Salt Storage GH-23

OBJECTIVES

- Proper storage and use of materials
  - Storage of road salt
  - General Practices
  - Alternative Materials

DESCRIPTION

Road salts are an inevitable part of municipal acitvities in locales which receive snow and ice precipitation. Salts are soluable in water and can contaminate receiving waters and groundwater through run-off and infiltration.

CONSIDERATIONS

Road salt is the least expensive material for deicing operations; however, once the full costs are taken into account, alternative products and better management and application of salts become increasingly attractive options.

The application and storage of deicing materials, most commonly salts such as sodium chloride, can lead to water quality problems for surrounding areas.

RECOMMENDATIONS AND PROTOCOLS

Storage areas for road salts should be dedicated areas. These areas should be enclosed arteas that protect materials from the environment and run-off/run-on.

For the objectives listed, the following represent further recommendations and protocols for salt storage:

Storage

- Cover piles and store on impervious surfaces with run-off controls
- Load salt in covered areas
- Consider enclosed structures for storage
- With proper controls and protection, salt can be stored in bunker type areas
- Do not place storage areas over or immediately adjacent to drains or waterways
- Piles should be lcoated outside the 100-year floodplain to reduce groundwater contamination

Alternative Materials

- Consider alternative materials such as calcium chloride, magnesium chloride, and potassium chloride
- Due to costs, if the use of road salt is inevitable, consider minimal amounts of alternative products (near/adajacent to environmentally sensitive areas or waterways. Sand and gravel are acceptable alternatives as well.
- Sand and gravel will aid in increasing traction on roadways

General Practices

- Consider a road salt management plan with realistic salt reduction goals
- Consider devices that automatically control application rates
- Sweep loading areas after use
- Be aware of locally sensitve areas including, but not limited to: recharge areas, shallow water tables, sources of drinking water, wetlands, and streams
- Refer to BMP Fact Sheet GH-21 for outdoor storage of materials for more information and recommendations

DOCUMENTATION

Proper documentation practices are essential for any municipal SWMP to show compliance with the Clean Water Act, NPDES, and generally the requirements of the permit issued to allow discharges through the defined MS4. As with all sections of an MS4 permit, all documentation should be centralized.

For salt storage, templates are provided within the BMP manual to assist the municipality with documentation compliance. The templates can be used for compliance; however, the following documents are recommended as a minimum for compliance:

- **Training Record:** This document is used to provide record of a training event or session relative to road salt storage or use.
- **Training and Education Log:** Enter a completed training record into the log.
- **Event Record:** If a discharge or leak is observed in a storage area, an event record should be executed that also outlines response and remediation procedures. Exposed outdoor storage areas should be noted after major rain events requiring an event record.
- **Activity Record:** Complete when remediation is conducted or improvements are made to outdoor storage areas, such as replacement of tarps.
- **Inspection Record:** Complete an inspection based on the recommendations in the section titled "INSPECTIONS AND MEASUREMENTS" or as outlined in your SWMP
- **Inspection, Event, and Activity Log:** Enter an inspection, activity, or event record for salt storage or use into the log as outlined within this BMP. A record (and corresponding log entry) is not necessary for each and every time material is stored or used.
- **Municipal Yard Map:** Organize and complete a municipal yard map (including locations of interior building features). Identify the locations road salt is stored on the map. Place a copy of the map within your SWMP documentation.

INSPECTIONS AND MEASUREMENTS

Frequency of inspections for storage areas is recommended as follows:

- *Rain Event Inspection:* Conduct an inspection of the storage after a defined rain event (if storage area is located outside). A defined rain event is determined in the SWMP.

- *Regular Inspection:* If a rain event does not dictate an inspection, inspect the storage area containing road salt once a month.

Items that should be inspected and maintained in material storage areas (and recommended

Cleanliness: Sweep and remove debris or trash. Ensure loading area is free of debris and material

Storage structure: Ensure structure is sound and no run-on/run-off is observed

Isolation measures: assure implemented measures (i.e. berms, containment devices, and so on) are sound and in working order (if applicable)

Tarps or plastic sheets (if applicable): repair or replace torn or damaged tarps or plastic sheets. Ensure tarps are not "flapping" in the wind.

Stockpiles: Ensure stockpiles have proper coverage and material/debris is not "washing away."

SOURCES

U.S. Environmental Protection Agency Road Salt Application and Storage information at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=106&minmeasure=6

Michigan Pollution Prevention/Good Housekeeping Acitvities Guide at http://www.michigan.gov/documents/deq/wb-sw-ms4-PollutionPrevention_Housekeeping_321187_7.pdf

Jefferson Lab ES&H Manual at http://www.jlab.org/ehs/ehsmanual/8030R3.htm