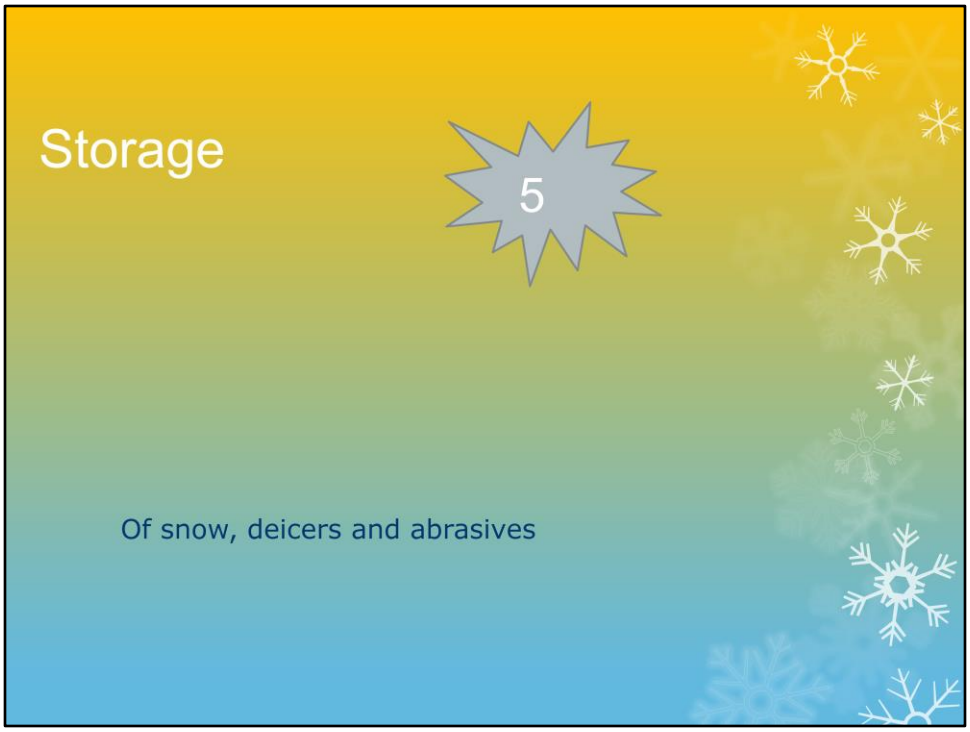
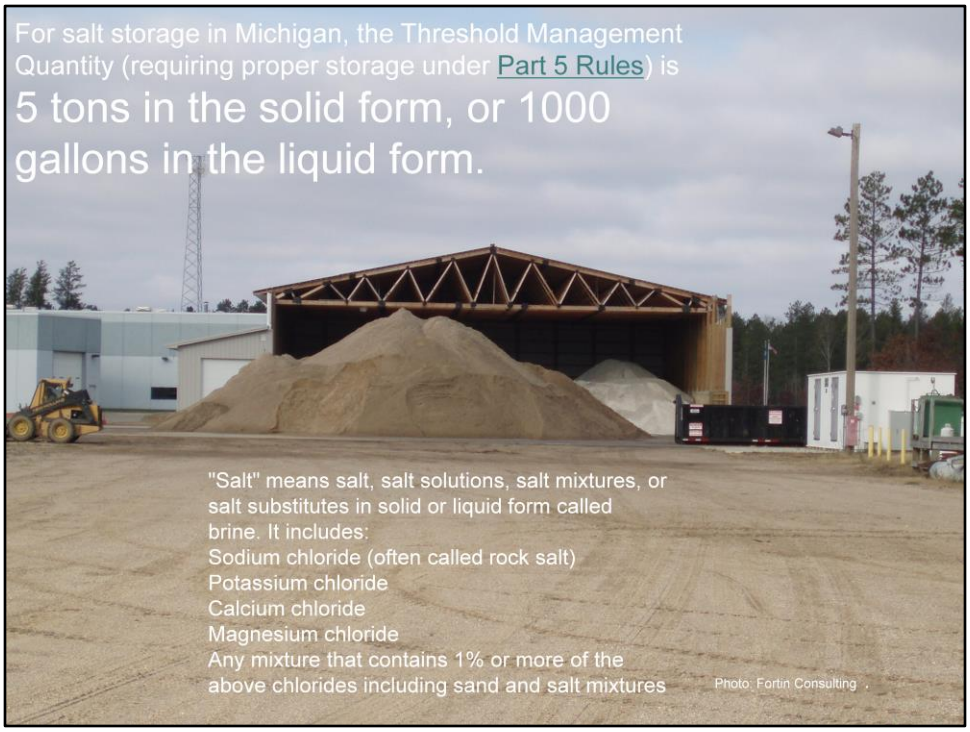


This section will briefly cover the proper storage of snow, bulk salt, liquid deicers and abrasives used for winter maintenance.

This is a good resource for MI to understand the requirements for storage of winter maintenance materials.

Michigan DEQ also has guidance documents specific for Small Commercial Snow Removal Services:
http://www.michigan.gov/documents/deq/deq-ess-p2tas-commercialsaltguidance_267027_7.pdf



Information from Dave Drullinger: Michigan Dept of Env. Quality 2013
For salt storage in Michigan, the Threshold Management Quantity (requiring proper storage under Part 5 Rules) is 5 tons in the solid form, or 1000 gallons in the liquid form. To my knowledge, those TMQs, or any other storage requirements, are not specifically listed in NPDES Permits.

"Salt" means salt, salt solutions, salt mixtures, or salt substitutes in solid or liquid form called brine. It includes:
Sodium chloride (often called rock salt)
Potassium chloride
Calcium chloride
Magnesium chloride
Any mixture that contains 1% or more of the above chlorides including sand and salt mixtures

a.

