INTRODUCTION

The City of Encinitas Storm Water Pollution Control Manual has been put together to comply with the requirements of the Federal Clean Water Act-National Pollutant Discharge Elimination System Program (NPDES) and the San Diego County NPDES Permit No. 2001-01. The intent of these programs is to maintain and improve the quality and beneficial uses of our water resources. The widespread implementation of best management practices is regarded as one of the best solutions to achieving this goal. This manual provides detailed information on ways to implement best management practices in the City of Encinitas.

OVERVIEW

The City of Encinitas water resources-it's ocean, lagoons, wetlands, and creeks play an important role in the quality of life we enjoy. They provide us with recreation, support tourism, provide habitat to numerous species and provide open space enjoyment. These waters, however, are vulnerable to pollution from a number of human activities.

Many of our water pollution problems are due in large part to pollutants that are washed off from land by storms. Many people believe that storm water is "clean" and does not harm water quality. This perception is understandable since the amount of pollution from any one spot is not usually significant by itself. But when all these small amounts combine, they can cause big water quality problems downstream.

This manual applies to construction, commercial, industrial, municipal and construction activities that have the potential to contribute pollutants to runoff or directly to receiving waters. Storm water runoff may seep into the ground, drain into a storm drain, flow across parking lots but either way it eventually ends up in a creek, lagoon or ocean.

Contaminated storm water can negatively affect every water body it enters. Therefore, this manual provides detailed information on what we are all required to do to reduce the contamination of urban runoff (dry-weather) and storm water runoff (wet-weather) from our properties.

BACKGROUND

Storm Water Runoff

In open space areas rain water seeps into the ground. However, when rain falls on paved and other hard surfaces it runs off and is conveyed through the storm drain system directly to our creeks, lagoons and ocean. Storm water runoff although starting as rain, collects pollutants when it hits the ground and travels. For instance, runoff from parking lots picks up oil and grease dripped from cars, asbestos from worn brake linings and zinc from tires. Pesticides, herbicides, and fertilizers are washed off from landscaped areas, and soils are washed away from construction sites. Any substance found on the ground can wind up in storm water runoff.

Storm Drains Lead to Creeks, Lagoons and the Pacific Ocean

Storm drainage systems are designed to decrease the chance of flooding. The rainwater that used to seep into vegetated areas now must be collected and carried elsewhere. The storm drain system collects this storm water runoff and carries it to the nearest creek, lagoon and then the Pacific Ocean. The storm drain system is meant to only carry rainwater. By allowing oil,

antifreeze, detergents and other material to enter the storm drain system is the same as dumping directly into the creek, lagoon and ocean.

Storm Drains vs. Sewer Lines

In Southern California the storm drain system is separate from the sewer system. All gutters, parking lots and paved surfaces eventually transport pollutants to the waterways and Pacific Ocean. Therefore any litter, gas, fertilizers or sediment left on the surface of the ground will end up on the beach after a storm event. The sewer system is a closed system that directly transports waste from each household to the wastewater treatment plant.

Best Management Practices

Best Management Practices (BMPs) are defined as any program, technology, process, siting criteria, operating method, measure or device which controls prevents, removes, or reduces pollution. For instance;

- Source Control BMPs – are operational practices that prevent pollution by reducing potential pollutants at the source. They typically do not require maintenance or construction.
- Treatment Control BMPs – are methods of treatment to remove pollutants from storm water.

Sources of Pollutants

Many people know that it is illegal to dump toxic chemicals down a storm drain. But you are also polluting if you allow pollutants to be washed into a storm drain with storm water runoff or with wash water. For instance, you may be polluting if you:

- Allow wash water from engine or equipment washing to enter a storm drain
- Spill antifreeze or other material on your site without cleaning it up
- Clear land without taking steps to prevent erosion
- Allow pet waste to enter the storm drain system
- Hose off sidewalks and parking lots
- Clean the kitchens of restaurants into the storm drain system

Virtually anything on the ground surface can become a water pollutant.

