

RIVERSIDE COUNTY WATERSHED PROTECTION



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Municipal Facilities & Activities Employee Training

Prepared for: Santa Ana Region Permittees

Prepared by: CASC Engineering and Consulting

Spring 2019

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Santa Ana Region

Course Outline



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▶ Part 1

- ▶ Municipal Permits and Requirements for Municipal Facilities and Operations
- ▶ Essential Knowledge

▶ Part 2

- ▶ BMPs Applicable to Municipal Facilities and Operations
- ▶ Municipal Facility Pollution Prevention Plan



Common Acronym Definitions



BMP	Best Management Practice	NPDES	National Pollutant Discharge Elimination System
DAMP	Drainage Area Management Plan	SMARTS	Storm Water Multiple Application and Report Tracking System
FPPP	Facility Pollution Prevention Plan	SWPPP	Storm Water Pollution Prevention Plan
IC/ID	Illicit Connection/Illegal Discharge	TMDL	Total Maximum Daily Loads
LIP	Local Implementation Plan		

Why Are We Here?



- ▶ To comply with permit requirements for training.
- ▶ To review municipal permit requirements for municipal facilities and operations.
- ▶ To review BMPs applicable to municipal facilities and operations.
- ▶ To review the municipal facility pollution prevention plan.



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What is Storm Water Pollution?



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What is Storm Water Pollution?



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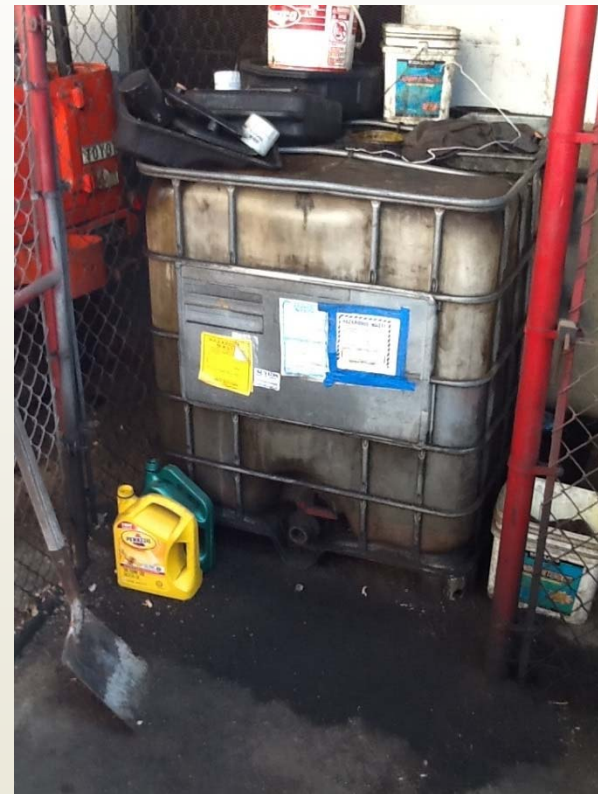


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What is Storm Water Pollution?



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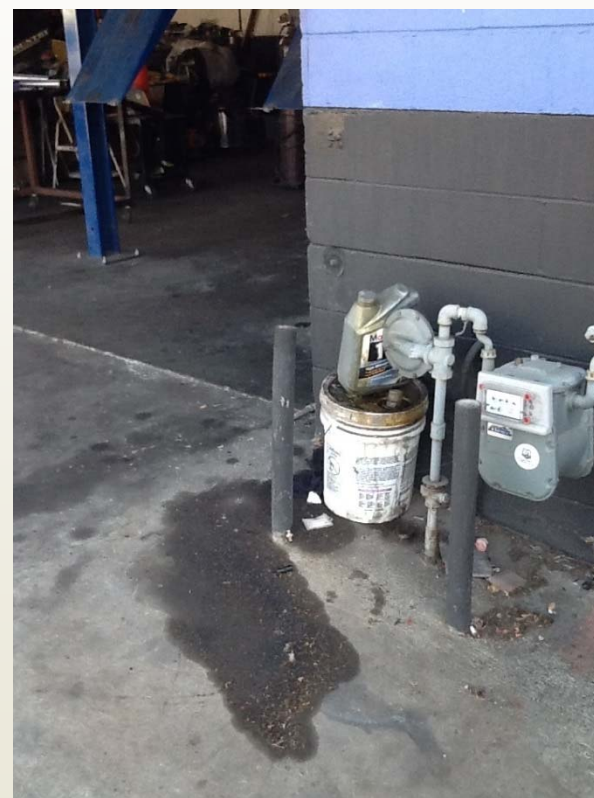


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What is Storm Water Pollution?



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What is Storm Water Pollution?



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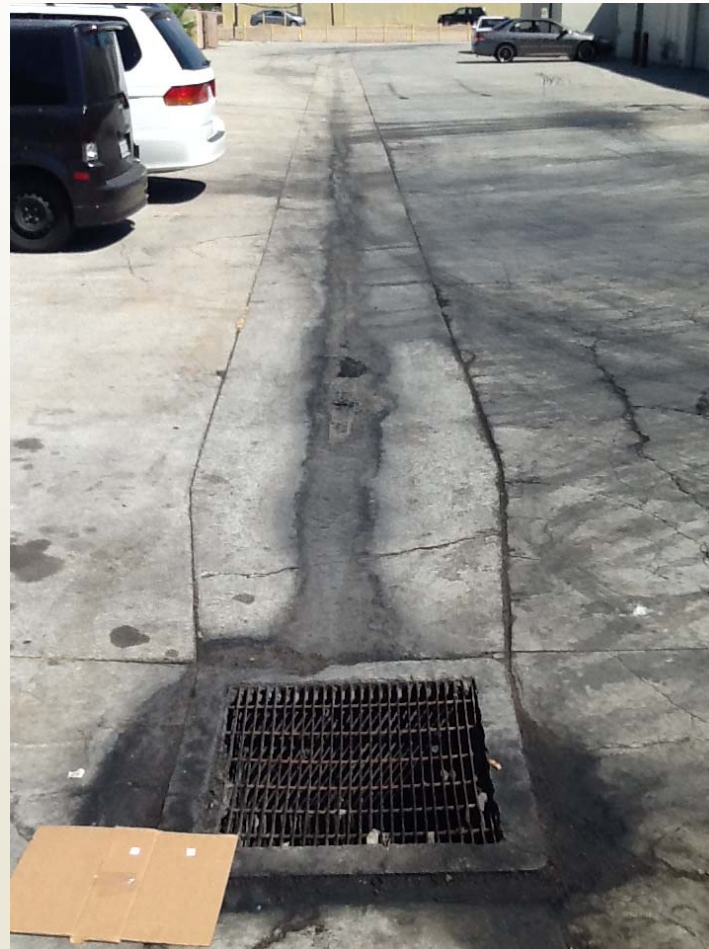


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What is Storm Water Pollution?



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What is Storm Water Pollution?



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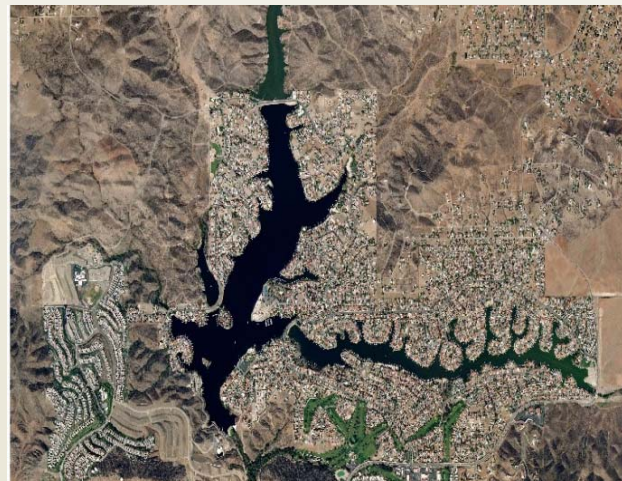


Where Does Storm Water Pollution Go?



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- ▶ Lakes
- ▶ Rivers
- ▶ Streams
- ▶ Ocean



Are Polluted Waters Really a Problem?



- ▶ According to the U.S. EPA, in 1996 40% of all U.S. waters were not fishable or swimmable due to impairments.
- ▶ Many improvements have been made since the NPDES programs were created.



