



**FF-7**

## **MATERIAL STORAGE, HANDLING, AND DISPOSAL**

**Accidental releases of materials from aboveground liquid storage tanks, drums, and dumpsters present the potential for contaminating stormwater with many different pollutants. Maintaining these areas may involve one or more of the following activities:**

- 1. Material Storage**
- 2. Chemical Material Handling and Disposal**
- 3. Hazardous Material Handling and Disposal**

### **POLLUTION PREVENTION:**

Pollution prevention measures have been considered and incorporated in the model procedures. Implementation of these measures may be more effective and reduce or eliminate the need to implement other more complicated or costly procedures. Possible pollution prevention measures for material storage, handling, and disposal include:

- Store material indoors, or covered if outdoors.
- Prevent storm water run-on.
- Once per year, educate municipal staff on pollution prevention measures.

### **MODEL PROCEDURES:**

#### **1. General Material Storage, Handling, and Disposal**

##### **Storage**

- ✓ Store materials indoors if possible. If stored outdoors, cover the storage area with a roof or with temporary cover during rain events. [*Note: the local fire authority/department must be consulted for limitations on clearance of roof covers over containers used to store flammable materials*].
- ✓ Keep storage areas clean and dry. Conduct regular inspections so that leaks and spills are detected as soon as possible.
- ✓ Minimize stormwater run-on and runoff by covering, enclosing or providing

secondary containment for the area.

- ✓ Keep outdoor storage areas in good condition (e.g. repair roofs, floors, etc. to limit releases to runoff).
- ✓ Drums stored in an area where unauthorized persons may gain access must be secured to prevent accidental spillage, pilferage, or any unauthorized use. Only personnel with proper training may handle hazardous waste. *See Waste Handling and Disposal Procedures*
- ✓ Wood products treated with chromated copper arsenate, ammonical copper zinc arsenate, creosote, or pentachlorophenol should be covered with tarps during rain events or stored indoors.
- ✓ Parking lots or other surfaces near bulk materials storage areas should be swept periodically to remove debris blown or washed from storage area.
- ✓ Train employees in proper storage measures.

## Secondary Containment

- ✓ Tanks should be bermed or surrounded by a secondary containment system such as dikes, liners, vaults, or double walled tanks.
- ✓ Keep liquids in a designated area on a paved impervious surface within a secondary containment.
- ✓ The area inside the berm should slope to a drain with a dead-end sump that is periodically pumped out.

## Inspection

- ✓ Inspect storage areas regularly for leaks or spills.
- ✓ Conduct routine inspections and check for external corrosion of material containers. Also check for structural failure, spills and overfills due to operator error, failure of piping system.
- ✓ Check for leaks or spills during pumping of liquids or gases from trucks to a storage facility or vice versa.
- ✓ Visually inspect new tank or container installations for loose fittings, poor welding, and improper or poorly fitted gaskets.
- ✓ Inspect tank foundations, connections, coatings, and tank walls and piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken the tank or container system.

## 2. General Chemical Material Handling and Disposal

### General Guidelines

- ✓ Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containers. Designate a secure chemical material storage area that is paved with Portland cement concrete, free of

*Types of chemical materials that may be stored:*

*Liquid chemicals  
Waste oils  
Solvents  
Petroleum products  
Paints  
Cleaners  
Pesticides  
Fertilizers  
Etc.*

cracks and gaps, and impervious in order to contain leaks and spills.

- ✓ Containers should be placed in a designated area and covered.
- ✓ Design and maintain chemical storage areas that reduce exposure to storm water:
  - Store materials inside or under cover on paved surfaces
  - Use secondary containment (see section above)
- ✓ Use covered dumpsters for waste product containers. Dumpsters shall be kept in good condition without corrosion or leaky seams. Garbage dumpsters shall be replaced if they are deteriorating to the point where leakage is occurring.
- ✓ Liquid materials should be stored in UL approved double walled tanks or surrounded by a curb or dike to provide the volume to contain 10 percent of the volume of all the containers or 110 percent of the volume of the largest container, whichever is greater.
- ✓ Try to keep chemicals in their original containers, and keep them well labeled.

## Spill Control

*See Spill Prevention and Control procedures sheet*

- ✓ Keep secured lids on waste barrels and containers.
- ✓ Clean up spills immediately.
- ✓ Safeguards against accidental releases:
  - Overflow protection devices to warn operator or automatic shut down transfer pumps
  - Protection guards (bollards) around tanks and piping to prevent vehicle or forklift damage
- ✓ Clear tagging or labeling, and restricting access to valves to reduce human error.
- ✓ Employees trained in emergency spill cleanup procedures should be present when dangerous waste, liquid chemicals, or other wastes are delivered or transferred off-site.

## 3. General Hazardous Material Handling

### General Guidelines

*Also see Spill Control Section above and the Spill Prevention and Control procedures sheet*

- ✓ All hazardous waste must be labeled according to hazardous waste regulations. Consult your Fire Department or your local hazardous waste agency for details.
- ✓ Store as few hazardous materials on-site as possible. Do not store any hazardous waste directly on the ground. Place these items in secondary

# FF-7

containers. Designate a secure hazardous waste storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.

- ✓ Handle hazardous materials as infrequently as possible. Only properly trained personnel should handle hazardous waste.
- ✓ Storage of oil and hazardous materials must meet specific Federal and State standards including:
  - Spill Prevention Control and Countermeasure Plan
  - Secondary containment
  - Integrity and leak detection monitoring
- ✓ Never mix waste oil with fuel, antifreeze, or chlorinated solvents. Consult your hazardous waste hauler for details.
- ✓ Develop emergency preparedness plans.
- ✓ Employees should be familiar with the Hazardous Materials Disclosure Plan, if applicable.
- ✓ Employees trained in emergency spill cleanup procedures should be present when dangerous waste, liquid chemicals, or other wastes are delivered or transferred off-site.

## Batteries

- ✓ Store new batteries securely to avoid breakage and acid spills during earthquakes. Shelving should be secured to the wall.
- ✓ Store used batteries indoors and in plastic trays to contain potential leaks.
- ✓ Recycle old batteries.

## LIMITATIONS:

Storage sheds often must meet building and fire code requirements.

## REFERENCES:

*California Storm Water Best Management Practice Handbooks. Municipal Best Management Practice Handbook. Prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates for Stormwater Quality Task Force. March 1993.*

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.