County of San Bernardino Stormwater Program



Municipal Activities Pollution Prevention Strategy (MAPPS)

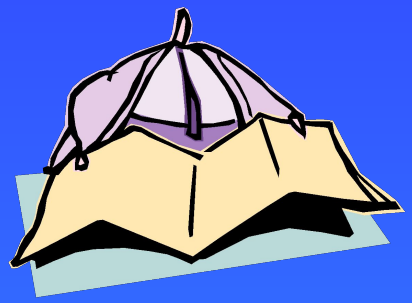
Volume III – Maintenance Activities

Topics Covered in this Training

- Regulatory Background
- Sources of Stormwater Pollution
- Stormwater Pollution impacts
- Best Management Practices (BMPs) for preventing stormwater pollution
- Facility inspections
- Who to ask questions?

Regulatory Background

1972 – Congress enacts Clean Water Act
- Regulates wastewater pollution



1987 – Congress amends Clean Water Act
- Stormwater pollution regulation added

1990 – First Municipal Stormwater Permit (Permit)
- Issued to County of San Bernardino, County Flood Control District and 16 area cities

1996/2002 – Second and third generation Permits
- Issued to County of San Bernardino, County Flood Control District and 16 area cities

Municipal Stormwater Permit Requirements

The current Permit outlines a schedule for:

- Promoting conditions designed to reduce pollutants in stormwater discharges
- Establishing and implementing best management practices (BMPs)
- Monitoring requirements

County/City departments and employees are legally required to implement the Permit. Failure to do so could incur large fines and/or penalties for violating Permit requirements.

Discharges Allowed

Industrial / Municipal

- Emergency Fire fighting
- Agricultural storm water runoff
- Flow from landscape irrigation
- Discharge authorized by an NPDES permit issued by the Regional Water Quality Control Board (RWQCB)

Residential/Natural water source

- Potable water source
- Flow from landscape irrigation
- Non-commercial vehicle washing
- Drainage from de-chlorinated swimming pools
- Air conditioning condensation
- Foundation drain, crawl space pump, or footing drain
- Uncontaminated groundwater
- Flow from a riparian habitat, diverted stream, natural spring or wetland

All discharges other than clean, clear stormwater are considered an…

ILLEGAL DISCHARGE

Sources of Stormwater Pollution
Public Facilities



Maintenance Yard

Hazardous materials storage facilities



Recreation facilities



Fire and police stations

Animal shelters

Transportation facilities



Sources of Stormwater Pollution
Municipal Field Activities



Road and street operation and maintenance

Landscape maintenance

Fountain, pools, lakes and lagoon maintenance

Plaza, sidewalk and parking lot maintenance

Water, sewer, drainage system operations and maintenance

Waste Disposal handling and Disposal





Sources of Stormwater Pollution
Road operation and maintenance

Paving, surfacing, resurfacing, or saw cutting may pollute stormwater runoff or discharge to the storm drain system or watercourses.



Sources of Stormwater Pollution
Landscape Maintenance

Fertilizer, herbicide, pesticide application and vegetation removal may contribute pollutants to the storm drain system





Sources of Stormwater Pollution
Fountain, pool, lakes and lagoon maintenance

The primary pollutant of concern in municipal swimming pool water is chlorine or chloramine used as a disinfectant. This water, if discharged to the storm drain system, can be toxic to aquatic life. In lakes, lagoons, and fountains, the pollutants of concern are chemical algaecides that are added to control algae mainly for aesthetic reasons (visual and odor).



Sources of Stormwater Pollution
Plaza, sidewalk and parking lot maintenance

Pollutants on sidewalks, plazas and other traffic areas are typically due to animal waste, littering, and vehicle use.



Sources of Stormwater Pollution
Water, sewer and drainage system operation and maintenance

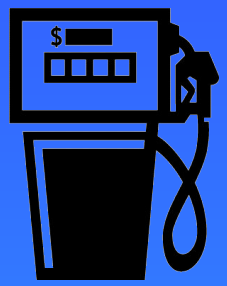
Excavation stockpiles and sewage overflows have the potential to contribute to stormwater pollution



Potential Sources: Maintenance Yard

Loading, unloading, handling and storage of materials





Dispensing of fuels

Vehicle and equipment parking, maintenance and cleaning areas



Potential Sources: Hazardous Materials Storage Facilities



Improper storage and handling of wastes can allow:

- toxic compounds
- oils and grease
- heavy metals
- nutrients
- suspended solids
- and other pollutants

…to enter stormwater runoff

Potential Sources: Fire and Police Stations

- Fueling locations with above ground storage tanks (ASTs) and/or underground storage tanks (USTs)
- Vehicle washing and steam cleanup
- Loading, unloading, and/or handling of hazardous materials
- Landscape, garden and general maintenance

Potential Sources: Animal Shelters

- Loading, unloading, handling and storage of dead animals and animal wastes for off-site disposal
- Vehicle, equipment, material washing
- Landscape, garden and general maintenance

How Does Maintenance Affect Stormwater Quality?

Maintenance practices which remove sediment, trash and debris from roadways and storm drains can help prevent flooding and related damage and erosion.



Stormdrain Inspections

During a storm drain inspection look for:

- excessive silt build up
- erosion/unusual algal growth
- cracked or collapsed pipes
- misaligned joints
- a sheen on the water surface
- discolored water or pipe surface
- an unpleasant odor
- or any other condition which might result from an illegal discharge into the system



When a problem is observed, record the location and nature of the problem and notify your supervisor.