Pollutants

Any substance that can render water harmful to people, fish, or wildlife or impair recreation or other beneficial uses of water is considered a pollutant. The categories of pollutants are identified below:

- Oils and Greases
- Metals – Industrial areas, paints, pesticides and automobile emissions and brakes pads.
- Sediments- Cleared construction sites, agricultural lands
- Oxygen-Demanding Substances – Food wastes, chemicals
- Nutrients- Fertilizers, animal wastes, detergents, lawn clippings
- Toxic Organic Compounds – Pesticides and PCBs
- Total/Fecal Coliform Enterococcus bacteria – Pet waste, fertilizers – This will close the beaches to recreational activities

This Best Management Practices Manual is designed for Commercial/Industrial, Municipal, Construction, and Residential practices throughout the City of Encinitas. Each category is unique in its ability to control urban runoff. This manual provides the minimum level of BMPs available to date. This field is changing rapidly therefore, any supplemental ideas or suggestions will be evaluated on a case by case basis.

Commercial/Industrial - Best Management Practices (BMPs)

The Commercial/Industrial section provides a description of minimum BMPs options for high priority categories. High priority commercial establishments included are:

- Automobile mechanical repair, maintenance, fueling or cleaning
- Equipment repair, maintenance, fueling, or cleaning
- Automobile and other vehicle body repair or painting
- Automobile parking lots and storage facilities
- Retail or wholesale fueling
- Pest control services
- Eating or drinking establishments
- Mobile carpet, drape or furniture cleaning
- Cement mixing or cutting
- Painting and coating
- Botanical or zoological gardens and exhibits
- Landscaping
- Nurseries and greenhouses
- Golf courses, parks and other recreational areas
- Pool and fountain cleaning

A. POLLUTION PREVENTION

The following pollution prevention principles apply to most commercial sites:

- Use smaller quantities of toxic materials or substitute less-toxic materials.
- Minimize the volume of cleaning water to decrease wastewater.
- Provide signage to remind or instruct employees and customers.
- Implement a spill response plan.
- Segregate and recycle wastes.
- Provide a schedule of preventive maintenance.
- Train employees in pollution prevention initially and then periodically as needed.

B. MINIMUM BMPs FOR HIGH PRIORITY COMMERCIAL FACILITIES

1. Non-Structural BMPs

Non-structural control BMPs consist of procedures and practices that prevent pollutants from entering the storm drain system. Because of their low cost and simplicity, source control BMPs should be considered first in the development of a facility's BMP program. Many of these methods already may exist as part of the standard operating procedures for a site:

A) Good Housekeeping Practices

Good housekeeping practices are designed to maintain a clean and orderly work environment. A clean work environment reduces the possibility of accidental spills caused by mishandling of chemicals or equipment and should reduce safety hazards to facility personnel. Good housekeeping measures are or will be implemented in an effort to prevent pollutants from entering storm water discharges.

- Information on good housekeeping practices should be distributed during employee training sessions.

- Good housekeeping measures should be discussed at employee meetings.

- Employees should be informed of activities that could potentially cause contamination of storm water and the importance of carefully conducting these activities in areas that do not discharge/drain to storm drains.

- Good housekeeping tips and reminders should be posted on employee bulletin boards.

B) Preventive Maintenance

Onsite equipment needs to be maintained in good working condition. The preventive maintenance program shall include regular inspections and testing of facility equipment. The storm water preventive maintenance program and BMPs shall expand the current preventive maintenance program to include storm water considerations.

C) Material Storage Practices

Hazardous waste and materials used shall be properly identified, handled, and stored; and instructions shall be given to all site personnel. Improper storage of these materials can result in accidental spills and the release of materials. Any underground or aboveground storage tanks shall be designed and managed in accordance with applicable regulations, be identified as a potential pollution source, and have secondary containment, such as a berm or dike with an impervious surface.

