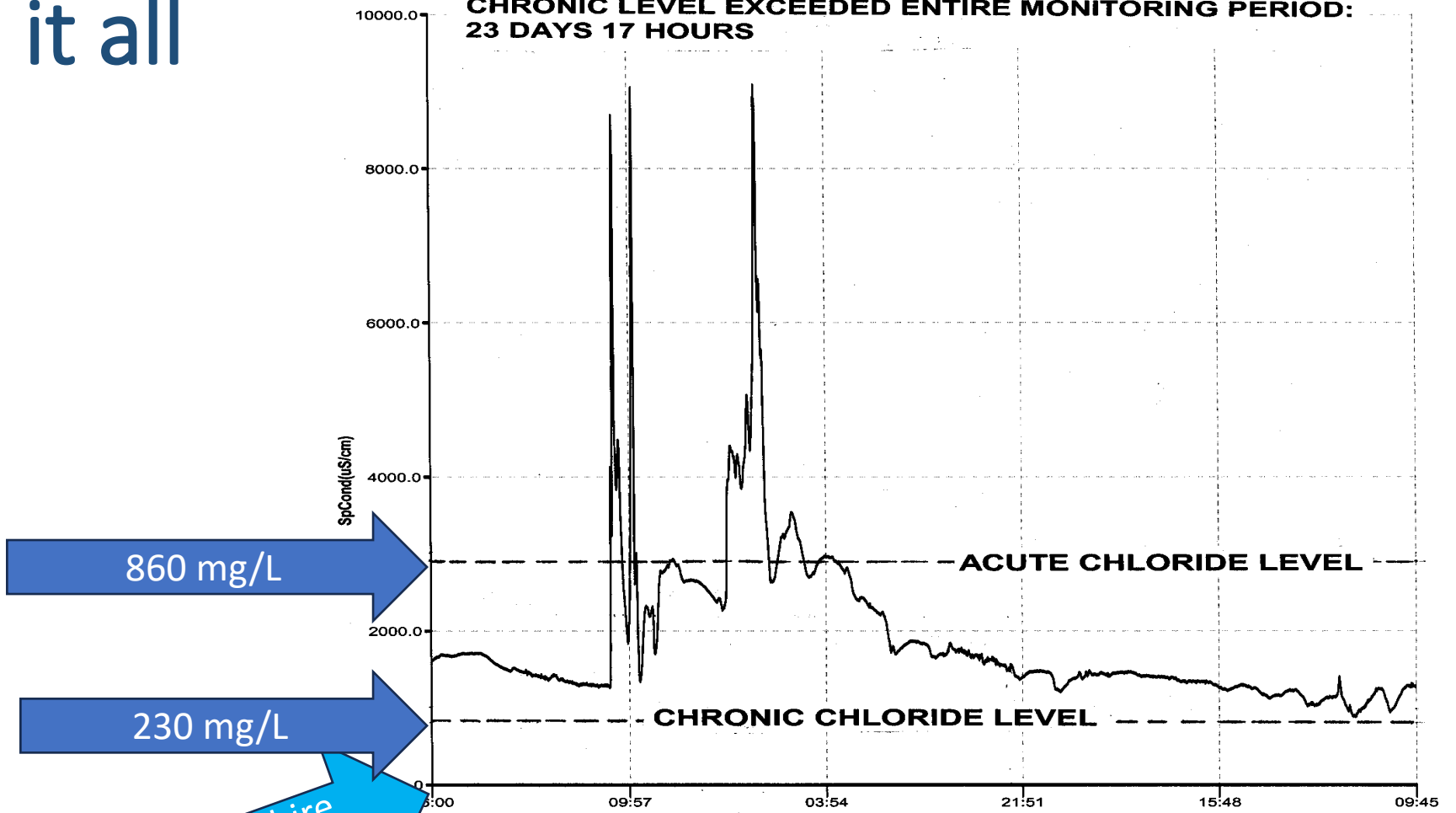


The graph that started it all

POLICY BROOK BEHIND ROCKINGHAM MALL, SALEM, NH

MAXIMUM	MEAN
9,071	1,885 uS/cm
n = 2,280	

ACUTE CHLORIDE LEVEL EXCEEDED FOR 69 HOURS
CHRONIC LEVEL EXCEEDED ENTIRE MONITORING PERIOD:
23 DAYS 17 HOURS



860 mg/L

230 mg/L

New Hampshire
Background 5 mg/L

February 2004



The Record of Decision – ROD – Federal Highways – 2005

In order to comply with water quality standards, FHWA and New Hampshire Department of Transportation (NHDOT) have committed to no additional chloride loading from the project to impaired water ... **adaptive management approach** ... developed