

Commercial Manual

1 Introduction

This *Commercial Urban Runoff Requirements Manual* (Manual) details requirements of regulated commercial businesses, which were developed by the City of San Marcos (City) as part of the City's Jurisdictional Runoff Management Program (JRMP).



1.1 How to Use this Manual

This Manual is provided to assist businesses in complying with the City's Urban Runoff Management and Discharge Control Regulations. Information is provided to assist businesses in determining their applicability to the City's requirements and it details the requirement that applicable businesses must comply with.

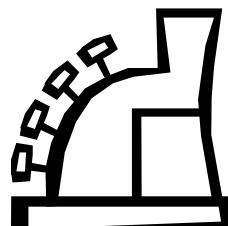
1.2 What is Urban Runoff and Stormwater?

The terms, urban runoff and stormwater, are commonly used in discussions about the quality of water in urbanized areas. These terms are often used interchangeably and, therefore, are confusing. Urban runoff refers to water that originates in urbanized areas. Sources of urban runoff include precipitation, industry discharges, leaks, washing, irrigation, and natural springs. Stormwater refers to water generated from precipitation during a storm event. However, in some cases inconsistent with its definition, stormwater is used to refer to or to include urban runoff not exclusively resulting from precipitation. Inversely, the definition of non-stormwater is water that is not the direct product of storm precipitation such as water from industry discharges, leaks, washing, irrigation, and springs. Therefore, urban runoff is composed of both stormwater and non-stormwater.

Regardless of the terminology, water located in urbanized areas and the quality of that water is of the utmost importance. The water in urbanized areas drains to the creeks, lakes, lagoons in the City, and ultimately to the ocean. Many people recreate and fish in these waters, and still others enjoy the plants and wildlife that these aquatic habitats support. All water used in the homes and businesses in the City drain to the creeks, lakes, and the ocean. Spills, trash, and pollutants wash from properties and roads into the public drainage system, which flows directly to these water bodies.

2 Requirements of Businesses

This Manual establishes BMP requirements for owners, operators and property managers of businesses and properties throughout the City. These requirements apply to any facility or entity (or activity, e.g., mobile business) engaged in business or commerce within the limits of the City, whether for profit or not-for-profit, or publicly or privately owned.



Residences within the City are also included in this definition if they are used for Regulated Commercial Activity, unless those activities are conducted by the resident and exclusively for the private non-commercial purposes of the resident. Regulated Commercial Activity is any activity conducted for the purposes of business or commerce within the limits and extraterritorial jurisdiction areas of the City, whether conducted for profit or not-for-profit, or publicly or privately owned. Some activities subject to these requirements (mobile car washing, pool and fountain cleaning, etc.) are conducted at various locations. For this reason, businesses may include both the facility at which a business is located and/or the locations at which operations or activities are conducted.

2.1 Submittal Requirements

All businesses must submit a complete and accurate Urban Runoff Information Form with a business license application for a new or renewal license. Businesses shall also provide an update to the City if information requested on the form changes. Updates should be provided by filling in those areas of the form for which information has changed and submitting the form to the City's Business License administration personnel. The form is available at the City's Finance Office and on the City's website.

2.2 General Requirements

Businesses are required to comply with two interrelated sets of directives; (1) compliance with applicable discharge prohibition requirements, and (2) implementation of BMPs to prevent non-stormwater discharges and to reduce contaminants in urban runoff. Regardless of their categorization, all businesses are subject to the applicable BMP requirements summarized in this section. Failure to comply with applicable discharge prohibitions is a violation of the San Marcos Municipal Code and may be considered evidence of an inadequate BMP program, although BMPs can also be determined to be inadequate prior to the occurrence of actual discharges.

2.2.1 Discharge Prohibitions

The City prohibits all non-stormwater discharges (NSWDs) unless a discharge is authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit or qualifies as a conditional discharge. Non-stormwater discharges are runoff flows from any type of activity other than weather caused precipitation or naturally occurring groundwater. NSWDs also includes pollutants transported by weather caused precipitation. Typical non-stormwater discharges include, but are not limited to discharges from:

- Irrigation Runoff
- Washing Activities, including hosing and power-washing sidewalks, plaza areas, driveways, etc.
- Vehicle Washing
- Equipment Washing
- Air Conditioning Condensation
- Sanitary Sewer Overflows

Without exception, discharges of both stormwater and non-stormwater to the Stormwater Conveyance System¹ or Receiving Waters² are prohibited if the discharge contains pollutants that have not been reduced to the Maximum Extent Practicable (MEP)³. This prohibition establishes a general BMP standard that must be met by all dischargers⁴ prior to the occurrence of stormwater or allowable non-stormwater

¹ System which collects runoff from streets, rooftops, driveways, parking lots, and other impervious areas and flows directly to beaches and bays without receiving treatment.

