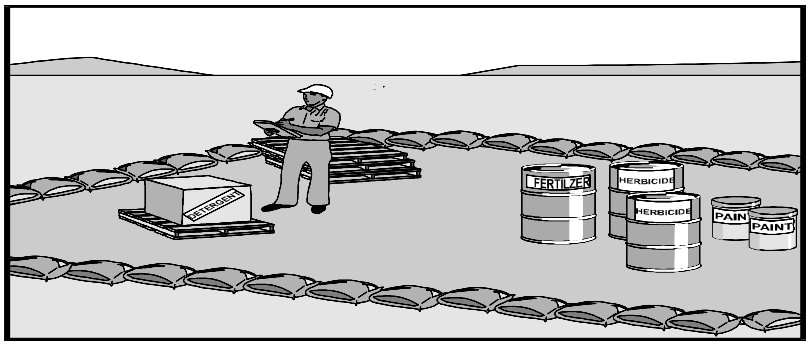
# **ACTIVITY:** Material Delivery, Storage, and Use

CP – 05




| Targeted Constituents | | | | |
|---|---|---|---|---|
| ● Significant Benefit | ◗ Partial Benefit | ○ Low or Unknown Benefit | | |
| ◗ Sediment | ○ Heavy Metals | ◗ Floatable Materials | ○ Oxygen Demanding Substances | |
| ◗ Nutrients | ◗ Toxic Materials | ◗ Oil & Grease | ○ Bacteria & Viruses | ○ Construction Wastes |

| Implementation Requirements | | | | |
|---|---|---|---|---|
| ● High | ◗ Medium | ○ Low | | |
| ○ Capital Costs | ○ O & M Costs | ○ Maintenance | ○ Suitability for Slopes >5% | ◗ Training |

## Description

Prevent or reduce the discharge of pollutants to stormwater from material delivery and storage by minimizing the storage of hazardous materials on-site, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. It is likely to partially reduce sediment, nutrients, toxic materials, oil and grease, and floatable materials. For other information on materials, see CP-06: Spill Prevention and Control. For information on wastes, see the waste management BMPs CP-7, 8, 9, 10 and 11 in this section.

## Approach

The following materials are commonly stored on construction sites:

- Soil,
- Concrete compounds,
- Pesticides and herbicides,
- Fertilizers,
- Detergents,
- Plaster or other products,
- Petroleum products such as fuel, oil, and grease, and
- Other hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds.

Storage of these materials on-site can pose various degrees of the following risks:

- Stormwater pollution,
- Injury to workers or visitors,
- Groundwater pollution, and
- Soil contamination.

Therefore, the following steps should be taken to minimize your risk:

- Designate areas of the construction site for material delivery and storage.
  - Place near the construction entrances and away from waterways.
  - Avoid transport near drainage paths or waterways.
  - Surround with earth berms, dikes, swales or other containment practices.
  - Place in an area which will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- For a quick reference on disposal alternatives for specific wastes, see the table presented in the Employee/Subcontractor Training BMP fact sheet.
- Keep an accurate, up-to-date inventory of materials delivered and stored on-site.
- Keep your inventory as close to "when you need it" levels as possible.
- Minimize hazardous materials stored on-site and handle hazardous materials as infrequently as possible.
- Consider storing materials in a covered area. Store materials in secondary containment's such as an earthen dike, horse trough, or even a children's wading pool for non-reactive materials such as detergents, oil, grease, and paints. Small amounts of material may be secondarily contained in 'bus boy' trays or concrete mixing trays.
- Do not store chemicals, drums, or bagged materials directly on the ground unless otherwise contained. Place these items on a pallet and, when possible, in secondary containment.
- Try to keep chemicals in their original containers, and keep them well labeled. If other containers are used then be sure they are well marked and can be adequately sealed and stored in an appropriate place.
- Train employees and subcontractors.

- Employees trained in emergency spill cleanup procedures should be present when dangerous materials or liquid chemicals are unloaded.
- Personnel who use pesticides should be trained in their use.
- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydroseeding. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains.
- If significant residual materials remain on the ground after construction is complete, properly remove materials and any contaminated soil. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.
- Stockpile soil in a central location and protect the stockpile from run-on. Apply suitable controls to remove sediment from runoff from the stockpile by measures such as silt fences, straw bale barriers, sand bag barriers, sediment traps or basins. If the stockpile will be inactive for an extended period, plant temporary vegetation or install long-term perimeter controls. Smaller stockpiles may be protected with tarps.
- Have proper storage instructions posted at all times in an open and conspicuous location. Periodically review this with field supervisors and inspectors.
- Contain and clean up any spill immediately.

**Maintenance**

- Keep the designated storage area clean and well organized.
- Conduct routine weekly inspections and check for external corrosion of material containers.
- Keep an ample supply of spill cleanup materials near the storage area.
- Inspect storage areas before and after rainfall events, and at least weekly during other times.
- Repair and/or replace perimeter controls, containment structures, and covers as needed to keep them properly functioning.

**Limitations**

- Space or other construction site limitations may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

**Primary References**

*California Storm Water Best Management Practice Handbooks, Construction and Industrial Handbooks*, CDM et.al. for the California SWQTF, 1993.

*Caltrans Storm Water Quality Handbooks*, CDM et.al. for the California Department of Transportation, 1997.

**Subordinate References**

*Best Management Practices and Erosion Control Manual for Construction Sites*; Flood Control District of Maricopa County, AZ, September 1992.

*Blueprint for a Clean Bay-Construction-Related Industries: Best Management Practices for Storm Water Pollution Prevention*; Santa Clara Valley Nonpoint Source Pollution Control Program, 1992.

*Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, Working Group Working Paper; USEPA, April 1992.

*Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices*, EPA 832-R-92005; USEPA, April 1992.