D) Material Inventory Procedures

Site personnel should maintain an up-to-date inventory of all hazardous materials and wastes used at the facility. Chemicals used at the facility should be handled with adequate precaution. Hazardous and toxic materials used at the site must be identified, quantified, and managed in compliance with federal, state, and local regulations. In addition, materials should be recycled, reclaimed, and/or reused to reduce the volume of materials brought into the facility when possible, and less toxic or non-toxic materials should be substituted for toxic materials.

E) Solid Waste Handling and Recycling

Waste disposal areas should be kept free of litter and debris. Waste receptacles must have a cover or lid to prevent the contents from being dispersed by the wind or coming in contact with storm water. All recyclable wastes such as batteries, solvents, waste oil and anti-freeze should be stored in a covered area that prevents contact with storm water.

F) Train Employees

Create a training manual and retain records of employees attending.

G) Spill Response Plan

Spills and leaks are one of the largest contributors of storm water pollutants. An effective plan shall have spill prevention and response procedures that identify potential spill areas, specify material handling procedures, describe spill response procedures, and provide spill clean-up equipment. The plan should take steps to:

- Identify and characterize potential spills
- Eliminate and reduce spill potential
- Respond to spills when they occur in an effort to prevent pollutants from entering the storm water drainage system.

H) Record Keeping

Record keeping and internal reporting represent good operating practices as they increase the efficiency of the facility and the effectiveness of BMPs. A good record keeping system facility minimizes incident recurrence, responds with appropriate cleanup activities, and complies with legal requirements.

A record keeping and reporting system shall be set up to document spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Spills and other discharges are to be reported in accordance legal requirements. Incident records describe the quality and quantity of non-storm water discharges to the storm sewer. These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

2. Structural BMPs

Structural BMPs consist of specialized equipment, structural components, or engineered technologies that can be used when source control BMPs are ineffective. Because structural BMPs are site specific, the facility operator needs to evaluate each proposed use. Proper installation and regular maintenance of structural BMPs are imperative to their effectiveness. Examples are as follows: (Appendix D)

- Overhead coverage of outdoor work areas or chemical storage;
- Retention ponds, basins, or surface impoundments that confine urban runoff to the site;
- Constructed wetlands
- Berms and concrete swales or channels that divert run-on and runoff away from pollutant sources;
- Secondary containment structures; and treatment controls, e.g., infiltration devices and oil/water separators, to reduce pollutants in storm water
- Biofilters
- Storm drain media inserts
- Divert to the sewer system.

3. BMP Standard

BMPs must be able to reduce pollutants in storm water runoff *to the maximum extent practicable*.

4. Designated High Priority Commercial Facilities

The following activities at high priority commercial sites must implement the BMPs addressed in the attached tables in Appendix A:

- Hazardous Material Storage (Table 1)
- Solid Waste Storage (Table 2)
- Loading/unloading of Significant Materials (Table 3)
- Vehicle Fueling (Table 4)
- Landscaping/grounds keeping (Table 5)

- Vehicle/Equipment Washing (Table 6)
- Cleaning and maintaining parking lots (Table 7)
- Outdoor Equipment Storage (Table 8)
- Cleaning and maintaining rooftops (Table 9)
- Wastewater Treatment (Table 10)
- Vehicle Maintenance (Table 11)

5. Hazardous Materials Management

Many commercial facilities handle hazardous materials during different stages of operation. All hazardous materials and hazardous wastes must be handled, stored, or disposed of as required by all applicable local, state, and federal regulations. For more information, facility operators should contact their County Hazardous Materials inspector or the County Hazardous Materials Division duty specialist at (619) 338-2231. Operators of plant (flora) production facilities (greenhouses and nurseries) and certain non-plant-production operations (golf courses, pest control services, botanical or zoological gardens, cemeteries, parks, and recreational facilities) should contact the County Department of Agriculture, Pesticide Regulatory Program, at (858) 694-3122 for information regarding the storage and handling of hazardous materials and wastes.