² A river, ocean, stream, or other water course into which wastewater or treated effluent is discharged.

³ The MEP standard involves applying best management practices that are effective in reducing the discharge of pollutants in stormwater runoff

⁴ All businesses or commerce within the limits and extraterritorial jurisdiction areas of the City which have the potential to discharge into Receiving Waters

discharges. In essence, it requires the application of BMPs to prevent discharges that would otherwise be in violation of the Stormwater Ordinance⁵.

2.2.2 Conditional Non-Stormwater Discharges

The following categories of non-stormwater discharges are conditionally allowed by the City if the discharge meets the criteria described below. If a discharge does not meet the criteria, then it is prohibited by the City.

2.2.2.1 Discharges Associated with Separate NPDES Permit

The RWQCB may permit a discharger to discharge water to the City's MS4, as long as the City does not determine that the discharge is a source of pollutants. For scheduled discharges, the discharger shall notify City Staff at least 30 days prior to the scheduled date of discharge.

Pumping and Groundwater

The following non-stormwater discharges are allowed if the discharge has coverage under NPDES Permit No. CAG919002 (Order No. R9-2008-0002):

- Uncontaminated pumped ground water
- Discharges from foundation drains (i.e., If the system is located at or below the groundwater table to extract groundwater)
- Water from crawl space pumps
- Water from footing drains

Water Line Flushing and Breaks

The City considers non-stormwater discharges associated with water line flushing or breaks as an illicit discharge, unless the discharge has coverage under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003 or subsequent order). In addition, discharges from recycled or reclaimed water lines are illicit, unless covered under a separate NPDES Permit.

2.2.2.2 Discretionary Discharge

The following discharges are not prohibited unless they are identified by the City or the RWQCB as pollutant sources to Receiving Waters:

- Diverted stream flows
- Rising ground waters
- Uncontaminated ground water infiltration to MS4s
- Springs
- Flows from riparian habitats and wetlands
- Direct discharges from potable water sources
- Direct discharges from foundation drains
- Direct discharges from footing drains

2.2.3 BMP Implementation

As previously indicated, for all discharges of stormwater and non-stormwater to the City's MS4 or Receiving Waters, pollutants must be reduced to the MEP.

⁵ Law, rule, or regulation created by the City to regulate stormwater dischargers.

MEP is a standard that is commonly used by the RWQCB in requiring BMP implementation for municipalities. In general, it is defined as the implementation of all effective, technically and economically feasible BMPs. The BMPs that are generally emphasized to meet MEP are pollution-prevention and source-control BMPs that are proactive BMPs. This means they are implemented to avoid discharging or to avoid pollutants ever mixing with a stormwater discharge. Treatment BMPs are then implemented, when appropriate, to serve as backups to remove any pollutants from discharges.

Because discharges are prohibited unless MEP is achieved, this general BMP standard must be met by all dischargers in the City, including businesses. In general, a discharger can be generalized as any person or entity engaged in activities or operations, or owning or operating facilities that are exposed to precipitation that drains to the City's MS4 or Receiving Waters, or that discharges any other waters or materials to the City's MS4 or Receiving Waters. Therefore, basically if you own, rent, or operate any property in the City, or if you conduct any activities outdoors within the City, you are most likely a discharger.

To assist dischargers the City has developed minimum BMP requirements. These requirements are standards themselves and dischargers are required to implement, at a minimum, these BMPs or equivalent measures, methods, or practices. The City recognizes that the proper selection of BMPs depends on numerous factors that are specific to individual sites and activities, and therefore does not advocate or require the use of particular practices. Rather, the City has established these minimum BMP standards that the City has determined are the minimum necessary measures to prevent discharges of pollutants to its Stormwater Conveyance System (including streets, curbs, gutters and channels) and Receiving Waters. The sole responsibility for selecting and implementing BMPs that are adequate to comply with the requirements of the Ordinance and this Manual lies with the discharger. Therefore, the discharger may select which BMPs are appropriate to implement, in order to meet the City's minimum BMP requirements. Furthermore, if MEP has not been met by meeting the minimum BMP requirements prescribed by the City, the discharger must implement additional BMPs until MEP is achieved.