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Municipal Permit

Requirements for Municipal Facilities and Operations



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Federal Regulations

Clean Water Act (EPA)

State Regulatory Agencies

State Water Resources Control Board (SWRCB)

Regional Water Quality Control Boards (RWQCBs)

Permits

Industrial General Permit

Construction General Permit

Municipal Permits (Phase I)

Municipal Permit (Phase II Small MS4)

Regional Construction Permits

Local Laws

Ordinances, Resolutions and Codes

Municipal Staff and Municipal O&M

You!

Municipal Inspector

Public Education/ Outreach

General Municipal Permit Requirements for Facilities Programs and Activities



- ▶ **Goal – ensure municipal facilities do not cause or contribute to pollution or nuisance in receiving waters**
 - ▶ Implement a Municipal Facilities Pollution Prevention Strategy
 - ▶ Conduct Training
 - ▶ Develop Model Maintenance Procedures
 - ▶ Enforce Ordinances
 - ▶ Implement Monitoring and Reporting Program
 - ▶ Develop and Distribute BMP Guidance
 - ▶ Identify BMP Opportunities
 - ▶ Prepare and Implement the Municipal Facilities Pollution Prevention Plan
 - ▶ Conduct Annual Review of Facilities - report findings
 - ▶ Revise Strategy based on Reviews

The Key Message in the Permit



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- ▶ Prevent Pollution in Storm Water
- ▶ “ONLY RAIN DOWN THE STORM DRAIN”
- ▶ Prevent Non-Storm Water Discharges
- ▶ Municipal facilities and operations staff have an important role
 - ▶ In their own Day-to-day work
 - ▶ In the Community
- ▶ It’s your job to contribute to keeping our waters healthy!





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Essential Knowledge

What is “stormwater” and “non-stormwater”?



▶ Stormwater

- ▶ Stormwater means rainfall runoff, snow melt runoff, and storm water surface runoff and drainage.

▶ Non-Stormwater

- ▶ Non-Stormwater consists of all discharges to and from a stormwater conveyance system that do not originate from precipitation events.
- ▶ Non-stormwater includes illegal discharges, non-prohibited discharges and NPDES permitted discharges.
- ▶ Non-Stormwater Discharge means any discharge to storm sewer systems that is not composed entirely of stormwater.

Non-Stormwater Discharges



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Non-Stormwater Discharges



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Allowed Non-Stormwater Discharges



- ▶ Permitted by other NPDES permit
- ▶ Potable water line flushing
- ▶ Rising groundwater or groundwater infiltration or uncontaminated pumped groundwater
- ▶ Irrigation water
- ▶ Passive foundation drains and footing drains or water pumped from crawl spaces
- ▶ Diverted stream flows
- ▶ Air conditioning condensate
- ▶ Dechlorinated pool water



May require BMPs if identified as a source of pollution.

What is an Illicit Connection/ Illegal Discharge (IC/ID)?



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- ▶ **What is an illicit connection?**
 - ▶ Any connection to the storm drain system that is prohibited under local, state or federal statutes, ordinances, codes, or regulations. Includes all non-storm water discharges and connections except those permitted.

- ▶ **What is an illegal discharge?**
 - ▶ Any disposal, either intentionally or **unintentionally**, of material or waste to land or MS4s that can pollute storm water or create a nuisance. Includes any discharge to MS4 that is not entirely made up of storm water.



IC/ID Reporting

- ▶ Identify and contact responsible agency.
- ▶ Follow reporting procedure in **Section 4 of the Permittee's LIP**



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JANUARY 29, 2014

Riverside County Flood Control
and Water Conservation District
Local Implementation Plan

Santa Ana Region

ORDER No. R8-2010-0033

IC/ID Reporting



- ▶ The responsible party must investigate within 24 hours and determine if the IC/ID is an Emergency Situation that poses an immediate threat to human health or the environment:
 - ▶ sewage spill over 1,000 gallons,
 - ▶ could impact water contact recreation,
 - ▶ any oil spill that could impact wildlife,
 - ▶ any hazardous materials spill where residents are evacuated,
 - ▶ any spill of reportable quantities of hazardous waste,
 - ▶ or any spill reportable to Cal EMA.
- ▶ If discharge is a threat, must be reported immediately:
 - ▶ Cal EMA at (800) 852-7550
 - ▶ And the Regional Water Board

Storm Drains v. Sanitary Sewers



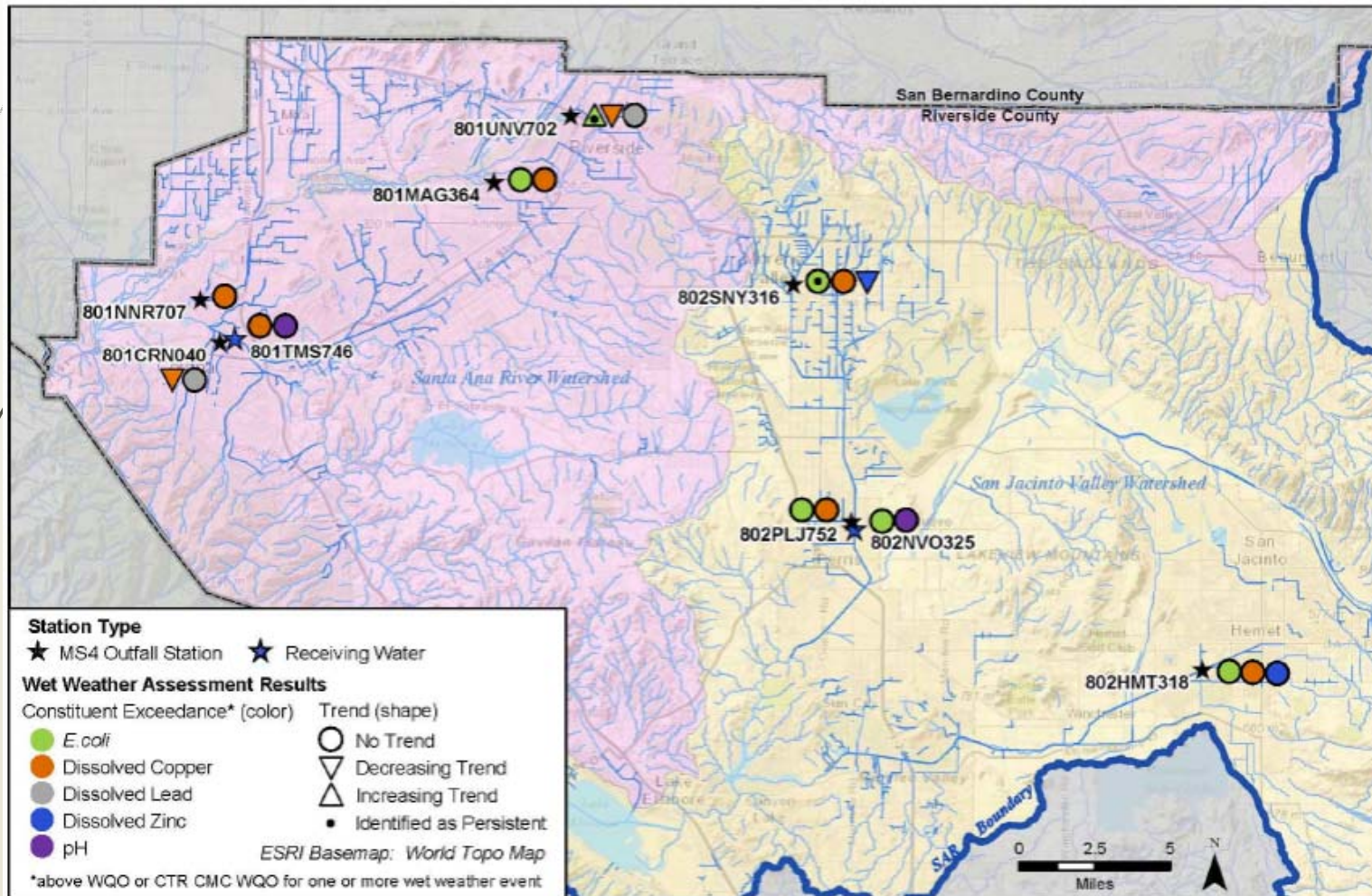
- ▶ MS4 – conveyance that goes directly to a surface water body (lake, stream, ocean, etc.) normally without treatment.
- ▶ Sanitary sewer is a conveyance that usually flows to a treatment plant prior to discharge to a water body.



What pollutants should I be concerned about?



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Essential Knowledge – Getting More of It!



