

## Description

When raw materials, byproducts, finished products, storage tanks, and other materials are stored or handled outdoors, stormwater runoff that comes in contact with the materials can become contaminated. Proactively covering storage and handling areas can be an effective source control for such areas. Coverings can be permanent or temporary and consist of tarp, plastic sheeting, roofing, enclosed structures, or other approaches that reduce exposure of materials to rainfall, runoff, and wind.



**Photograph CS-1.** Covered truck loading dock helps reduce exposure of materials to runoff.

## Appropriate Uses

Covering is appropriate for areas where solids (e.g., gravel, salt, compost, building materials) or liquids (e.g., oil, gas, tar) are stored, prepared, or transferred. Consider covering the following areas:

- **Loading and Unloading:** Loading and unloading operations usually take place outside on docks, truck terminals, or outside storage or staging areas at industrial and commercial sites. Materials spilled, leaked, or lost during loading and unloading may collect in the soil or other surfaces and be carried away by runoff, or when the area is cleaned. In addition to spills to the ground surface, rainfall may wash pollutants off machinery used to unload and load materials. Materials may be spilled during transfer between storage facilities and truck or rail car during pumping of liquids, pneumatic transfer of dry chemicals, mechanical transfer using conveyor systems, or transfers of bags, boxes, drums, or other containers by forklift, trucks, or other material handling equipment.
- **Aboveground Tanks/Liquid Storage:** Accidental releases of chemicals from above-ground liquid storage tanks can contaminate stormwater with a variety of pollutants. Several common causes of accidental releases from above-ground tanks include: external corrosion and structural failure, problems due to improper installation, spills and overfills due to operator error, failure of piping systems, and leaks or spills during pumping of liquids or gases between trucks or rail cars to a storage facility.
- **Outside Manufacturing:** Common outside manufacturing activities may include parts assembly, rock grinding or crushing, metals painting or coating, grinding or sanding, degreasing, concrete manufacturing, parts cleaning or operations that use hazardous materials. These activities can result in dry deposition of dust, metal and wood shavings and liquid discharges of dripping or leaking fluids from equipment or processes and other residuals being washed away in storm runoff. In addition to the manufacturing process, outside storage of materials and waste products may occur in conjunction with outside manufacturing.
- **Waste Management:** Wastes spilled, leached, or lost from outdoor waste management areas or outside manufacturing activities may accumulate in soils or on other surfaces and be carried away by rainfall runoff. There is also the potential for liquid wastes from surface impoundments to overflow to surface waters or soak the soil where they can be picked up by runoff. Possible stormwater

# S-1 **Covering Outdoor Storage and Handling Areas**

---

contaminants include toxic compounds, oil and grease, oxygen-demanding organics, paints and solvents, heavy metals and high levels of suspended solids. Lack of coverage of waste receptacles can result in rainwater seeping through the material and collecting contaminants or the material being blown around the site and into the stormwater collection system. Typical contaminant sources include: landfills, waste piles, wastewater and solid waste treatment and disposal, land application sites, dumpsters, or unlabeled drums.

- **Outside Storage of Materials:** Raw materials, intermediate products, byproducts, process residuals, finished products, containers, and materials storage areas can be sources of pollutants such as metals, oils and grease, sediment and other contaminants. Pollutant transport can occur when solid materials wash off or dissolve into water, or when spills or leaks occur.
- **Salt Storage:** Salt left exposed to rain or snow may migrate to the storm sewer or contaminate soils. Salt spilled or blown onto the ground during loading or unloading will dissolve in stormwater runoff. Stormwater contaminated with salt in high concentrations can be harmful to vegetation, aquatic life and groundwater quality. Typical contaminant sources include salt stored outside in piles or bags, salt loading and unloading areas, and salt/sand storage piles used for deicing operations.

## **Practice Guidelines**

- Where practical, conduct operations indoors. Where impractical, select an appropriate temporary or permanent covering to reduce exposure of materials to rainfall and runoff.
- The type of covering selected depends on a variety of factors such as the type and size of activity being conducted and materials involved. Types of cover range from relatively inexpensive tarps and plastic sheeting to overhead structures or fully enclosed buildings equipped with ventilation, lighting, etc.
- Covering practices should be combined with Good Housekeeping BMPs to be most effective. Spill containment berms are also often needed at industrial sites.
- Measures such as tarps and plastic sheets typically require more frequent inspection and maintenance than constructed facilities.