Municipal Program - Best Management Practices (BMPs)

This section provides a description of the goals and objectives, types of activities that have the potential to discharge pollutants, types of conveyances, potential pollutants and a list of potential BMP options for each minimum high priority category. Particular BMPs are not advocated and are presented here as recommended minimums.

Designated BMPs for Specific Municipal Activities/Areas

1. ROADS, STREETS, HIGHWAYS, and PARKING FACILITIES

A) Program Goal and Objectives

This program component is applicable to the Streets Department. The goal of this program is to ensure storm water pollution prevention practices are considered when conducting activities on or around these locations.

B) Potential Pollutant Generating Activities

- Vehicle Use
- Minor repairs
- Potholing
- Construction (placement of pedestrian ramps, sidewalks)
- Maintenance of drainage channels
- Repaving activities
- Washing
- Sweeping
- Degreasing
- Parking of Vehicles and Equipment

C) Possible Pollutants of Concern

- Heavy Metals-Brake linings 20
- Oils and Grease-leaking engines
- Herbicides-vegetation control
- Pesticides-animal control
- Paints-pavement painting
- Solvents-used when painting
- Battery Acid
- Anti-freeze-leaking radiators
- Litter
- Green waste-road side clipping, mowing
- Sediment-construction and moving of earth
- Detergents

D) Best Management Practices (BMPs)

Once potential and existing sources of storm water contamination have been identified, the next step is to select proper measures BMPs to eliminate or reduce pollutant loadings in the storm water discharges, and to prevent storm water from becoming contaminated with pollutants. These may include processes, procedures, and structural controls, and are selected to prevent contamination by stressing the importance of storm water management and employee awareness of potential pollutant sources. BMPs must be selected and implemented, where applicable, that are appropriate to prevent or mitigate pollution generated from the specific activities at the site.

a) Street Sweeping

Street sweeping is widely recognized as an effective method of reducing the amount of pollutants (litter, green waste, oils and grease and sediment) on street surfaces that may impact storm water. Trucks that collect the trash instead of pushing it around are the preferred alternative. The City uses two types of street sweepers depending on the type of debris to be removed. A broom sweeper is utilized to remove heavy silt and debris and a vacuum sweeper is utilized to collect litter and leaves. Both sweepers are in compliance with air quality requirements of Rule 1186. The frequency of street sweeping depends on traffic volume, arterial streets, such as Highway 101, and collector streets, such as Santa Fe Road, are swept weekly. Residental areas are swept monthly.

b) Litter Control

This program consists of street sweeping and removal of litter and debris from roadways, right-of-ways, drainage channels, parks and open space on an as-needed basis. Public Works crew initiate litter collection based on visual observations during routine maintenance activities, citizen complaints, and routine collection in areas of known debris accumulation. Litter is collected by Public Works crews and County Probation crews.

c) Roadway and Bridge Maintenance

The regular maintenance activities for roads and bridges may include, filling potholes, minor construction for sidewalks, and maintenance of drainage channels. To minimize the impact to storm water resulting from the maintenance of these facilities, the following BMP's are suggested;

- Repair potholes to reduce sediment loss and erosion.
- Be sure that all spare filling material on the road is collected.
- Conduct maintenance measures during dry weather
- Barricading drain inlets to reduce sediment or waste form entering the drain during maintenance and construction activities
- Storing materials away form conveyance systems.
- Constructing temporary onsite washout areas.
- Managing concrete cutting waste properly
- Inspect maintenance equipment for leaks.

d) Parking Surface Cleaning

Parking facilities are required to be cleaned on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions. If possible use dry cleaning methods to prevent the discharge of pollutants into the storm water conveyance system. Sweeping or vacuuming the parking facility is encouraged over any other method. If water is used to clean a parking facility the rinsate is not allowed to enter any storm water conveyance systems or receiving waters. Wash water should be directed toward the sanitary sewer or collected and discharged to a pervious surface. Seal storm drains with an impervious material before washing begins. Structural BMPs such as storm drain inlet filters can be very effective in reducing the amount of pollutants discharged from parking facilities during periods of rain.