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**California Stormwater
Quality Association**

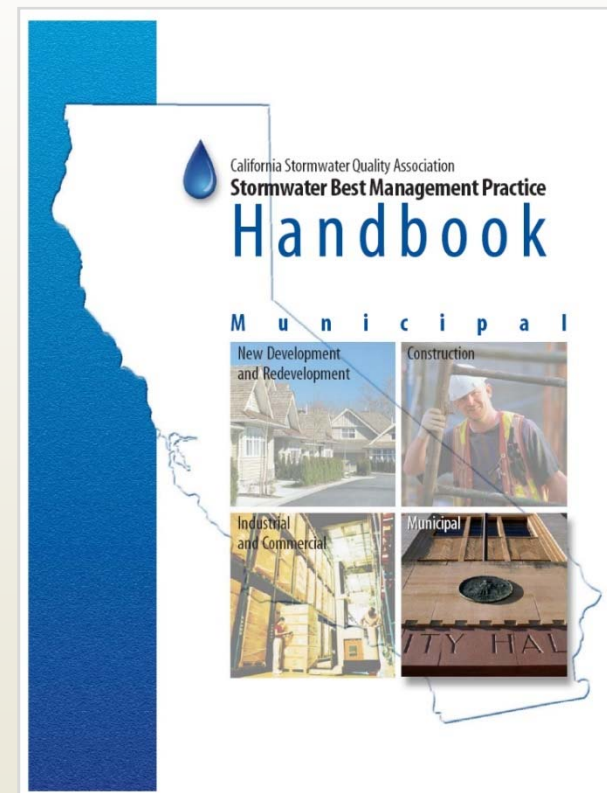
- ▶ **Riverside NPDES/Municipal Stormwater Management Program**
 - ▶ <http://www.rcflood.org/NPDES/SantaAnaWS.aspx>
- ▶ **California Storm Water Quality Association Manuals (CASQA)**
 - ▶ <https://www.casqa.org/resources/bmp-handbooks>

Essential Knowledge – Getting More Of It!



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- ▶ CASQA's 2003 and 2009 Handbooks
 - ▶ A Great Source of Stormwater Information
- ▶ The Handbooks – A 4 Volume Set
- ▶ Municipal O&M Staff use these Handbooks the most
 - ▶ Municipal
 - ▶ Industrial and Commercial
- ▶ Municipal O&M Staff may need these Handbooks too
 - ▶ New Development and Redevelopment
 - ▶ Construction
- ▶ Get them at <https://www.casqa.org/resources/bmp-handbooks>





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BMPs for Municipal Facilities and Operations

Incorporating pollution prevention into everyday activities and operations.

Source Control BMPs



- ▶ **Source Control BMPs for fixed facilities - same for Industrial/Commercial Activities and Municipal Operations:**
 - ▶ SC-10 Non-Storm Water Discharges
 - ▶ SC-11 Spill Prevention, Control and Cleanup
 - ▶ SC-20 Vehicle and Equipment Fueling
 - ▶ SC-21 Vehicle and Equipment Cleaning
 - ▶ SC-22 Vehicle and Equipment Repair
 - ▶ SC-30 Outdoor Loading/Unloading

Source Control BMPs



- ▶ **SC-31 Outdoor Liquid Container Storage**
- ▶ **SC-32 Outdoor Equipment Operations**
- ▶ **SC-33 Outdoor Storage of Raw Materials**
- ▶ **SC-34 Waste Handling and Disposal**
- ▶ **SC-41 Building and Grounds Maintenance**
- ▶ **SC-43 Parking/Storage Area Maintenance**

SC-10 Non-Storm Water Discharges



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- ▶ Post “Only Rain Down the Storm Drain” signs w/800 number
- ▶ Stencil storm drains



SC-10 Non-Storm Water Discharges



- ▶ Never hose down or bury spills
- ▶ Regularly inspect and clean up hot spots where illegal dumping and disposal occurs
- ▶ Locate and remove illicit connections
- ▶ Inventory and inspect each discharge point during dry weather
- ▶ Report non-storm water discharges observed during normal daily activities so they can be investigated, contained, and cleaned up or eliminated

SC-11 Spill Prevention, Control and Cleanup



- ▶ Store appropriate spill cleanup materials near tank storage area or other liquid storage areas.
- ▶ Follow the SPCC Plan
- ▶ Use dry clean-up methods such as absorbent but make sure the used absorbent is properly disposed of.
- ▶ Use as little water as possible. Use rags or a damp mop.

Improper Spill Cleanup



- ▶ Used water to wash down area and did not contain the wash water.



Improper Spill Cleanup



Proper Spill Cleanup



- ▶ Absorbent is used on an oil spill...but the job does not end here!



Proper Spill Cleanup



- ▶ Absorbent is used on an oil spill.



Proper Spill Cleanup



- ▶ Used absorbent material is swept up promptly and disposed of properly.



Corporate Maintenance Yard BMPs



- ▶ **SC-60 - Housekeeping Practices**
- ▶ **SC-31 - Storage of Hazardous Materials (Working Stock)**
- ▶ **SC-31 - Materials Storage Controls (Hazardous Waste)**
- ▶ **SC-33 - Outdoor Storage of Raw Materials**
- ▶ **SC-20 - Vehicle and Equipment Fueling**
- ▶ **SC-21 - Vehicle and Equipment Pressure Washing**

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SC-31 Storage of Hazardous Materials



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SC-31 Storage of Hazardous Materials



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SC-31 Storage of Hazardous Materials



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Empty Drums



SC-22 Vehicle and Equipment Maintenance



▶ Vehicle Fluid Removal

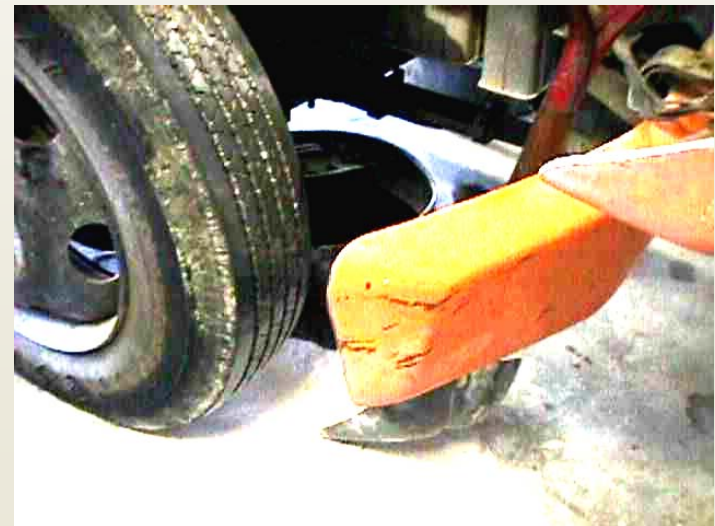
- ▶ Transfer removed fluid to designated storage barrels or tanks as soon as possible.
- ▶ Ensure safeguards, such as oil shut-off valves, are installed and maintained.



Vehicle Fluid Removal



- ▶ If required, drain fluid into pan and immediately transfer to designated storage barrel or tank. A larger pan may be placed under the primary collection pan to catch any spills.
- ▶ Promptly remove drip pan after use.



Engine and Parts Cleaning



- ▶ Use self-contained sinks or tanks when working with solvents.
- ▶ Periodically check for leaks.
- ▶ Make repairs as soon as possible.



Engine and Parts Cleaning



- ▶ **Conduct operations indoors.**



Engine and Parts Cleaning



- ▶ Use cleaning tanks that use water.



Engine and Parts Cleaning



- ▶ Allow parts to drain over the solvent sink or the hot tank instead of dripping or spilling onto floor.
- ▶ Recycle waste water from steam cleaning or pressure washing as much as possible.
- ▶ Do NOT pour waste water down storm drains. Permits or pretreatment (e.g., oil/water separator) may be required before discharge to sanitary sewer.

ONLY RAIN DOWN THE DRAIN!

Engine and Parts Cleaning



- ▶ Designate specific areas in service bay for parts cleaning.
- ▶ Do not wash or rinse parts outdoors, since the discharge may enter a storm drain.

