Bringing brine to the front lines

Phil Gaebler
City of Madison Engineering Department
The need for Madison’s salt reduction efforts
Brine production at the City
Brine sales
Bringing brine to your Municipality
Background on Madison’s Chloride Situation

- Chloride use is impacting:
  - Surface water
    - Lakes and rivers
  - Ground water
    - Drinking water supply
- Permits
  - Madison Metropolitan Sewerage District
  - Municipal Separate Storm Sewer System Permit
- Total Maximum Daily Load requirements
  - No TMDL yet
Chloride Levels: Yahara Lakes

Yahara Lakes Chloride

Wingra
Mendota

mg/L Chloride

The larger the dot the more chloride in wells
Chloride Reduction Goals

Figure 2.05-4  Reduction Scenario 2 Projected Chloride Levels
Madison Response To Chloride Issue

- Madison started a certification program in 2017
  - City is to Lead by example and showcase lessons learned
- Wisconsin Saltwise
  - Continue being active in organization
- UW-Madison
  - WRM Chloride plan
Individual Certification

- Open book exam
- Certification is good for 5 years
- 70% needed to pass the exam
City of Madison Street Dept.  
Less Granular and More Liquid

Figure 1: Comparison of gallons of brine and total tons of salt used per lane mile since 2007-2008.
Wisconsin Saltwise

- Promotes good practices
- Clearing house for information
- Share ideas and unify messaging

www.wisaltwise.com
Efforts were underway but still too many parking lots like this

Photo Credit: David Thompson
Wingra Watershed Salt Sources

- City of Madison Streets, 35.4%
- Commercial/Multifamily/Institutional, 47.2%
- County Maintained Roads, 11.0%
- Sidewalks/Alleys/Bike Paths, 2.9%
- Residential, 3.5%

Brine is underutilized on parking lots.
In certification trainings we heard there is a need for a brine supplier.

- At the time Madison did not have a supplier for the private sector.
- Smaller municipalities had trouble justifying equipment purchases.
- Private sector companies primarily purchased pretreated salt or made their own brine.
A few e-mails and conversations later...
City of Madison Brine For Sale

For 2018/2019, the minimum charge will be $25.00 per fill: 50 gallons of brine

Additional brine will cost $0.30/gallon.
Contact: John Blotz - Streets West Shop
(608) 267-4956
jblotz@cityofmadison.com

We can only fill vented tanks equipped with a 1-1/2” male, cam & groove or camlock style coupling.
Madison Brine Production
Madison Brine Sales
Madison equipment
Keypad and Valve:
Type in Code and Get Billed Later
The Brine rig does not need to be fancy
But fancy is ok too.
Brine Consumption: Outside Sales vs City Use

Outside Sales, 13,109 gal

Madison, 64,268 gal
2018 Brine Sales
13,109 gallons

- Company 1: 5,966 gallons
- Company 2: 536 gallons
- Municipality A: 4,500 gallons
- Company 4: 2,107 gallons

Company 1

Company 2

Municipality A

Company 4
Bringing Brine Sales to your Municipality

- Automated system for truck filling a must
- Limit filling to normal business hours
- Require standards for equipment
Bringing Brine Sales to your Municipality

- Start small with a pilot project
  - Build with grants and trainings
- Keep it simple
  - NaCl only to start
- Sample, Document, and Save Brine
Contact Information

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