an adaptive management approach that allows the project to provide for current needs and allow efficient and safe operation through the design year of 2020, without causing or contributing to water quality violations.

- NHDOT can build 6 lanes (3-northbound and 3-southbound).
- Cannot build 8 lanes unless satisfies conditions of the 401 cert.

401 Water quality certification – NHDES – 2006

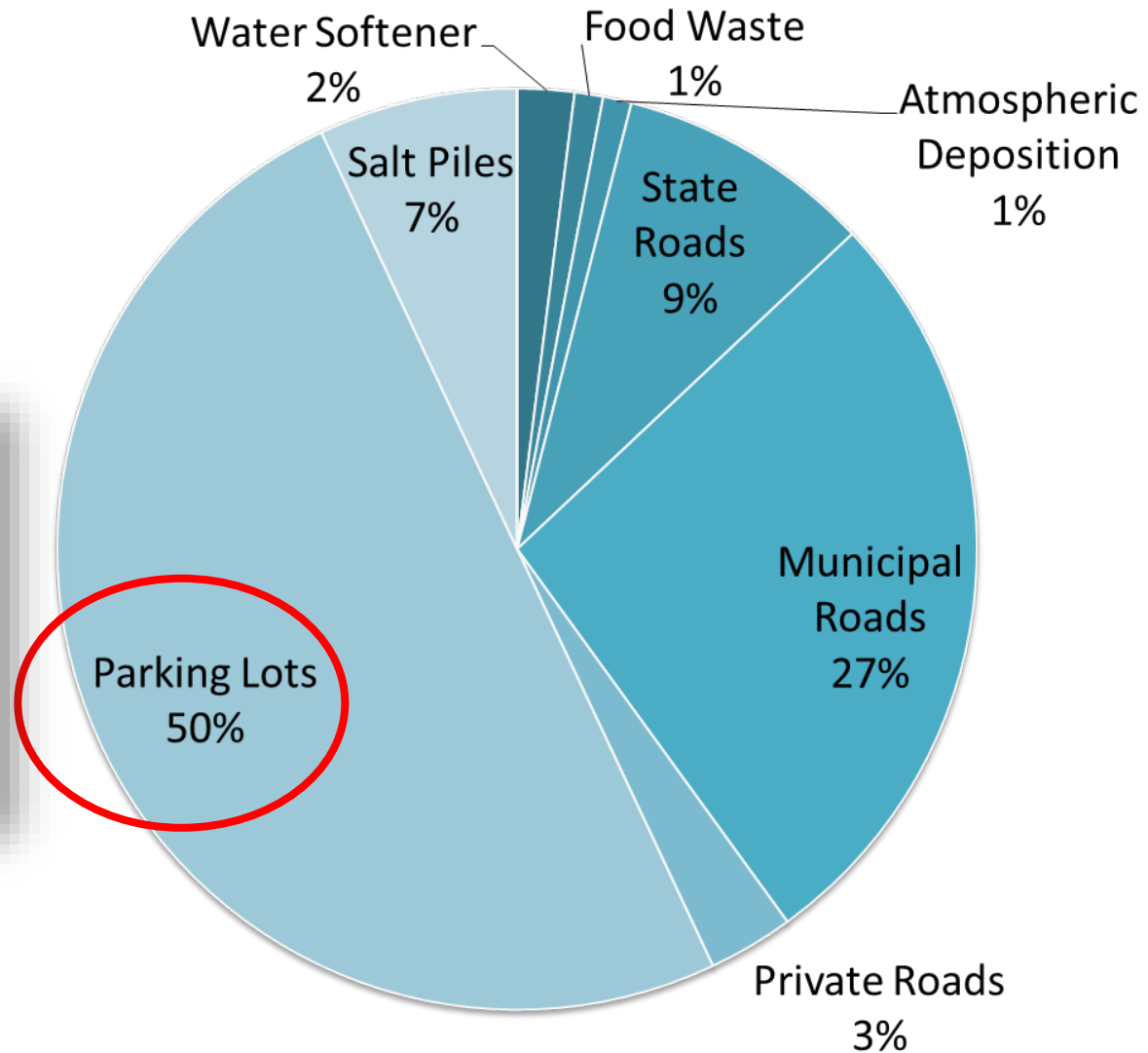
E-7. The Applicant shall participate in TMDL studies by the Department for the surface waters impaired for chlorides, including the unnamed tributary to western Brook, **... fund a TMDL ...** Brook.