SC-21 Vehicle and Equipment Pressure Washing



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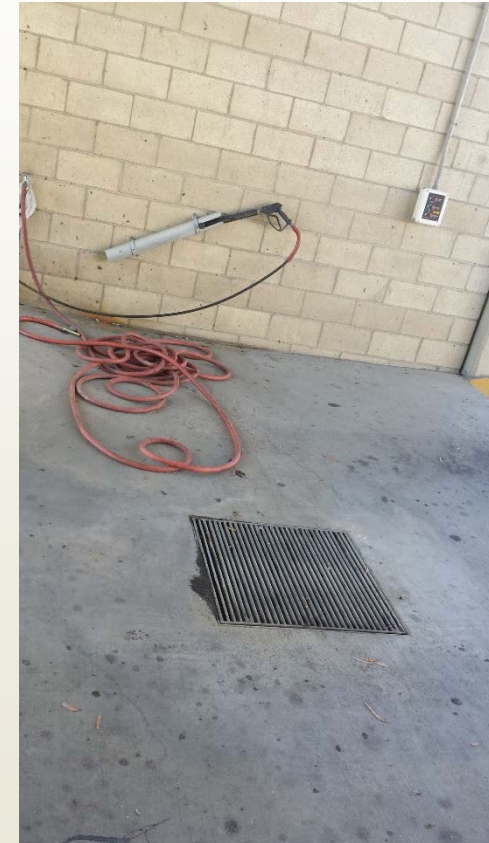


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SC-21 Vehicle and Equipment Pressure Washing



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SC-21 Vehicle and Equipment Pressure Washing



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SC-20 Vehicle and Equipment Fueling



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SC-20 Vehicle and Equipment Fueling



SC-20 Vehicle and Equipment Fueling



Above Ground Tank Leak and Spill Control BMPs



- ▶ Review the Spills Prevention Countermeasures and Control Plan for additional requirements.
- ▶ Inspect existing above ground storage tanks, secondary containment and spill containment, and associated valves and piping for corrosion, structural failure, and loose connections.



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Above Ground Tank Leak and Spill Control BMPs



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Above Ground Tank Leak and Spill Control BMPs



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Above Ground Tank Leak and Spill Control BMPs



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Above Ground Tank Leak and Spill Control BMPs



- ▶ Keep an appropriate spill kit near above ground tanks.
- ▶ Include ample absorbent materials, shovel, rags, and plastic bags.
- ▶ Update and replenish the spill kit as changes occur in the types of materials stored.



Above Ground Tank Leak and Spill Control BMPs



- ▶ All spills should be contained immediately.
- ▶ Spills should be absorbed using absorbent material or dry mop.
- ▶ Place used absorbent material in a waste container and dispose according to approved waste disposal procedures.
- ▶ For larger spills follow appropriate procedures for the facility.

SC-30 Outdoor Loading/Unloading



Environmental Concerns

- ▶ Petroleum products such as:
 - ▶ Fuels
 - ▶ Oils
 - ▶ Greases
- ▶ Asphalt and concrete
- ▶ Hazardous materials including paint
- ▶ Pesticides
- ▶ Fertilizers
- ▶ Cleaning products

Outdoor Loading/Unloading



- ▶ Conduct outdoor loading/unloading on paved surfaces.
- ▶ Install a dead-end sump beneath loading docks where large quantities of liquids are handled.



Outdoor Loading/Unloading



Outdoor Loading/Unloading



- ▶ Inspect loading/unloading areas before and after rainfall, and as needed during other times to promote good housekeeping.
- ▶ Repair and replace perimeter controls, containment structures, and covers as needed to keep them functioning properly.

Outdoor Loading/Unloading



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- ▶ Dirty loading area.



Outdoor Loading/Unloading



- Better material delivery area.



SC-34 Waste Handling and Disposal



▶ Waste Storage

- ▶ Provide designated, covered, and contained waste collection areas and containers.
- ▶ Arrange for regular waste disposal.



► Open and Damaged Trash Container





➤ **Poor Waste Management**



Waste Storage



- ▶ Lids need to be closed.



Waste Storage



- ▶ Covered waste container



Waste Storage



➤ Designated area



SC-41 Building and Grounds Maintenance



- ▶ **Environmental Concerns**
 - ▶ Metals (copper, tri-butyl tin, zinc)
 - ▶ Oil/grease
 - ▶ Sediment
 - ▶ Trash/litter/debris
 - ▶ Cleaners/detergents
 - ▶ Solvents/chemicals
 - ▶ Green waste

Building and Grounds Maintenance



▶ BMPs:

- ▶ Use dry clean-up methods for spills and outdoor cleaning.
- ▶ Vacuum, sweep, use rags and absorbents.
 - ▶ Clean vehicle fluid drips, leaks, or spills in parking lots with absorbent and promptly dispose of used absorbent.
 - ▶ If further cleaning is necessary use steam cleaning to reduce water and contain water so that it does not enter storm drain.



Building and Grounds Maintenance



▶ BMPs:

- ▶ Inspect and monitor the operation of cooling towers.
- ▶ Some biocides used in the cooling water are hazardous materials.
- ▶ Direct roof drains to landscaped areas or other areas where they will not wash down parking lots or create erosion.
- ▶ Direct air conditioning condensate to landscaped areas or areas where it will not enter storm drains or cause erosion.

Building and Grounds Maintenance



▶ BMPs:

- ▶ Keep an adequate number and size of trash receptacles available.
- ▶ Cover dumpsters and other trash containers especially when rain is expected.
- ▶ Inspect dumpsters for leaks and repair as necessary.
- ▶ Keep parking lots swept to prevent sediment from entering storm drains.



Building and Grounds Maintenance



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▶ BMPs:

- ▶ Minimize power-washing and water use.
- ▶ Discharge mop water to sanitary sewer.
- ▶ Contain wash water that comes into contact with hazardous materials and dispose of as hazardous waste.

Building and Grounds Maintenance



▶ BMPs:

- ▶ Contain all concrete slurry, waste, and wash water and dispose of properly.
- ▶ Consider using a vacuum.
- ▶ Sweep up dried slurry as much as possible.
- ▶ Store asphalt cold mix under cover and where it will not come into contact with run-on or run-off.



Building and Grounds Maintenance



▶ BMPs:

- ▶ Dispose of sweepings and cleaning wastes as solid waste.
- ▶ Recycle or reuse solid wastes whenever possible.
- ▶ Purchase materials that are recyclable and that are minimally packaged.
- ▶ Properly label, store, and dispose of hazardous wastes. Refer to your agency's HazMat management procedures.
- ▶ Water efficiently, and minimize the use of pesticides in landscaping.

Pesticide Use



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- ▶ Pesticides are herbicides and insecticides.
- ▶ They are federally and state regulated. Additional NPDES Permits may be necessary!



- ▶ When pesticide use is contracted, Integrated Management Techniques are required:

- ▶ Apply in accordance with Manufacturer's Specifications
- ▶ Avoid application prior to expected rain event
- ▶ Promote baits, pest prevention, and pest exclusion
 - ▶ Baits – food-based luring traps/poisons
 - ▶ Prevention – good housekeeping, manual weeding, trapping, etc.
 - ▶ Exclusion – cultural control (plant selection and sanitation)
- ▶ Monitor the degree of infestation
- ▶ Be wary of new culprits

Building and Grounds Maintenance

- ▶ Avoid excessive irrigation to minimize runoff containing nutrients, pesticides and herbicides.
- ▶ Regularly sweep maintenance yard to keep trash and sediment from potentially flowing into storm drains.



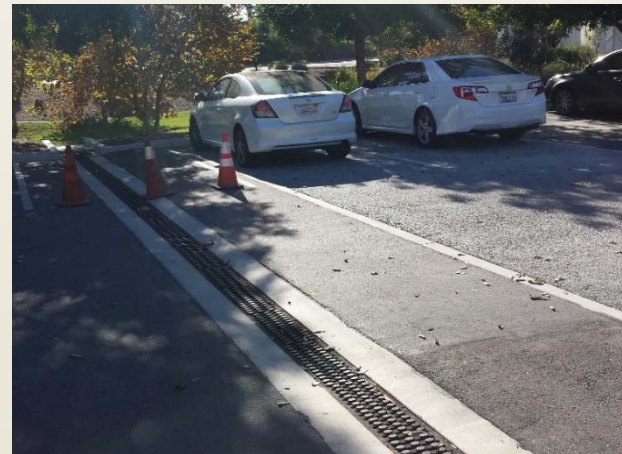
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Building and Grounds Maintenance



- ▶ Regularly inspect, clean, and maintain storm water drainage system.