Non-Stormwater Discharges

Wash water from non-stormwater discharges needs to be **diverted from the storm drain system**.

Vehicle washing	Pavement washing	Parts washing
Tank draining	Building washing	Material washing
Process wash water	Grease interceptor	Leaking trash container

General BMPs: Maintenance Yards
Recreation Facility
Fire and Police Station
Animal shelter
Transportation Facility





- Conduct routine visual inspections
- When possible, perform maintenance activities inside
- Use dry cleanup methods for spills instead of a hose
- Use a wet mop for routine floor washing
- Recycle wastes

General BMPs: Vehicle and Equipment Maintenance

- Drain fluids from wrecked vehicles – use drip pans
- When possible, perform maintenance activities inside
- Use dry cleanup methods for spills instead of a hose
- Use a wet mop for routine shop floor washing
- Wash vehicles and equipment only in designated areas



General BMPs: Outdoor storage

- Cover storage area with a roof to protect from rainfall
- Provide secondary containment (berms, liners, containment pallets)
- Follow Spill Prevention and Countermeasure Plan (SPCC) for facility
- If possible, store materials indoors or cover with a tarp

Storage area needs cover



Provide secondary containment

BMPs: General Field Activity



Sand or gravel bag barrier used to protect storm drain inlet.

Protect stormdrain inlets and open manholes during road repairs to prevent slurry mixes, dust and debris from entering the storm drains.



BMPs: General Field Activity

Cover stockpiles with a tarp, away from drainage courses

to prevent materials from being washed into streams



BMPs: General Field Activity

Avoid using water to cleanup.

Mechanically or hand sweep dust and debris following all activities.

DO NOT wash residue into the storm drain system

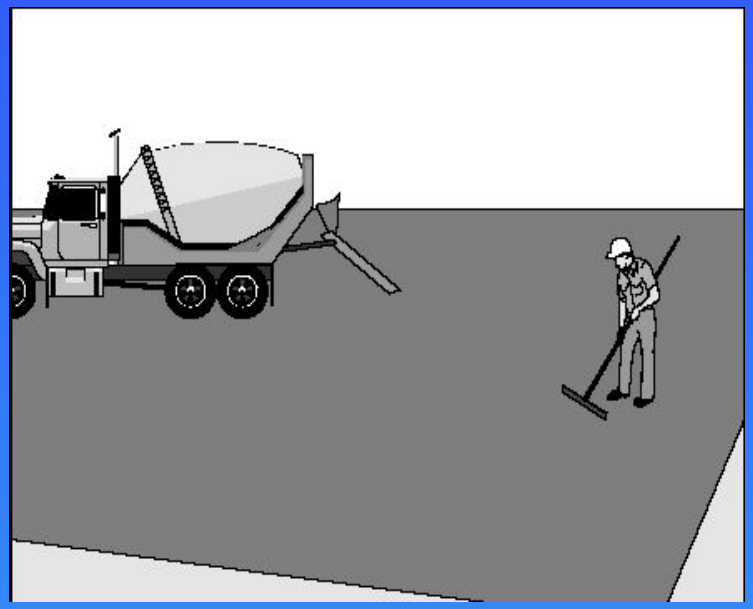


BMPs: General Field Activity

Concrete waste management

Send wash out wastes into a temporary pit or washout bin where the concrete can set, be broken up, and then disposed of properly.

Saw cut slurry should not be allowed to enter storm drains or watercourses. Residue from saw and grinding operations should be picked up by means of a vacuum attachment and disposed of in the trash.



BMPs: Management of Pesticides, Herbicides and Fertilizers

- Apply pesticides and herbicides in accordance with California Department of Pesticide requirements
- Read and follow manufacturer's label requirements before each application
- Reduce sprinkler over spray into gutter
- Utilize less hazardous alternatives such as insecticidal soaps and horticultural oils as much as possible



BMPs: What To Do in Case of a Spill

Follow spill response guidelines for you agency.



Safety First - Don't Take Risks

- Protect drains and storm sewers
- Stop the spill at its source
- Call the Fire Department, Regional Board (if necessary)
- Contact your stormwater coordinator regardless of size
- Spread absorbent material
- Dispose of the spilled material appropriately

Municipal Yard Inspections

Facility site inspections are used to observe and document the extent of overall good housekeeping and BMP implementation, including the following areas:

- Outdoor areas where trash, waste, and scrap materials are stored
- Outdoor areas where new materials and supplies, especially liquids, are stored; fueling islands
- Outside areas where vehicle/equipment maintenance is performed
- Areas immediately outside of buildings in which vehicle/equipment maintenance is performed
- Areas where vehicle/equipment washing is performed.

Municipal Facility Inspection

Inspections should ensure the following conditions:

- Materials are properly contained, stored, and disposed of
- Areas where there are leaking vehicles, equipment, and materials – cover and contain
- Spills, leaks, and drips have been cleaned up
- Absorbent materials have been provided where they might be needed

Regulatory Penalties

What if we don't comply?

Fines can be levied against the contractor, public agency or an individual.



- Fines to $32,500 per day/per violation
  -33 USC 1319 of the CWA
- "Any person who **knowingly violates**" can be fined $10,000 or imprisoned up to 2 years:
  -CWA Section 13385(b)(1)
- Current Regulatory Atmosphere
  "The learning curve is over"

Other sources of information…



Your stormwater coordinator

San Bernardino County
Stormwater Program
(909) 387-8109