The City may require the application of specific BMPs, additional BMPs, and/or structural controls, in addition to the minimum BMP requirements for a discharger or a group of dischargers, if MEP has not been met.

The remainder of this Manual provides the City's minimum BMP requirements to assist regulated commercial businesses and activities in meeting the MEP standard.

2.3 BMP Requirements for All Dischargers

The following are BMP requirements for all discharges in the City. Each discharger, and therefore, all regulated commercial businesses and activities, is required to implement these BMPs, or equivalent measures, methods, or practices.

Eroded Soils

Prior to the rainy season, dischargers must remove or secure any significant accumulations of eroded soils from slopes previously disturbed by clearing or grading, if those eroded soils could otherwise enter the Stormwater Conveyance System or Receiving Waters during the rainy season. Pollution Prevention Dischargers shall implement those stormwater pollution prevention practices that are generally recognized in that discharger's industry or business as being effective and economically advantageous.

Prevention of Illicit Connections

Illicit connections must be eliminated (even if the connection was established pursuant to a valid permit and was legal at the time it was constructed), and illegal discharge practices eliminated. Illicit connections, typically include interior drains that flow to the outside.

Slopes

Completed slopes that are more than five feet in height, more than 250 square feet in total area, and steeper than 3:1 (run-to-rise) that have been disturbed at any time by clearing, grading, or landscaping, shall be protected from erosion prior to the first rainy season following completion of the slope, and continuously thereafter.

Storage of Materials and Wastes

All materials and wastes with the potential to pollute urban runoff shall be stored in a manner that either prevents contact with rainfall and stormwater, or are stored in a manner to capture and treat contaminated runoff prior to proper disposal.

Use of Materials

All materials with the potential to pollute urban runoff (including but not limited to cleaning and maintenance products used outdoors, fertilizers, pesticides and herbicides, etc.) shall be used in accordance with label directions. No such material may be disposed of or rinsed into Receiving Waters or the Stormwater Conveyance System.

3 Minimum Requirements for all Regulated Commercial Businesses

This section requires basic minimum BMPs that are applicable to all businesses unless otherwise noted. The purpose of this section is to establish a baseline of reasonable, achievable, “common sense” standards that must be met by all businesses. Additional, more prescriptive BMPs are provided in the following sections of this Manual.

The following BMP requirements described in this section, are applicable to all businesses:

- Employee Training
- Stormwater Management Plans (SWMPs) and Stormwater Pollution Prevention Plans (SWPPPs)
- Storm Drain Stenciling and Signing
- Annual Review of Facilities and Activities
- Pollution Prevention
- Hazardous Materials Management
- Vehicles and Equipment
- Outdoor Areas
- Good Housekeeping
- Preventative Maintenance

For a detailed discussion explaining BMP implementation requirements, refer to the sections that follow.

3.1 Employee Training

Each Regulated Commercial Business is required to implement these BMPs, or equivalent measures, methods, or practices.

- Regulated Commercial Businesses shall provide training at least annually to all employees with responsibility for the design, selection, implementation, and/or maintenance of BMPs. Integration with other existing training programs is encouraged.
- Documentation of training shall be maintained onsite at the location(s) where operations or activities are conducted, and shall be provided on request to any authorized representative (City, County and/or State).
- Training shall be adequate to ensure compliance with the standards established in this Manual and the San Marcos Municipal Code. Continued or significant non-compliance with any condition of this Manual or the San Marcos Municipal Code may be deemed evidence of an inadequate employee-training program.

Get Involved – Join industry and trade associations and sign up for industry publications in order to stay abreast of innovative and cost effective procedures and practices to protecting urban runoff.

BMP Description

Employee training is a crucial component of urban runoff quality protection as it informs all personnel of a business on the components and goals of urban runoff rules and practices. Employee-training programs should at a minimum address the following topics:

- Good Housekeeping
- Preventative Maintenance
- Spill Prevention and Response or Spill Management Program (SMP)
- Material Management Practices.
- Waste handling and waste management.