SC-43 Parking/Storage Area Maintenance



- ▶ Sweep parking lots on a regular basis and prior to a predicted rain event
- ▶ Clean oily spots with absorbent
- ▶ Do NOT Allow Discharges to the Storm Drain
- ▶ Provide adequate trash receptacles



Other Municipal Source Control BMPs

- ▶ **SC-40 Contaminated or Erodible Areas**
- ▶ **SC-42 Building Repair and Construction**
- ▶ **SC-44 Drainage System Maintenance**



SC-40 Contaminated or Erodible Areas

- ▶ Preserve natural vegetation.
- ▶ Re-vegetate when necessary.
- ▶ Remove contaminated soil.
- ▶ Use chemical stabilization or synthetic membranes or plastic to control erosion.
- ▶ See the Construction BMP Handbook for more details.



SC-42 Building Repair and Construction



- ▶ Recycle building materials and use recycled materials to the maximum extent practical.
- ▶ Follow the BMPs in the Construction BMP Handbook.
- ▶ Maintain good housekeeping
- ▶ Cover materials left out during rain and control run-on and runoff
- ▶ Clean flow lines (gutter, drain inlets, other areas where rain water will flow)

Municipal Source Control BMPs



- ▶ **For Fixed Facility**
 - ▶ SC-50 Over Water Activities
 - ▶ SC-60 Housekeeping Practices
 - ▶ SC-61 Safer Alternative Products

SC-61 Safer Alternative Products



- ▶ When safer alternative products exist, they should be used where practical and effective.
- ▶ Avoid accumulating and storing unnecessary products.
- ▶ Use up existing products before additional products are purchased or used.

Safer Alternative Products



- ▶ Even safer alternative products can result in discharge of harmful materials to the storm water drainage system.
- ▶ Follow manufacturer's recommendations, good housekeeping and waste minimization, handling and disposal BMPs.



Graffiti Removal



Environmental Concerns

- ▶ Anti-graffiti coating
- ▶ Paint products
- ▶ Sediment (sand blasting grit)
- ▶ Cleaning products (solvents)
- ▶ Wash water from pressure spray



Operational Procedures

- ▶ Prevent spillage of paint and cleaning products
- ▶ Dispose of solvent application materials (rags) and paint and solvent containers at a maintenance facility
- ▶ Minimize water volume when pressure washing and collect wash water, direct to a landscaped area, or treatment BMP

Paint Use, Storage and Cleanup



- ▶ Use water-based instead of oil-based paints.
- ▶ Keep all paint and wastes from entering storm drain.
- ▶ Store paint as a hazardous material.
- ▶ Clean oil-based paint brushes with paint thinner and reuse paint thinner.
- ▶ Dispose of small empty paint containers.
 - ▶ 5 gal. or less - allow to dry, dispose of as solid waste
 - ▶ More than five gal. - recycle container if possible

Improper Paint Disposal



Proper Paint Disposal



Proper Paint Cleanup



- ▶ Clean water-based paint brushes by painting out and rinsing in sink.



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Proper Paint Storage



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Municipal Source Control BMPs



▶ For Field Programs

- ▶ SC-70 Road and Street Maintenance
- ▶ SC-71 Plaza and Sidewalk Cleaning
- ▶ SC-72 Fountains & Pools Maintenance
- ▶ SC-73 Landscape Maintenance
- ▶ SC-74 Drainage System Maintenance (similar to SC-44)
- ▶ SC-75 Waste Handling and Disposal (similar to SC-34)
- ▶ SC-76 Water and Sewer Utility Maintenance

SC-70 Road and Street Maintenance



- ▶ **Street Sweeping and Cleaning**
 - ▶ Perform street cleaning during dry weather if possible.
 - ▶ Avoid wet cleaning of streets, and utilize dry methods where possible.
 - ▶ Maintain a consistent sweeping schedule.
 - ▶ Provide minimum monthly sweeping of curbed streets.



Street Sweeping and Cleaning



- ▶ Increase the sweeping frequency for streets with high pollutant loadings (high traffic and industrial areas).
- ▶ Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
- ▶ Increase the sweeping frequency for streets in special problems areas such as events, high litter and erosion zones.

Street Sweeping and Cleaning

- ▶ **Maintain cleaning equipment in good working condition and purchase replacement equipment as needed.**
- ▶ **Regularly inspect vehicles and equipment for leaks, and repair immediately.**
- ▶ **Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.**



Street Repair and Maintenance



▶ Pavement Marking

- ▶ Schedule pavement marking activities during dry weather.
- ▶ Transfer and load paint and hot thermoplastic away from storm drain inlets.
- ▶ Provide drop cloths and drip pans in paint mixing areas.
- ▶ Street sweep thermoplastic grindings.
- ▶ Paints containing lead are considered hazardous and must be disposed of properly.



Street Repair and Maintenance



▶ Concrete Installation and Repair

- ▶ Schedule asphalt and concrete activities during dry weather.
- ▶ Take measures to protect any nearby storm drain inlets and adjacent water courses, prior to braking up asphalt or concrete (e.g., place sand bags around inlets or work areas).
- ▶ Do not wash sweepings from exposed aggregate concrete into the street or storm drain.
- ▶ Limit the amount of fresh concrete mixed, mix only what is needed for the job.
- ▶ Wash concrete trucks in designated areas to prevent discharge of wash water to drainage system.

SC-71 Plaza and Sidewalk Cleaning



- ▶ Avoid steam cleaning with soap.
- ▶ Dry sweep initially.
- ▶ Contain water used to clean sidewalks.
- ▶ Use dry cleanup method, sweeping.



Disposal of Swept Waste



- ▶ Proper disposal of waste into trash can, not storm drain.



Improper Sidewalk Cleaning



- ▶ Did not sweep before steam cleaning and not containing runoff.



Proper Steam Cleaning



- ▶ Steam cleaning parking lot containing the water.



SC-72 Fountain and Pool Maintenance



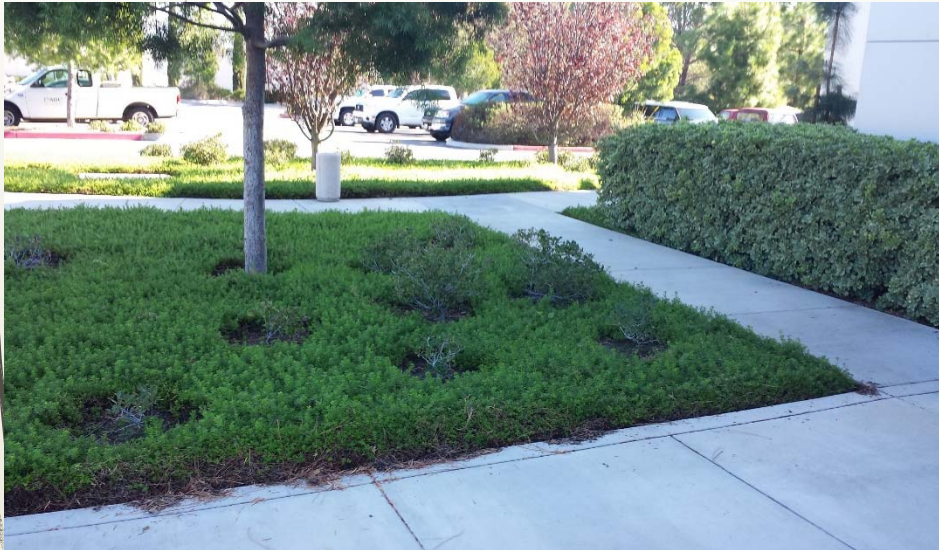
- ▶ When draining a pool, ensure that the water has been dechlorinated; water must be tested.
- ▶ Discharge to sanitary sewer if permitted to do so or re-use in landscaped area.
- ▶ Do not allow the water to come in contact with potential pollutants on the way to the storm drain.
- ▶ Control erosion if discharging to an erodible area.

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SC-73 Landscape Maintenance



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SC-73 Landscape Maintenance



- ▶ Includes Parks
- ▶ Environmental Concerns:
 - ▶ Litter
 - ▶ Animal waste
 - ▶ Green Waste
 - ▶ Sediment
 - ▶ Cleaners/detergents
 - ▶ Pesticides/Fertilizers

Landscape Maintenance



- ▶ Do not wash animal waste down the storm drainage system.
- ▶ Control animal waste through ordinances that require collection and removal of waste from parks and other areas.
- ▶ Provide pet waste dispenser at parks with signs posted requiring pet waste cleanup.