Participation may include, but is not limited to, funding of TMDL studies, assistance with water quality monitoring to facilitate development of the TMDLs, and outreach, education and technical support during both preparation of studies and implementation of chloride load reductions.

E-8. The TMDL studies shall be designed to assess and quantify sources of chloride development **... establish implementation plan ...** es to surface waters that do not meet water quality standards. The Applicant shall comply with all TMDL implementation requirements.

E-9. After EPA approval of the TMDL reports and publication of the TMDL implementation **... implement the plan ...** apply to the Activity and to other state roads included in the implementation plans





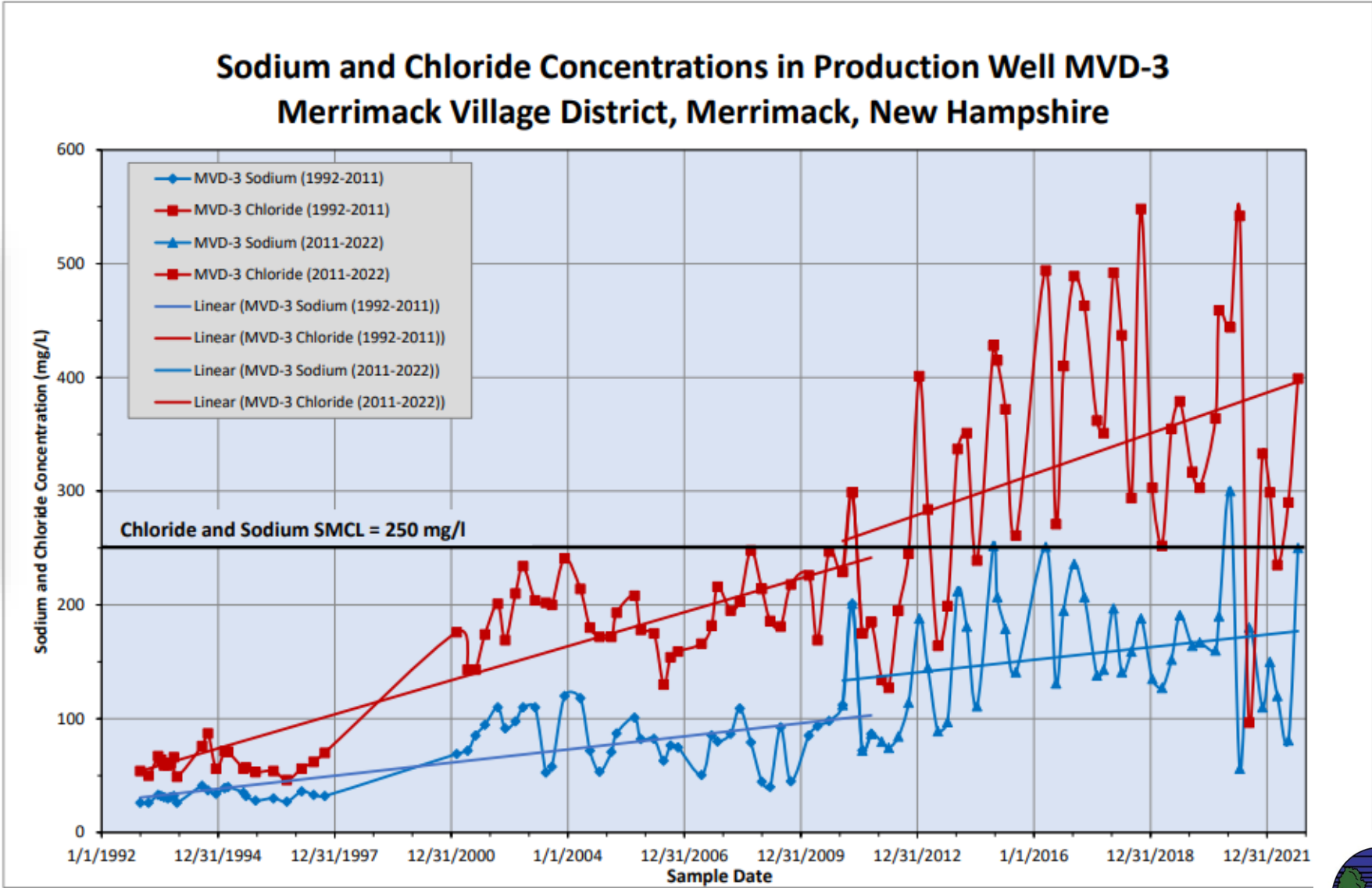
Neither rain
nor snow
nor....



