

## IC12. OUTDOOR STORAGE OF RAW MATERIALS, PRODUCTS, AND CONTAINERS

### Best Management Practices (BMPs)

A BMP is a technique, measure or structural control that is used for a given set of conditions to improve the quality of the stormwater runoff in a cost effective manner<sup>1</sup>. The minimum required BMPs for this activity are outlined in the box to the right. Implementation of pollution prevention/good housekeeping measures may reduce or eliminate the need to implement other more costly or complicated procedures. Proper employee training is key to the success of BMP implementation.

The BMPs outlined in this fact sheet target the following pollutants:

Targeted Constituents	
Sediment	x
Nutrients	x
Floatable Materials	
Metals	x
Bacteria	
Oil & Grease	x
Organics & Toxicants	x
Pesticides	
Oxygen Demanding	

#### MINIMUM BEST MANAGEMENT PRACTICES

##### Pollution Prevention/Good Housekeeping

- Store materials indoors, if feasible.
- Store materials on paved or impervious surfaces.
- Protect materials stored outside from rainfall and wind dispersal.
- Protect materials stored outside from stormwater runoff.
- Properly store and handle chemical materials.
- Keep outdoor storage containers in good condition.
- Conduct regular inspections of storage areas.
- If drums are stored in an area where unauthorized persons may gain access secure them in such a manner as to prevent accidental spillage, pilferage, or any unauthorized use.

##### Stencil storm drains

##### Training

- Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.
- Provide on-going employee training in pollution prevention.

Provided below are specific procedures associated with each of the minimum BMPs along with procedures for additional BMPs that should be considered if this activity takes place at a facility located near a sensitive waterbody. In order to meet the requirements for medium and high priority facilities, the owners/operators must select, install and maintain appropriate BMPs on site. Since the selection of the appropriate BMPs is a site-specific process, the types and numbers of additional BMPs will vary for each facility.

1. **Store materials indoors, if feasible.**
2. **Store materials on paved or impervious surfaces.**
3. **Protect materials stored outside from rainfall and wind dispersal.**
  - Cover materials with a fixed roof or a temporary waterproof covering made of polyethylene, polypropylene, or hypalon.
  - Keep covers in place at all times when work is not occurring.
  - If areas are so large that they cannot feasibly be covered and contained, implement erosion control practices at the perimeter of the area and at any catch basins to prevent dispersion of the stockpiled material.
4. **Protect materials stored outside from stormwater runoff.** Construct a berm around the perimeter of the material storage area to prevent the runoff of uncontaminated stormwater from adjacent areas as well as runoff of stormwater from the material.

<sup>1</sup> EPA " Preliminary Data Summary of Urban Stormwater Best Management Practices"

5. **Minimize pooling of water.** Slope paved areas to minimize the pooling of water on the site, particularly with materials that may leach pollutants into stormwater and/or groundwater, such as compost, logs, and wood chips. A minimum slope of 1.5 percent is recommended.
6. **All materials stored outside should have a secondary containment system.**
  - Surround storage tanks with a berm or other secondary containment system.
  - Slope the area inside the berm to a drain.
  - Drain liquids to the sanitary sewer if available.
  - **DO NOT** discharge wash water to sanitary sewer until contacting the local sewer authority to find out if pretreatment is required. If discharge to the sanitary sewer is not allowed, pump water to a tank and dispose of properly.
  - Pass accumulated stormwater in petroleum storage areas through an oil/water separator.
7. **Properly store and handle chemical materials.**
  - Designate a secure material storage area that is paved with Portland cement concrete, free of cracks and gaps, and impervious in order to contain leaks and spills.
  - Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containers.
  - 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.
  - Keep chemicals in their original containers, if feasible, and keep them well labeled.
8. **Keep outdoor storage containers in good condition.**
  - Keep storage areas clean and dry.
  - Sweep and maintain routes to and from storage areas.
9. **Conduct regular inspections of storage areas.**
  - Check for external corrosion of material containers, structural failures, spills and overfills due to operator error, failure of piping system, etc.
  - Inspect tank foundations, connections, coatings, tank walls, and piping system.
  - Look for corrosion, leaks, cracks, scratches, and other physical damage that may weaken tanks or container systems.
10. **If drums are stored in an area where unauthorized persons may gain access secure them in such a manner as to prevent accidental spillage, pilferage, or any unauthorized use.**

## Training

1. **Train employees on these BMPs, storm water discharge prohibitions, and wastewater discharge requirements.**
2. **Train employees on proper spill containment and cleanup.**
  - Establish training that provides employees with the proper tools and knowledge to immediately begin cleaning up a spill.
  - Ensure that employees are familiar with the site's spill control plan and/or proper spill cleanup procedures.
  - Fact sheet IC17 discusses Spill Prevention and Control in detail.
3. **Train forklift operators on the proper loading and unloading procedures.**
4. **Establish a regular training schedule, train all new employees, and conduct annual refresher training.**
5. **Use a training log or similar method to document training.**

## Stencil storm drains

Storm drain system signs act as highly visible source controls that are typically stenciled directly adjacent to storm drain inlets. Stencils should read "No Dumping Drains to Ocean".

## References

California Storm Water Best Management Practice Handbook. Industrial and Commercial. 2003.  
[www.cabmphandbooks.com](http://www.cabmphandbooks.com)

California Storm Water Best Management Practice Handbooks. Industrial/Commercial 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.

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 (Revised February 2002 by the California Coastal Commission).

**For additional information contact:**

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or visit our website at [www.ocwatersheds.com](http://www.ocwatersheds.com)