Landscape Maintenance



- ▶ Keep drain inlets within the park cleaned of clippings, litter/debris, and sediment.
- ▶ Minimize runoff from sand boxes and clay fields to storm drains.
- ▶ Use mulch in appropriate bare areas to control soil erosion and prevent weeds.



Landscape Maintenance



- ▶ When cleaning mowers or other equipment, ensure that wash water does not enter the storm drain system.
- ▶ Consider washing over a landscaped area.



Landscape Maintenance



- ▶ Consider native, hardy perennial species which require less fertilizers and pesticides.
- ▶ Landscaping vendors should be required to minimize fertilizer and pesticide use and restrict application to the growing season.
- ▶ Consider using organic or non-toxic fertilizers.



Sweep up drift



▶ **BMPs:**

- ▶ Maintain sprinkler systems
- ▶ Minimize overwatering



SC-74 Drainage System Maintenance



- ▶ Drains should be appropriately labeled to prevent non-stormwater discharges from being introduced to the storm water drainage system.

NO DUMPING!
ONLY RAIN IN THE DRAIN!



Drain Control BMPs



- ▶ Keep internal floor drains plugged if they drain to the storm water drainage system.



Drain BMPs

- ▶ Drain stenciling and signs should indicate whether they flow into a treatment system such as an oil/water separator, the sanitary sewer, or directly to the storm water drainage system.



Drain BMPs



Drain Control BMPs



- ▶ Use dry clean-up methods, such as sweeping.



Drain Control BMPs



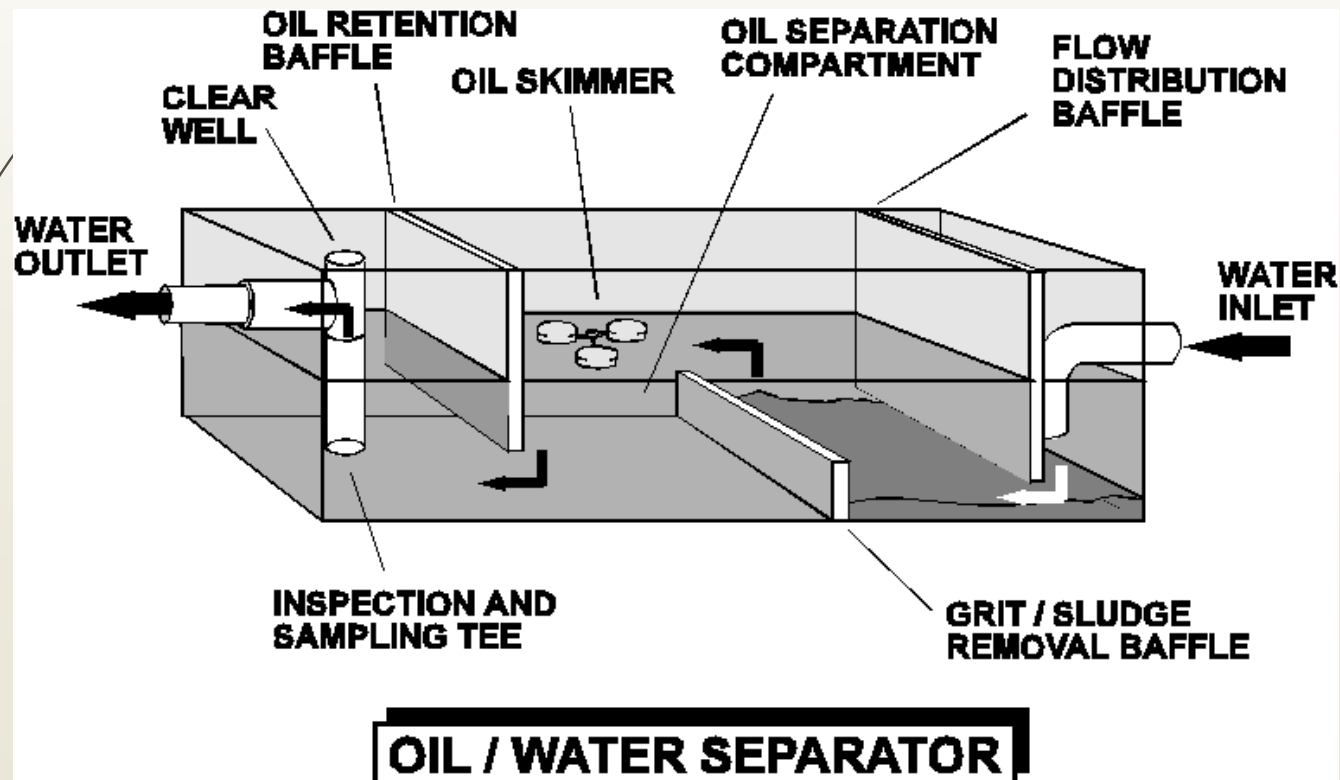
- ▶ Keep spill control equipment and covers available to protect external drain inlets.



TC-50 Water Quality Inlet Oil Water Separators



- Used to separate sediment, oil, and grease from water using gravity.



Oil Water Separator BMPs



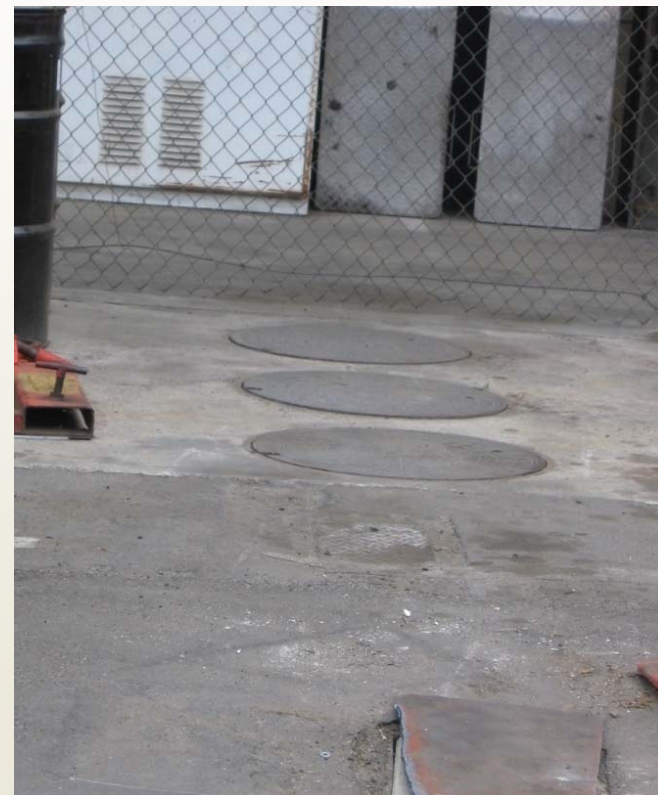
- ▶ Inspect and clean regularly.
- ▶ Record maintenance.



Oil Water Separator BMPs



- ▶ **Dispose or recycle collected oil.**
- ▶ **Dispose of grit properly (may be hazardous waste).**





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Discussion

What have you experienced?



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Municipal Facility Pollution Prevention Plan

Municipal Facility Pollution Prevention Plan



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SANTA ANA REGION
FACILITY POLLUTION
PREVENTION PLAN

Facility Name: _____

Address: _____

Contact Person: _____

Telephone No: _____

Prepared by: _____

Date: _____

Municipal Facility Pollution Prevention Plan



► Purpose

- To eliminate or reduce the discharge of pollutants from municipal facilities and activities
- To comply with NPDES Permit requirements to manage pollutant discharges from municipal facilities and activities



Municipal Facility Pollution Prevention Plan



- ▶ **Section 1**
 - ▶ Provides information on storm water regulations
- ▶ **Section 2**
 - ▶ Describes the facility covered by the MFPPP
 - ▶ Identifies the Pollution Prevention Team
 - ▶ Describes BMPs implemented at the facility



Municipal Facility Pollution Prevention Plan



- ▶ **Section 3**
 - ▶ Defines authorized and unauthorized non-storm water discharges
- ▶ **Section 4**
 - ▶ Describes activities conducted, potential pollutants, and measures to eliminate/reduce discharge of pollutants
- ▶ **Section 5**
 - ▶ Describes the Annual Facility/Activity Assessment