It is advisable that all elements of the business's BMP program be included in employee training. Training needed for BMP implementation can be easily combined with safety meetings and other forms of employee training typically already in place.

The following are guidelines for building an 'employee-training program':

Good Housekeeping. Training sessions should stress the importance of a clean and orderly work environment for the prevention of urban runoff contamination. Items of focus are as follows:

- Fully discuss the various components of BMP implementation such as routine inspections, clean ground surfaces, waste disposal, equipment, etc.
- Discuss updated procedures and report on the progress of practicing good housekeeping at every meeting.
- If applicable, provide instruction on manual operation of valves, drums, and containers and frequency of checking these devices for leaks and spills.
- Outline a regular schedule for housekeeping activities to allow the determination of progress being made.
- Conduct routine site inspections to evaluate the effectiveness of current good housekeeping BMPs (i.e. practices, routines and procedures).

Preventative Maintenance. The maintenance program needs to be continually reviewed and updated by employees responsible for these activities. Responsible employees should be trained to fully understand and implement the procedures of preventive maintenance measures.

- Conduct routine site inspections to evaluate the effectiveness of current preventative maintenance BMPs (i.e. practices, routines and procedures). Details of recommended inspections and frequencies are provided later in this Manual.

Spill Prevention and Response. All employees of a business must understand what to do if a spill occurs. The following items should be focused upon during initial employee training and subsequent refresher courses:

- Stress the importance of quickly and completely cleaning up spilled materials. All employees of a business should be educated to understand that when spilled materials are left to enter the soil or to coat impervious surfaces, spill areas can pollute subsequent stormwater runoff and harm Receiving Water quality.
- Make clear the location and usage of spill response and grounds maintenance equipment. Example equipment includes brooms, vacuums, sorbents, foams, neutralizing agents, etc.
- Identify potential spill materials, locations and drainage paths. Discuss past spills and causes. By understanding the likely spill types, locations and the drainage routes along which the spilled materials will move, employees will gain an appreciation of the nature of the urban runoff pollution problem and can better react to accidents.
- Stress the need to report spills to the appropriate individuals within the business, and authorities if applicable by regulations. Such action must be strongly encouraged, not discouraged, by the site managers to cut costs on wasted materials and to protect the environment.
- Specify material handling procedures and storage requirements, especially on potential pollutants that might be exposed to rainfall. Employees should know the ramifications of improper handling procedures.
- Train employees and frequently review the spill response procedures. Spill response procedures are only useful if fully understood by the employees.
- Encourage employees to suggest and discuss improved methods of materials handling and transfer that further minimize the risk of future spills.
- Train employees on additional applicable State and Federal spill management and reporting requirements.

Materials Management Practices. The nature, handling, and storage of materials capable of impacting water quality should be well understood by all employees of a business.

- Identify the type and location of all toxic and hazardous substances stored, handled, and produced onsite.
- Detail major groups of significant materials that may impact water quality. In order for a business to prevent urban runoff pollution, the potential for damage to water quality and the ecosystem must be well understood and appreciated by the employees. By heightening awareness of potential problems, steps taught to stop water pollution will be treated not as an exercise but as an important step toward maintaining a well-run facility.
- Discuss handling procedures for significant materials.
- Note the need to neatly organize materials for storage.
- Stress the requirement to prohibit unpermitted, non-stormwater discharges into the Stormwater Conveyance System and Receiving Waters.
- Discuss the importance of understanding where and how materials can be stored in order to protect urban runoff and stormwater.

Discussions of these issues should be routine at employee meetings. It is recommended that all BMPs implemented for a business should be discussed at employee meetings on a monthly basis. Overall employee buy-in and ownership is a critical first step in a successful stormwater management program.

3.2 Stormwater Management Plans (SWMPs) and Stormwater Pollution Prevention Plans (SWPPPs)

Each Regulated Commercial Business is required to implement these BMPs, or equivalent measures, methods, or practices.

- The development and implementation of SWPPPs is encouraged, but not required, for Regulated Commercial Businesses.