I salted the lot boss....



It goes beyond surface waters



<http://www.mvdwater.org/sodium-chloride-reduction-project/>





A Voluntary Commercial Salt Reduction Certification Program



I wouldn't say it was easy...

2010 – Mandatory Certification w/ fee

HB 1676

Referred to Interim Study

2011 – Mandatory Certification w/ fee

HB 202

Inexpedient to Legislate (killed)

2012 – Optional Certification w/ fee

SB 392

Passed Senate
Killed in the House

2013 – Optional Certification w/ fee

HB 523

Retained in committee

Passed as part of the budget bill (without the fee)

Green SnowPro: A Voluntary Commercial Salt Reduction Certification Program



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.



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1. Train



2. Certify





Course Overview

- ❄ Environmental & Infrastructure Concerns
- ❄ Pre-Season Preparation, Site Inspection & Expectations
- ❄ Calibration Demonstration
- ❄ Pre-Treatment: Before the Storm
- ❄ During The Storm Activities
- ❄ Record Keeping & Salt Accounting System
- ❄ Exam Review
- ❄ Exam

Renew and Remind

- Certification must be renewed **annually**
- Submit Annual Salt Use Report
- Continuing Education (refresher every 2 years)



Pumpkin spice is here today,
but snow and ice are on the way.

It's time to start the preparations,
and ease the winter trepidations.

Reduce your winter salt application,
by performing salt spreader calibration.

Prewet the salt and mix the brine,
reducing chlorides is divine.

Be prepared for the winter snow,
and make sure you're a certified Green SnowPro.



♡ You age like ♡
fine salt brine. ♡



Be My Valentine

To:
From:



Outreach and Engagement

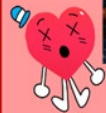
- Social Media
- Annual Salt Symposium
- Winter Salt Awareness Week (NEW!)
 - January 22 – 26, 2024



The way to my heart,
I think you know,
is to be
Green SnowPro



Roses are red, salt is white,
please stop over salting and
learn to apply it right.



To:
From:



I think we should
take a break.



It's not you, it's the
chloride contamination.

To:
From:



• NHDES' Aubrey Voelker Predicts Snow On The Way • Environmentally Friendly



Lots of lawsuits

- Lawsuits, lawsuits, lawsuits...
- Insurance companies know program
- Trial attorneys know program
- Property owners know program
- None ~~have~~ had gone all the way

- Careful what you wish for!



