# MANAGING DEICERS & ADDITIVES

Laura Kramer Kuns, R.S.
Lake County General Health District

# Salt: Why do we need it?

- Necessary & accepted part of winter for public travel safety
- Motorists travel more than 3 trillion miles/year
- More than 75% of commuting workers drive to work
- Commerce & Industry depend on auto & truck transportation
- Emergency vehicles need access regardless of weather conditions

# Salt Facts

- Salt never loses capability to melt snow & ice no matter how long it is stored
- Keeping salt storage piles to next season does not diminish salt melting power
- There is no loss to moisture in the air if salt is stored properly
- Salt does not absorb moisture until the humidity reaches 75%
- Absorbed moisture will evaporate when humidity drops below 75%
- Anti-caking agents added to road salt are FDA approved food additives (hexacyanoferrates)

# Why is Proper Salt Storage Important?

- Significantly reduces the possibility of contaminating surface and ground water from salt runoff (storm water protection)
- Helps to eliminate the loss of salt product through dissolving and runoff (more economical)
- Helps to prevent the formation of lumpy salt that is difficult to load and spread (more convenient)

# Proper Salt Storage

- **Permanent under-roof storage is best.**
- Outside piles should be stored on impermeable pads totally covered with durable waterproof tarps that can be anchored in place (treat concrete pads with sealer).
- Permanent structures and outside piles on pads should not be located in close proximity to storm water inlets.
- Interceptor drains can be installed up gradient of salt storage areas to divert storm water from storage area

WOLVERINE

# Deicing Additives

- **Cinders(bottom ash) & Spent Foundry Sand**
  - Used alone or mixed with salt for improved traction
  - When mixed with salt, must be stored like salt or mixed per snow event
  - Use of **NON TOXIC** cinders & spent foundry sand for deicing activities is preapproved activity by OEPA
  - **Generator** of cinders & foundry sand responsible for TCLP analysis to determine Non-toxic status
  - Cinders are not defined as solid waste & their use are "regulated" by OEPA division of surface water

# Deicing Additives

- Anti-icing agents: brine applied before snow falls
  - Most popular liquid forms are Sodium chloride, calcium chloride, magnesium chloride, potassium acetate, or  calcium magnesium acetate.
  - Brine tanks should have secondary containment in case of leaks, spills or other accidents
- Beet juice: used to raise temperature so salt is more effective
  - Tanks should have secondary containment

# Deicing BMP's

- Proper material storage (location, drainage, secondary containment, safety, convenience)
- Proper training of staff on good housekeeping & pollution prevention practices
- Proper application of deicers
- Deicing equipment maintenance & calibration

# Case Study: Salt Storage & Water Well Contamination Chardon Township

- Complaint to OEPA from resident in Chardon Twp. Concerning salt contamination of water well
- OEPA investigation results:
  - Chardon Twp. Salt storage facility located approx. 500 ft. up hill on unpaved surface from contaminated water well
  - Use of cinder salt mix for 28 years, left uncovered for significant period of time.
  - Geology (shallow bedrock), topography, ground water flow direction, and water sample analyses indicated contamination source as Township salt storage

Road Salt Resource: Salt Institute

http://www.saltinstitute.org