BMP Description

SWPPPs are an important tool for planning, implementing, and demonstrating compliance with BMP requirements. SWPPPs are encouraged, but not required, for Regulated Commercial Businesses. SWPPPs may, however, be required for facilities where MEP has not been met, for those demonstrating significant or continued noncompliance, or those determined to be a significant source of pollutants. It is recommended that SWPPPs for Regulated Commercial Businesses should be modeled after the applicable required elements for SWPPPs as provided under the State Water Resources Control Board's Industrial General Permit. This permit and accompanying documentation can be downloaded from the State Water Resource Control Boards website at the following address:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.shtml

Businesses are responsible for demonstrating compliance with all applicable provisions of the San Marcos Municipal Code and this Manual, regardless of whether or not a SWPPP is utilized.

3.3 Storm Drain Stenciling and Signing

Regulated Commercial Businesses are required to implement these BMPs, or equivalent measures, methods, and / or practices.

- The use of placards or other labeling methods of storm drain inlets is required for Regulated Commercial Businesses.

BMP Description

Storm drain placards and stenciling are highly visible source controls that are typically placed directly on or adjacent to storm drain inlets. They contain a brief statement that prohibits the dumping of improper materials into the Stormwater Conveyance System. Graphical icons, either illustrating anti-dumping symbols or images of Receiving Water fauna, are effective supplements to the anti-dumping message. Naming the Receiving Water also has proven to increase the effectiveness of this signage by making it more personal (i.e., "No Dumping! Flows to the Ocean").

The City does not prefer the use of storm drain stenciling because stencils are generally less durable than other methods of labeling. In contrast, more permanent methods such as tiles or imprints require little maintenance and are legible for many years.

3.4 Annual Review of Facilities and Activities

The purpose of this requirement is to actively engage dischargers in the identification and elimination of connections and practices that might otherwise lead to discharge violations. This is especially important

for facilities and activities not subject to routine inspection by City staff. Businesses are required to implement these BMPs, or equivalent measures, methods, or practices.

- Business shall review their facilities, activities, operations, and procedures at least annually to detect illicit connections and illegal discharges.
- Illegal connections, as defined in San Marcos Municipal Code, must be eliminated (even if the connection was established pursuant to a valid permit and was legal at the time it was constructed), and illegal discharge practices eliminated.
- Corrective training shall be provided as needed (and documented in training records) whenever an illegal disposal practice is discovered.
- All businesses shall review their facilities, activities, operations, and procedures, as determined necessary, to ensure adequate BMP implementation.

BMP Description

Visual inspections are crucial to preventing or identifying problems in a timely manner. Qualified facility personnel should be identified to inspect designated equipment and areas of the facility at appropriate intervals. An inspection schedule should be developed and kept up-to-date.

Thorough periodic inspections must be conducted to ensure adequate BMP implementation and compliance with requirements. The Stormwater Conveyance System, detention and treatment systems, the loading and unloading areas, the materials and products storage areas, and the equipment maintenance and washing areas, if applicable, should be inspected on a quarterly basis during the dry season (May 1 to September 30) and on a monthly basis during the rainy season of the San Marcos area (October 1 to April 30).

Areas contributing to stormwater discharge within a facility should be visually inspected for evidence of, or the potential for, pollutants entering the drainage ways. Measures to reduce pollutant loadings shall be inspected and evaluated to determine whether they are still adequate and functioning properly. All drainage facilities should be inspected to ensure that they are fully operational and well maintained. An inspection of equipment needed to implement the BMPs, such as spill response equipment, should also be conducted.

Based on the results of the inspection, potential pollutant sources should be identified and the necessary pollution prevention measures and controls should be implemented in a timely manner.

3.5 Pollution Prevention

Businesses are required to implement these BMPs, or equivalent measures, methods, or practices.

- Business shall implement those urban runoff pollution prevention practices that are generally recognized in that discharger's industry or business as being effective and economically advantageous.

BMP Description

Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants. Recycling, use of different types of products or chemicals, and altering operational procedures are all types of pollution prevention practices that can reduce the amounts of pollutants generated by a business. Under many circumstances, those pollution prevention practices that are commonly implemented for a certain industry or type of business can provide benefits to the business in addition to pollution prevention, such as cost savings or operational efficiency.

3.6 Hazardous Materials Management

Regulated Commercial Businesses are required to implement these BMPs, or equivalent measures, methods, or practices.

