

## OBJECTIVES

- Proper storage and maintenance of storage facilities for hazardous materials
  - Storage area considerations
  - Identifying hazardous substances
  - Documentation
- Implement and conduct activities to reduce the potential for polluted/illicit discharges
  - Training
  - Inspections
  - Spill Response and Prevention
  - Contaminated soil/materials

## DESCRIPTION

Illicit discharges of hazardous materials are generally a result of improper storage practices and use of such materials. An effective storage area and inspection/training program is necessary to help reduce the potential for illicit discharges from hazardous materials.

## CONSIDERATIONS

Improper handling of hazardous materials may leave residue exposed to rainfalls, hence a potential discharge of pollutants to receiving waterways. Hazardous materials should be kept "isolated" to the maximum extent practicable (MEP) to reduce the potential for discharges.

It is assumed a municipality has an established Hazardous Waste Operations and Emergency Response Plan (or similar plan) in place. This fact sheet focuses on storing hazardous materials relative to preventing discharges to receiving waterways.

A storage area for hazardous materials should be confined to hazardous materials only. Storage procedures need to consider the manufacturer's recommendations, and an understanding of incompatible materials should be achieved when storing hazardous materials. The appendix of this BMP Manual includes an Incompatible Materials Chart along with a list of highly hazardous chemicals.

A release of a reportable quantity (RQ) of an extremely hazardous chemical (or CERCLA substance) requires a release notification. If any chemicals are stored that can be found on the list of such chemicals, a written release notification protocol—as required by law—should be developed and easily accessible for reporting purposes. A current list of extremely hazardous chemicals can be found in 40 CFR 355, Appendix A.

Procedures should also be identified for household hazardous wastes as, from time-to-time, a municipality may need to provide consideration for such materials. Procedures can be incorporated into the waste management and disposal plan or O&M manual as required by PAG-13.

Hazardous materials stored directly on floors can become wet if the floor becomes wet. This action can lead to corrosion of materials and adjacent structures.

An inventory list along with Materials Safety Data Sheets (MSDS) should be kept to have an understanding of the hazardous materials stored. A possible consideration, with the goal of reducing paper, is selecting an electronic MSDS system. Such systems are deemed acceptable by the Occupational Health and Safety Administration (OSHA).

## **RECOMMENDATIONS AND PROTOCOLS**

Storage facilities for hazardous materials should be dedicated areas. These areas can be storage sheds, buildings, "lean-to" structures, identified locations within a building, and so on.

For the objectives listed, the following represent further recommendations and protocols for hazardous materials:

### **Storage area considerations**

- Ensure sufficient access for material procurement and inspections
- Store materials away from high-traffic areas
- Store materials on pallets or in storage lockers off the ground. This practice will facilitate inspections for leaking containers and can reduce pest damage
- Do not place storage areas over or immediately adjacent to drains or waterways
- Storage areas should be located on highly impervious surfaces such as concrete
- Cover material containers with tarps or similar acceptable materials if not stored in a locker or similar storage facility
- Provide consideration for household hazardous materials (document such wastes as applicable)
- Identify a disposal storage area within the designated hazardous material storage area until the materials are properly disposed.
- Assure storage facility is constructed of proper materials and meets local fire and building codes
- Equip storage areas with the appropriate spill clean-up materials. See BMP Fact Sheet GH-10, Spill Prevention and Control for more information.

### **Identifying hazardous materials**

- Place and update placards at the storage area indicating the dangers associated with chemicals currently stored
- Store hazardous materials in the appropriate container and clearly label
- Assure MSDS accompanies any new material deliveries. The MSDS will identify the level of hazard associated with the material.
- Review the chemical composition of a material and cross-reference with the U.S. Dept. of Labor, OSHA highly hazardous chemical list. If a material contains a chemical listed, mark the container to denote this fact

### **Documentation**

- Keep an updated inventory list of hazardous materials. The inventory list should be checked during regular inspections
- Keep an Incompatible Materials Chart relatively close to the storage area for easy reference
- Keep MSDS sheets readily available for the stored hazardous materials
- See "Documentation" section within this fact sheet for more information

### **Training**

- Depending on the types and operational uses of hazardous materials stored, additional training activities may be required per OSHA's Hazardous Waste Operations and Emergency Response final rule (29 CFR 1910.120)
- See BMP Fact Sheet GH-1, Employee Training and Education for more information
- Train employees on proper storage and handling practices of hazardous materials
- Train employees on clean-up procedures specific to hazardous materials
- Notify employees to any changes in the inventory of stored hazardous materials

