Less Salt, Less Money, Enough Said.

Public Agency Deicing Workshop

Village of Addison
Village of Arlington Heights
Village of Bartlett
Village of Bensenville
Village of Bloomingdale
Village of Bolingbrook
Village of Carol Stream
Village of Downers Grove
Elk Grove Village
Downers Grove Sanitary District
DuPage County
City of Elmhurst
Glenbard Waste Water Authority
Village of Glen Ellyn
Village of Glendale Heights
Village of Hanover Park
Village of Hinsdale
Village of Hoffman Estates
Village of Hinsdale
Village of Lombard
MV RDGC
City of Naperville
Village of Northlake
Village of Oak Brook
City of Oak Brook Terrace
Village of Roselle
City of St. Charles

Salt Creek Sanitary District
Village of Schaumburg
Village of Villa Park
City of Wheaton
Wheaton Sanitary District
Village of Westmont
City of Woodridge
Baxter Woodman, Inc.
Clark Dietz, Inc.
CDM, Inc.
The Conservation Foundation
ENSR, Inc.
Forest Preserve District of DuPage County
Gasaway Inc.
Hey and Associates, Inc.
Huff & Huff, Inc.
Illinois Department of Transportation
Kabbes Engineering, Inc.
Prairie Rivers Network
RJN Group, Inc.
Salt Creek Watershed Network
Sierra Club, River Prairie Group
Strand & Associates, Inc.
Wight Engineering, Inc.
York Township Highway Department
Water Quality Regulations and Area Chloride Reduction Program

Public Agency Deicing Workshop

September 24th, 2009

Dan Bounds, PE, D. WRE

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Water Quality Management Overview

- DuPage River Salt Creek Workgroup responding to impending water quality requirements for chloride
- DRSCW waterbodies impaired for chloride
  - Water quality standard for chloride: 500 mg/L
- TMDL requirements for chloride reduction
  - East Branch DuPage River: 33% reduction
  - West Branch DuPage River: 35% reduction
  - Salt Creek: 14% reduction
Sources of Chloride

- Natural sources
- Point source discharges – e.g., wastewater treatment plants
- Non-point runoff sources – e.g., deicing operations
  - Determined to be major source

Impacts of Chloride

- On snow and ice: melting
- On infrastructure and vehicles: corrosion
- On vegetation: adverse growth effects
- On aquatic life: impairment
- On drinking water: salty taste
- Chloride does not biodegrade
**Chloride Facts**

- Water quality standard is 500 mg/L
- 1 tsp of salt contaminates 5 gallons of water to a chronic threshold (long term adverse affect)
- 1 tablespoon of salt contaminates 5 gallons of water to an acute threshold (immediate adverse impact)
- 50 lbs salt will contaminate 10,000 gallons of water
- No deicers are “good” for water quality - all have an impact
  - Labeling caution: packages may boast “environmentally friendly” but all have an impact

**Current Salt Usage**

- Municipalities and townships questionnaire (included DuPage DOT and ISTHA)
  - Responses covered 70% of watershed area
  - Estimated 120,000 tons of salt / yr total
  - Higher than TMDL baseline
- Private companies
  - Salt use ranged from 8 tons to 500 tons / yr
Local Water Quality Monitoring

Hanover Park
2004 - 2006

and Other Locations
2007/08

Regulatory Control

- Federal Clean Water Act - USEPA
  - Waters shall be “fishable” and “swimmable”
- IEPA
  - Administers programs and NPDES permits
  - Develops TMDLs for impaired waters
- Counties / Communities
  - NPDES Phase II permit holders
  - Implementation guidance / ordinance, BMPs
Beneficial Uses Lead to Permit / Program Requirements

- Within six minimum control measures required:
  - Pollution prevention for municipal operations
    - Prevent and reduce the discharge of pollutants to the maximum extent practicable
    - Training
    - BMPs for deicing / snow removal
  - Ensure the reduction of all pollutants of concern to the maximum extent practicable
  - Additional requirements for TMDL waters

NPDES General Permit ILR40
Section 2: GENERAL OVERVIEW OF BEST MANAGEMENT PRACTICES (BMPs)

- Includes “pollution prevention BMPs – often termed good housekeeping activities.”
- E.g. “municipal street sweeping, commercial grease traps, roadway salt alternatives and spill prevention plans and/or structures.”

3.2.1 Avoidance and Minimization

“This manual strongly recommends avoidance and minimization as a high priority BMP. With regard to treating stormwater runoff for pollutants, avoiding and minimizing activities that cause pollutants to become entrained in stormwater runoff is a cost effective, efficient step.”
4.1 BMP Selection Guide

Mandatory BMPs

“Consider avoidance and minimization of activities that cause pollutants to become entrained in stormwater runoff”

Chloride Usage Education and Reduction Program

DuPage River Salt Creek Workgroup
**DRSCW Chloride Reduction Program**

- Public outreach and education
- Staff training
- Storage and handling improvements
- Alternative deicing methods
- Alternative deicing products
- Long term monitoring

→ Chloride reduction and cost savings often go hand and hand

**Approaches for Chloride Reduction**

- Maintain or improve levels of service
- Alternative practices
  - Storage and handling
  - Applicator training "Just enough"
  - Pre-wetting
  - Anti-icing
- Alternative products
  - Acetate deicers, e.g. CMA
  - Organic process derivatives
Education and Outreach

- Deicing Program Workshops
  - Public Agency Deicing Programs
  - DuPage County Mayors and Managers Association

Chloride reduction fact sheets have been developed and distributed
- Mayors and Managers
- Public Works Managers / Staff
- Commercial Operations
- Homeowners

http://www.drscw.org/ChlorideReduction.htm
Education and Outreach

- Outreach to private / commercial operations is occurring
  - Contacting private property deicing operations (malls, office/apartment complexes, industrial parks)
  - Looking for opportunities for a pilot study of alternative methods

Improved Storage and Handling

- Salt storage on an impervious pad
- Drainage from storage area controlled
  - Vehicle wash water contained
- Structural covering for salt
- Entrance and loading area covered
Alternative Deicing Products Research

- Promoting the use of lower chloride deicers, non-chloride deicers
- Summarized those available
  - Summarized range of products, price, performance
  - Highlighted several local communities already using alternative products

http://www.drscw.org/ChlorideReduction.htm

Promoting Alternative Deicing Methods

- Visited several communities in the watershed
  - Encouraged full implementation of pre-wetting techniques
  - Explored options for further implementation of anti-icing techniques
Specific Conductance, Winter 2008 and Winter 2009

Questions and Discussion