MFPPP Template



Pollution Prevention Plan	
Table 1. Permittee Facilities and Activities	
Type of Permittee Facility	Activities of Concern Conducted
Corporate Yards ¹	Loading, unloading, handling, and storage of animal wastes, anti-freeze, asphalt, batteries, chemicals, concrete, diesel wastes, emulsions, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water
Warehouses	Loading, unloading, handling, and storage of materials
Fire and Police Stations, including Fire Training Facilities	Loading, unloading, handling, and storage of materials
Hazardous Materials Storage Facilities ²	Loading, unloading, handling, and storage of materials
Animal Shelters	Loading, unloading, handling, and storage of materials
Swimming Pools	Storage and maintenance of materials
Water Treatment Facilities	Loading, unloading, handling, and storage of materials

Type of Permittee Facility	Activities of Concern Conducted
Corporate Yards ¹	Loading, unloading, handling, and storage of animal wastes, anti-freeze, asphalt, batteries, chemicals, concrete, diesel wastes, emulsions, fertilizer, fuel, green wastes, hazardous materials, new and used oil, paint products, pesticides, scrap metal, solvents, trash and debris, and wash water Filling of aboveground and underground storage tanks (ASTs and USTs) with fuels Dispensing of fuels to vehicles, equipment, and portable fuel containers Vehicle and equipment parking and storage Vehicle, equipment, and material washing and steam cleaning Leak and spill cleanup Landscape, garden, and general maintenance and cleaning
Warehouses	Loading, unloading, handling, and storage of materials Landscape, garden, and general maintenance and cleaning

¹ Corporate yards include equipment, transit maintenance, public works, fleet maintenance, and parts and recreation equipment yards.
² Includes household hazardous waste collection facilities.

MFPPP Template



Pollution Prevention Plan

2.0 SITE DESCRIPTION

2.1 FACILITY DESCRIPTION

The Facility Description describes the various facility types including locations and on-site activities.

Outdoor activities at the facility include:

Facility Type: _____

Facility Activities: _____

Facility Type: _____

Facility Activities: _____

Facility Type: _____

Facility Activities: _____

Facility Type: _____

Facility Activities: _____

2.1 FACILITY DESCRIPTION

The Facility Description describes the various facility types including locations and on-site activities.

Outdoor activities at the facility include:

Facility Type: _____

Facility Activities: _____

MFPPP Template



Surface runoff at the site generally flows _____.

The site map illustrates key features relevant to the stormwater drainage system and the activities conducted at a Permittee facility, including potential pollutant sources that may be exposed to precipitation, stormwater runoff, or non-stormwater discharges, drainage patterns (surface flow and storm drains), discharge locations, and structural control features. The site map for this facility is provided as Figure 1. The facility site map includes the following components and identifies the following features, as applicable:

Legend with:

- ◆ Facility Address
- ◆ Number of Acres
- ◆ List of buildings and uses
- ◆ % Impervious Cover
- ◆ North arrow
- ◆ Map scale (or N.T.S.)



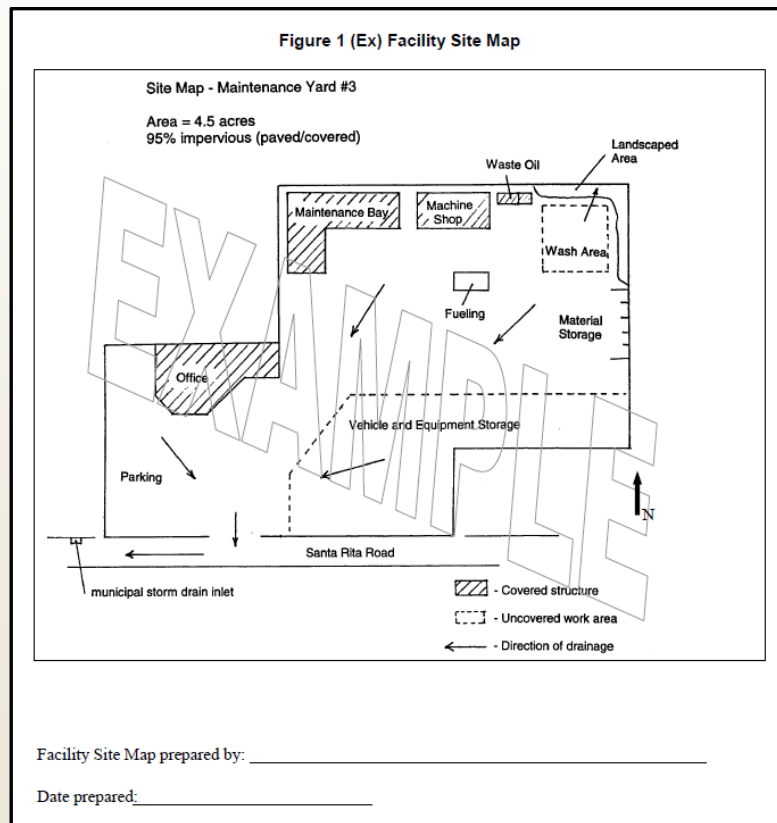
A graphical depiction and/or location of:

- ◆ Storm drain facilities and other outfalls (outfalls are point discharges to a surface water or storm drain)
- ◆ Drainage area of each outfall and direction of flow
- ◆ Structural stormwater pollution control measures (flow diversions, ponds, swales, sediment traps)
- ◆ Names of receiving water(s)
- ◆ Vehicle washing and fueling area(s)
- ◆ Soil and aggregate storage area(s)
- ◆ ASTs or USTs
- ◆ Outdoor chemical storage area(s)
- ◆ Waste storage/disposal area(s)
- ◆ Exposed significant materials
- ◆ Authorized Non-storm Water discharges
- ◆ Run-on from offsite area(s)
- ◆ Material transfer areas
- ◆ Vehicle, equipment, or machinery storage areas or permanent structural pads

MFPPP Template



Figure 1 (Ex) Facility Site Map



MFPPP Template



2.2 POLLUTION PREVENTION TEAM

The _____ (Title of Responsible Person) is responsible for implementing the PPP and for the administrative responsibilities associated with the PPP. Other facility personnel also have implementation responsibilities for the PPP as noted below.

Position(s):

_____ responsibilities include:

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

_____ responsibilities include:

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

_____ responsibilities include:

- ◆ _____

Municipal Facility Pollution Prevention Plan



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► Pollution Prevention BMPs

► The same BMPs we've talked about today.

- Material use
- Material storage
- Proper waste handling
- Spill prevention and response
- Training

► The MFPPP really brings it all together.



MFPPP Template



Table 2. Materials Handling and Storage BMPs

BMP Title _____:

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

BMP Title _____:

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____

BMP Title _____:

- ◆ _____
- ◆ _____



2.4 OTHER RELEVANT FACILITY PLANS

In addition to this PPP, other facility-specific environmental compliance plans that complement the goal of reducing and preventing pollutant discharges via a stormwater drainage system are listed in Table 5. Where these plans are located should also be identified.

Table 5. Other Facility Specific Environmental Compliance Plan(s)

- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____
- ◆ _____



2.5 TRAINING FOR FACILITY PERSONNEL

_____ (Title) is responsible for Stormwater Management training for staff at this facility.

Training related to stormwater management is provided on at least an annual basis to review specific responsibilities for implementing this PPP, what and how to accomplish those responsibilities, including BMP implementation. This training typically occurs in September shortly before the start of the rainy season (typically this is October 1st through May 30th).

Additionally, general awareness training is provided annually to all employees whose activities may impact stormwater discharges. The purpose of this training is to educate workers on activities that can impact stormwater discharges, and to help in the implementation of BMPs. All staff and contract pesticide and fertilizer applicators are required to have appropriate training, permits and certifications.

Training attendance sheets and any other training documentation is provided in Appendix B. The training records include name of instructor, date and time of training, location of training and training participants. The training records are kept for a period of no less than five years.



3.0 DEFINITION AND CATEGORIES OF NON-STORM WATER DISCHARGES

A non-storm water discharge is any discharge or flow to a storm water drainage system that is not composed entirely of storm water runoff. The 2010 MS4 Permit requires that the Permittees prohibit the discharge of Non-storm Water, including those from Permittee activities, into their respective MS4s and to the Waters of the U.S. unless the discharge is authorized by the 2010 MS4 Permit or regulated under a separate NPDES permit.

3.1 AUTHORIZED NON-STORM WATER DISCHARGES

The 2010 MS4 Permit (Section VI.A) provides that certain types of non-storm water discharges need not be prohibited unless they are identified as a significant source of pollutants.