### **Spill Response and Prevention**

- See BMP Fact Sheet GH-10, Spill Prevention and Control for more information
- Dry clean up methods should be used for containing and cleaning up hazardous materials if applicable and safe
- Provide additional training measures/notes for hazardous chemicals for employees specific to stored hazardous materials (i.e. incompatible chemicals)

### **Inspections**

- See "Inspections and Measurements" section within this fact sheet

### **Contaminated soil/materials**

- Soils and materials may be contaminated from leaking containers storing hazardous materials. These contaminated items should be isolated and securely stored until proper disposal techniques are identified
- For contaminated soils, stockpile in a separate location. Cover the soil with tarps or plastic sheets and install a berm around stockpile to prevent run-off and run-on. Locate stockpiles away from drains and receiving waters
- Contaminated materials (i.e. cardboard) can be installed in the hazardous materials storage area; as long as the contaminated materials poses no fire or health hazards and will not result in polluted discharges or further contamination until proper disposal is achieved

## **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 hazardous materials, 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 hazardous materials.
- **Training and Education Log:** Enter a completed training record for hazardous materials into the log.

- **Hazardous Materials Inventory List:** Keep an updated inventory of stored hazardous materials. This can also be a section of a master material inventory list.
- **Activity Record:** Complete a record if materials are transported for disposal or remediation is completed due to an event or note from an inspection.
- **Event Record:** If a discharge is observed, an event record should be executed that also outlines response and remediation procedures.
- **Inspection Record:** Complete an inspection based on the recommendations in the section titled "INSPECTIONS AND MEASUREMENTS" or as outlined in your SWMP for hazardous materials
- **Inspection, Event, and Activity Log:** Enter an inspection, activity, or event record for hazardous materials into the log.
- **MSDS**
- **Municipal Yard Map:** Organize and complete a municipal yard map (including locations of interior building features). Identify the hazardous materials storage area on the map. Place a copy of the map within your SWMP documentation.

## INSPECTIONS AND MEASUREMENTS

Frequency of inspections for hazardous materials 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 on a monthly basis (if inside) or every two weeks (if outside).

Items that should be inspected and maintained in hazardous materials storage areas (and recommended maintenance actions):

*Integrity of storage containers :* replace leaking or cracked containers

*Evidence of leaks:* isolate and clean-up leaks; replace leaking containers

*Cleanliness:* Sweep and remove debris or trash

*Inventory:* assure inventory matches records and is accounted for

*Tarps or plastic sheets (if applicable):* repair or replace torn or damaged tarps or plastic sheets

*Contaminated soils/materials (if applicable) :* inspect contaminated soil stockpiles and materials until proper disposal. Assure contaminated soil stockpiles are intact and no run-on or run-off is observed

*Storage layout:* assure containers and materials are neatly stored and as recommended by the manufacturer

*Miscellaneous:* observe and correct any signs of corrosion, pest damage, or other observed item that may result in leaking containers, spills, and so on

*Spill Prevention and Control Materials:* Replace used or defunct spill clean-up materials

*Signs:* Assure placards properly represent the hazardous materials stored

## SOURCES

U.S. Environmental Protection Agency Hazardous Materials Storage fact sheet at  
<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?>

United States Department of Labor, OSHA Training Interpretation at  
[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=20295](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20295)

CALTRANS BMP Field Manual, January 2003 edition at  
[http://www.dot.ca.gov/hq/construc/stormwater/BMP\\_Field\\_Manual\\_Master\\_5x8\\_revision5.pdf](http://www.dot.ca.gov/hq/construc/stormwater/BMP_Field_Manual_Master_5x8_revision5.pdf)

FedCenter Hazardous Materials Storage at  
<http://www.fedcenter.gov/assistance/facilitytour/labs/hazmat/>

Pennsylvania Emergency Management Agency Hazardous Material Emergency Planning and Response Act outline at  
[http://www.portal.state.pa.us/portal/server.pt/community/programs\\_and\\_services/4547/hazardous\\_material\\_preparedness/458022](http://www.portal.state.pa.us/portal/server.pt/community/programs_and_services/4547/hazardous_material_preparedness/458022)

Pennsylvania Department of Environmental Protection; final version of PAG-13 at  
<http://files.dep.state.pa.us/Water/Watershed%20Management/WatershedPortalFiles/StormwaterManagement/PAG-13/FinalPAG-13.pdf>