Information from Dave Drullinger: Michigan Dept of Env. Quality 2013

Michigan DEQ has guidance documents specific for Small Commercial Snow Removal Services:
http://www.michigan.gov/documents/deq/deq-ess-p2tas-commercialsaltguidance_267027_7.pdf

and for Road Agencies and other larger operations:
http://www.michigan.gov/documents/deq/deq-ess-p2tas-bulksaltbrineguidance_267024_7.pdf

Birdbath shaped floors keep moisture in the building and prevent runoff


Great idea: guidelines for filling the shed. Over filling the storage area causes environmental problems.
245 TON
MAX LOAD
Photo: MDOT

http://www.michigan.gov/documents/deq/deq-ess-p2tas-bulksaltbrineguidance_267024_7.pdf
This document notes 50 feet minimum distance between storage area and waters of the state of MI

In this photo you will notice several problems:
1. Uncovered storage
2. Wetland in background

Winter sand or salt/sand mixes are more often stored outdoors than straight salt piles. This is because they are cheaper, and more stable in the outdoors than straight salt. However if they are stored outdoors the salt still leaches out of the sand pile and causes environmental damage. That is why MI law requires winter sand and salt/sand piles over 5 tons to be properly stored.

Photo sent by Ken Stanton Grounds Supervisor, Grand Valley State University, MI

These are example of double wall tanks. If they did not have double wall tanks they would need to have secondary containment such as placing the tanks in a big waterproof “bowl” so that if a leak occurs the liquids would be contained.

How do you prevent moisture from entering your salt shed?

Water tight building is best

- Repair cracks and holes in roof or walls
- Doors are great to seal off salt shed
- Look for good drainage off of roof of salt shed to direct water away from shed.

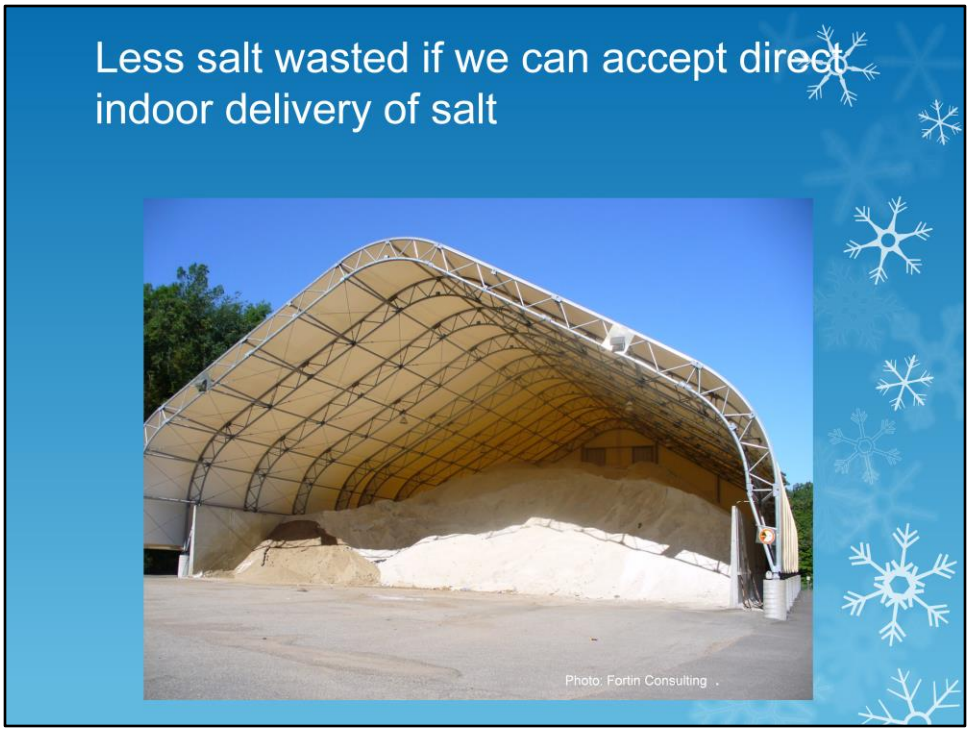
- Also think about where the salt from the loading area and shed drain. The best building design is a “bird bath” design that holds moisture in the building and doesn’t direct salt water runoff out of the building.

It is common for improperly stored salt or salt/sand piles to leach and contaminate the ground water. This point source of contamination can be traced back to the source and can cause many problems for the organization who improperly stored their salt or salt/sand pile.

There should be no shortcuts taken in storage, protect your organization, protect your ground water, follow MI DEQ storage guidelines.

Would be great if you would also do some education in your community to help inform and educate smaller winter maintenance organizations about this. In fact many small companies do not have year round storage. You can help by offering your facility to them.

In MN there have been several cases where a city offers to take the extra salt from the private contractors so it does not end up wasted and in the local lakes and rivers. Perhaps something like this could be started in your community.



The best storage facilities offer room for the plows to be loaded indoors
The best storage facilities offer room for the shipments of salt to be unloaded directly indoors.

Both of these features cause less salt to be on the hard surfaces outside of the storage building. Because of this less salt water runoff will be created.

MI DEQ 2013 Draft guidance:
As related to ground water protection, more specifically as related to protection of drinking source water, various isolation distances from the snow storage areas are required. These include 75 feet from a non-community water supply source, 50 feet from any private water supply well, and at least 200 feet from any municipal or community water supply wells (Rule 325.10808 promulgated under the Safe Drinking Water Act, PA 399 of 1976, as amended). The isolation distance related to a community water supply can be modified on a case-by-case basis by the MDEQ, Drinking Water Programs in the Environmental Resource Management Division. In addition, snow storage areas should not be located in any wellhead protection areas.