Conditionally authorized non-storm water discharges include:

- a. Discharges composed entirely of storm water;
- b. Air conditioning condensate;
- c. Irrigation water from agricultural sources;
- d. Discharges covered by a NPDES Permit, WDRs, or waivers issued by the Regional Board or State Board;
- e. Discharges from landscape irrigation, lawn/garden watering and other irrigation waters. These shall be minimized through public education and water conservation efforts, as prescribed in Section XI.E of the 2010 MS4 Permit;
- f. Passive foundation drains;
- g. Passive footing drains;
- h. Water from crawl space pumps;



4.0 FACILITY ACTIVITIES AND MATERIALS, POTENTIAL POLLUTANTS AND ASSOCIATED BMPs

4.1 SIGNIFICANT MATERIALS

A number of materials are used or stored onsite. Table 6 summarizes these materials and how they are received or stored at the facility.

Table 6. List of Significant Materials

Material Name	Typical Quantity	Receiving and Shipping Location	Handling Location	Frequency
EXAMPLE: Acid	12 gal	Maintenance Shop	Maintenance Shop	Twice weekly
Acid				
Adhesives and sealants				
Aggregate				
Animal Wastes				
Asphalt				
Brake fluid				
Concrete				
Coolant (new)				
Coolant (used)				



4.2 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES AND ASSOCIATED BMPs

Table 7 briefly summarizes activities conducted at the facility, Potential Pollutant sources (including Significant Materials from Table 6), and the BMPs implemented for each activity.

Table 7 (Ex) gives examples to show the preparer the type of information that should be included. It is not all-inclusive. The developer of this PPP should review the Drainage Area Management Plan (DAMP) and CASQA Municipal Handbooks for additional BMPs. Table 7 (Ex) should be removed from the completed facility PPP.

As required by XIV.C.2 of the MS4 Permit, each Permittee must, at a minimum:

1. Ensure that staff and contractor pesticide and fertilizer applicators have appropriate training, permits and certifications;
2. Utilize integrated pest management measures that rely on non-chemical solutions, to the extent practicable;
3. Promote the use of native vegetation into facility landscaping;
4. Include schedules for irrigation and chemical application to the extent feasible; and
5. Collect and properly dispose of unused pesticides and fertilizers.
6. The following BMP fact sheets are identified as minimum BMPs:
 - a. SC-35/SC-61, Safer Alternative Products
 - b. SC-41, Building & Grounds Maintenance
 - c. SC-60, Housekeeping Practices
 - d. SC-73, Landscape Maintenance

MFPPP Template



Pollution Prevention Plan

Potential Source Control BMPs for Municipal Facilities and Activities

Activities	BMP References from Industrial & Commercial Handbook ⁽¹⁾																BMP References from Municipal Handbook ⁽²⁾																									
	SC-10	SC-11	SC-20	SC-21	SC-22	SC-30	SC-31	SC-32	SC-33	SC-34	SC-35 ⁽³⁾	SC-40	SC-41 ⁽³⁾	SC-42	SC-43	SC-44	SC-10	SC-11	SC-20	SC-21	SC-22	SC-30	SC-31	SC-32	SC-33	SC-34	SC-41	SC-43	SC-60 ⁽³⁾	SC-61 ⁽³⁾	SC-70	SC-71	SC-72	SC-73 ⁽³⁾	SC-74	SC-75	SC-76					
Material Loading/Unloading/Handling/Storage						X	X	X	X								X							X	X																X	
Waste Handling and Disposal	X								X									X	X									X														X
Filling of ASTs/USTs			X															X	X																							
Dispensing Fuel			X															X	X																							
Vehicle/Equipment Maintenance/Repair					X							X						X				X				X																
Vehicle/Equipment Parking and Storage								X										X		X														X								
Vehicle and Equipment Cleaning	X			X				X			X						X				X												X									
Leak and Spill Cleanup	X	X					X	X									X	X												X												
Construction														X																												
Landscaping, Garden, and General Maintenance and Cleaning	X										X	X	X	X	X	X	X											X	X	X	X	X	X	X	X	X	X	X	X	X		

Notes: (1) California Stormwater Quality Association, January 2003. California Stormwater Best Management Practice Handbook – Industrial and Commercial. <http://www.cakmehandbooks.com/> or CASQA, P.O. Box 2105, Menlo Park, California, 94026-2105.
(2) California Stormwater Quality Association, January 2003. California Stormwater Best Management Practice Handbook – Municipal. <http://www.cakmehandbooks.com/> or CASQA, P.O. Box 2105, Menlo Park, California, 94026-2105.
(3) These are minimum BMPs per Section XIV.C.6 of the 2010 MS4 Permit. Note not all of the minimum BMPs are applicable to all of the activities.



5.0 ANNUAL FACILITY OR ACTIVITY STORM WATER ASSESSMENT

An Annual Storm Water Assessment helps to assure that significant changes in facilities or activities are identified and can then be reflected in the PPP. The Annual Storm Water Assessment includes:

- ◆ Visual inspection of all potential sources of pollutants that may enter the storm water drainage system via storm water or Non-storm Water discharges;
- ◆ A review and assessment of all BMPs to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed; and
- ◆ Visual inspection of equipment needed to implement the PPP, such as spill response equipment, drip pans, brooms or vacuum sweepers, or containers for used absorbents.

The Annual Facility or Activity Storm Water Assessment should be documented:

- ◆ Identification of personnel performing the evaluation;
- ◆ The date(s) of the evaluation;
- ◆ Findings of the evaluation;
- ◆ Recommended modifications of the PPP;
- ◆ Schedule for implementing PPP revisions; and
- ◆ Any incidents of non-compliance and the corrective actions taken.

Following the evaluation, necessary revisions to the PPP are completed within 90 days. Blank assessment forms may be found in Appendix C. Completed Assessment forms are maintained in Appendix D. Table 8 is used to track annual assessments and track recommendations and corrective actions.

MFPPP Template



_____ (Facility)			
Facility Pollution Prevention Plan Annual Site/Activity Assessment			
1. Name of Building or Operation:	_____		
2. Operation Representative:	_____		
Position:	_____	Phone No.:	_____
	<u>Yes</u>	<u>No</u>	<u>Not Applicable</u>
3. Facility's PPP easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Awareness of PPP by facility personnel? (Random survey of employees of site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Facility's Emergency Response Plan easily accessible in each building?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Awareness of Emergency Response Plan by facility personnel? (Random survey of employees on site.) # Employees Surveyed _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Evaluation Checklist (page 2 of 2) completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was any storm water pollution prevention training conducted during the year?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Were Non-storm Water discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Were storm water discharge visual observations conducted? List Dates: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MFPPP Template



Assessment Checklist					
Activities – Check each activity present at the site.	Effectiveness Rating *				
	1	2	3	4	5
Vehicle and Equipment Fueling:					
1. Fueling area is designed to prevent run on of storm water and the runoff of spills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Employees are trained in proper fueling and cleanup procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Absorbent materials are used on small spills rather than hosing down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Daily inspections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Pump island is inspected regularly for spills and/or leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Equipment Washing/Steam Cleaning					
1. A designated wash area is used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The wash area is equipped with a clarifier and is connected to a sanitary sewer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The designated wash area is properly designed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The clarifier is cleaned regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Equipment Maintenance and Repair					
1. Maintenance is done in a designated area only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Equipment is kept clean, with no build-up of oil and grease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Drip pans and containers are used under areas that may drip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Used oil and oil filters, antifreeze, batteries, fluids, etc., are recycled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outdoor Loading/Unloading of Materials					
1. Delivery vehicles are parked so spills and leaks can be contained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The loading/unloading dock is covered to reduce exposure of materials to rain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The loading/unloading area is designed to prevent storm water run on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fork lift operators are properly trained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outdoor Container Storage of Materials					
1. Materials are covered to protect from rainfall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Materials are protected from run on and runoff of storm water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Waste dumpsters are covered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Hazardous materials are stored in a properly designed storage area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Municipal Facility Pollution Prevention Plan



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MFPPP Reviews

- ▶ Annual review required!
- ▶ Update MFPPP if review identifies changes in facilities, operations, or activities
- ▶ Facility/Activity Manager is responsible



Municipal Facility Pollution Prevention Plan



- ▶ Become familiar with the MFPPP
 - ▶ MFPPP is facility specific
 - ▶ Know the specifics of the plan for each facility where you work





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Questions and Answers