Until 2022, slip and fall claims involving Green SnowPro contractors were withdrawn or settled for two reasons:

1. Avoiding lengthy, expensive trials
2. Lapses in contractor training or record keeping in line with RSA 508:22

Defendants appear to argue that they are entitled to immunity solely due to the fact that they hired a certified salt applicator, regardless of whether the applicator's records meet the statutory requirements. The Court disagrees. RSA 508:22, II explicitly states that "[i]n 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." (emphasis added). Because Alliance has failed to meet this requirement, the burden is on defendants to produce such records in order to preserve their claim of immunity. As they have failed to do so, defendants are not entitled to immunity under the statute.



New Hampshire Green SnowPro Limited Liability Case 2022

This is a premises liability action stemming from an incident that occurred on February 21, 2019, in which the plaintiff, Amy Rogers, was severely injured after slipping and falling on unmaintained snow and ice in a parking space at the Fairways Apartment complex in Derry, New Hampshire. The plaintiff's claims were based on theories of negligence against the plaintiff's landlord, Chartwell New Hampshire Associates, LLC ("Chartwell"), and the winter maintenance contractor hired to remove snow and ice from the paved areas of the Fairways, North Point Holdings, Inc. D/B/A North Point Outdoors ("North Point").

The trial for the above-captioned matter was held from October 31, 2022 until November 7, 2022. During the trial, the defendants asserted a statutory defense pursuant to R.S.A. 508:22,



Dated: November 16, 2022

Motion Denied. The jury's verdict is soundly supported by the evidence concerning the defendant's defense under RSA 508:22. There were factual disputes concerning whether the defendants complied with RSA 508:22, and the jury was free to credit the evidence in favor of that defense. This is not a case in which the evidence was overwhelmingly in favor of the Plaintiff with respect to that particular defense. Thus, judgment as a matter of law, notwithstanding the verdict, is not appropriate in this case.

The verdict was reasonable in light the evidence produced at the trial.

Honorable David W. Ruoff
December 9, 2022

ORDER ON VERDICT

The jury having found the defendants not liable in this case, judgment is entered in favor of the defendants. The plaintiff is granted 10 days to file any post-verdict pleadings.

Date: November 8, 2022

Hon. David W. Ruoff

4. On January 9, 2023, Ms. Rogers filed a Rule 7 Notice of Mandatory Appeal. This appeal is currently pending.

3. On November 16, 2022, Plaintiff filed her Motion for Judgment Notwithstanding the Verdict. On December 9, 2022, the Plaintiff's Motion for Judgment Notwithstanding the Verdict was denied.

New Hampshire Green SnowPro Limited Liability Case 2022

13. Given the fundamental disagreement between Amy Rogers and her current counsel regarding the merits of the pending appeal, representation of Ms. Rogers by her current counsel has been rendered unreasonably difficult. Therefore, counsel requests to withdraw from representation of Ms. Rogers. Counsel further requests that Ms. Rogers be afforded additional time to retain new counsel prior to incurring the costs associated the compilation of the trial court transcript, or the issuance of a scheduling order for this appeal.



THE STATE OF NEW HAMPSHIRE

SUPREME COURT

In Case No. 2023-0016, Amy Rogers v. Chartwell Management, LLC & a., the court on May 17, 2023, issued the following order:

Amy Rogers has not responded to the March 22, 2023 and May 2, 2023 orders concerning her (or her new counsel's) need to register in the court's electronic filing (e-filing) system, nor has she filed a motion to be exempt from e-filing. Accordingly, the appeal is dismissed.

Appeal dismissed.

This order is entered by a single justice (Donovan, J.). See Rule 21(7).



Future of Green SnowPro



Municipalities

- Senate Bill 131 was approved in 2021 allowing for municipalities to be recognized as eligible for Green SnowPro certification. Rules are currently in the approval process (*likely finalized in early summer*).

Coursework

- Additional Refresher Course options for Green SnowPro certificate holders.
- [Smart About Salt Council](#) offering their online courses in Spanish.
- Partnering to update all course materials and BMP Manual.



Questions?

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[Road Salt Reduction | NH Department of Environmental Services](#)