e) Housekeeping Practices

Soapy water remaining in mop or wash buckets should be discharged to the sanitary sewer through a sink, toilet, clean-out or wash area with drain. Routinely sweep, shovel and dispose of litter in the trash. Use dry clean-up techniques for chemical or oil spills. (e.g. scatter absorbent on the spill, let it completely absorb then sweep it all up and dispose of it in the proper manner).

2. CORPORATE STORAGE YARDS FOR MATERIALS, WASTE, EQUIPMENT AND VEHICLE MAINTENANCE, PUBLIC BUILDINGS, LANDSCAPE AND RECREATIONAL FACILITIES

A) Program Goal and Objectives

Activities at these facilities may generate waste, spills or leaks that could reach the storm drain system and receiving waters. The goal of this program is to ensure storm water pollution prevention practices are considered when conducting activities at these municipal facilities. For the purposes of this program, a public vehicle maintenance facility is determined to be any City-owned or operated facility that conducts industrial activity, operates equipment, performs fleet vehicle maintenance on ten or more vehicles per day (this includes repair, maintenance, washing, or fueling), or performs maintenance or repair of heavy industrial machinery/equipment.

A material storage facility stores chemicals, raw materials, or waste materials in quantities that require a hazardous materials business plan or a Spill Prevention, Control, and Counter-measures (SPCC) plan.

B) Pollutants of concern and sources

At a minimum, the potential for the following pollutants shall be addressed:

- Waste oil,
- Scrap metal,
- Used antifreeze,
- Used oil filters,
- Oily rags or towels,
- Sediment,
- Sludge, and
- Normal refuse associated with daily operations.
- Nutrients
- Pesticides
- Herbicides
- Nutrients
- Bacteria
- Metals
- Oils and Grease

C) Best Management Practices (BMPs)

Once potential and existing sources of storm water contamination have been identified, the next step is to select proper measures (BMP's) to eliminate or reduce pollutants in storm water discharges, and to prevent storm water from becoming contaminated with pollutants. These may include processes, procedures, and structural controls, and are selected to prevent contamination by stressing the importance of storm water management and employee awareness of potential pollutant sources. BMP's must be selected and implemented, where applicable, that are appropriate to prevent or mitigate pollution generated from the specific activities at the site.

a) Good Housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. A clean work environment reduces the possibility of accidental spills caused by mishandling of chemicals or equipment and should reduce safety hazards to facility personnel. Good housekeeping measures are or will be implemented in an effort to prevent pollutants from entering storm water discharges.

- Information on good housekeeping practices should be distributed during employee training sessions.
- Good housekeeping measures should be discussed at employee meetings.
- Employees should be informed of activities that could potentially cause contamination of storm water and the importance of carefully conducting these activities in areas that do not discharge/drain to storm drains.
- Good housekeeping tips and reminders should be posted on employee bulletin boards.

b) Improved Operation and Maintenance

Establish proper operation and maintenance practices to ensure processes and equipment are working well to lead to a reduction of materials entering the environment. Review current maintenance activities, evaluate if the maintenance efforts can directly or indirectly contribute pollutants to receiving waters, revise procedures or adopt additional BMPs as necessary to reduce the contribution of pollutants to receiving waters during maintenance activities, and educate employees on revised procedures.

c) Material Storage Practices

Hazardous waste and materials used shall be properly identified, handled, and stored; and instructions shall be given to all site personnel. Improper storage of these materials can result in accidental spills and the release of materials. Any underground or aboveground storage tanks shall be designed and managed in accordance with applicable regulations, be identified as a potential pollution source, have secondary containment, such as a berm or dike with an impervious surface.

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e) Preventive Maintenance

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f) Spill Prevention and Response

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