- The following conditions apply to the storage, management, and disposal of hazardous materials at Regulated Commercial Businesses:
 - Hazardous materials and wastes shall be stored, managed, and disposed in accordance with applicable federal, state, and local laws and regulations.
 - Hazardous materials must be stored off the ground in a secondary containment device on paved surfaces. Where practicable, overhead coverage shall be provided for all outside hazardous materials or waste storage areas. If overhead coverage is not available, stored materials shall be covered with an impervious material (e.g., a tarp).
 - Drums and other containers shall be kept in good condition, and shall be kept securely closed when not in use.
 - Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and all employees involved in the storage, management, or disposal of hazardous materials or wastes must be trained in their proper use.
 - Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety.
 - All spills that could reach storm drains, the sanitary sewer, rivers, lakes, streams, coastal waters and other ambient water bodies must be reported immediately to the City and other appropriate agencies, which may include the RWQCB and the U.S. Environmental Protection Agency (EPA) regional offices.
 - If a container containing a hazardous material is cracked and /or broken then it should be replaced immediately pursuant to federal and state regulations.
 - All hazardous materials present in each facility should be clearly labeled. All hazardous materials containers should be labeled to show significant information such as the name and type of the substance, health hazards, suggestions for handling, and first aid information. When applicable the information must be consistent with the Safety Data Sheet (SDS) for each substance. All materials requiring special handling, storage, use, and disposal should be clearly marked as such. Proper labeling as noted above must include the following under the Globally Harmonized System (Hazcom 2012):
 - Section 1: Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
 - Section 2: Hazard(s) identification includes all hazards regarding the chemical; required label elements.
 - Section 3: Composition/information on ingredients includes information on chemical ingredients; trade secret claims.
 - Section 4: First-aid measures includes important symptoms/effects, acute, delayed; required treatment.
 - Section 5: Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.
 - Section 6: Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

- Section 7: Handling and storage lists precautions for safe handling and storage, including incompatibilities.
 - Section 8: Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
 - Section 9: Physical and chemical properties lists the chemical's characteristics.
 - Section 10: Stability and reactivity lists chemical stability and possibility of hazardous reactions.
 - Section 11: Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
 - Section 12: Ecological information*
 - Section 13: Disposal considerations*
 - Section 14: Transport information*
 - Section 15: Regulatory information*
 - Section 16: Other information: Includes the date of preparation or last revision and any other pertinent information.
- The following conditions apply to the storage of solid waste at Regulated Commercial Businesses:
 - Trash storage and disposal areas shall be kept clean and free of debris. It is recommended that landscape maintenance contracts include a proviso that stipulates that landscape maintenance personnel perform weekly refuse / recycling storage area cleanings.
 - Dumpsters and other containers shall be maintained in good condition, and shall be kept securely closed when not in use (i.e. loading and servicing)
 - Materials and equipment necessary for the cleanup of trash and debris shall be maintained and kept readily accessible.
- The following conditions apply to the loading and unloading of materials with pollution potential at Regulated Commercial Businesses:
 - Where practicable, loading/unloading of materials shall only be allowed in designated areas.
 - Spills and leaks shall be promptly cleaned up and the generated wastes disposed of properly.
 - Loading/unloading areas shall be periodically inspected, and accumulations of debris, litter, waste, or other materials removed.
 - Materials and equipment necessary for spill response shall be maintained and kept readily accessible and all employees conducting loading/unloading activities trained in their proper use.
 - Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety. Please note that other regulatory reporting requirements exist based upon the type and quantity of material spilled regardless of whether or not it makes its way to the Stormwater Conveyance System or Receiving Waters.

- All spills that could reach storm drains, the sanitary sewer, rivers, lakes, streams, coastal waters and other ambient water bodies must be reported immediately to the City and other appropriate agencies, which may include the RWQCB and the U.S. Environmental Protection Agency (EPA) regional offices.
- Lastly, determine the cause of the spill and assess what preventative and / or corrective measures can be put in place to prevent the same from recurring.

BMP Description

Spill of liquid or solid materials onto ground surface poses great risk to urban runoff quality. Spills are most likely to occur during the transportation, loading, and unloading of materials or products in and out of a facility. To reduce the risk of having a spill, all personnel involved with any stage of transportation, loading, and unloading activities must be trained in preventative measures to avoid spills and in spill response procedures in the event of an accident. The City suggests the implementation of the following steps:

- Potential Spill Areas. The loading/unloading areas have the highest potential for spills that may contaminate Urban Runoff. The potential for spills in these areas should be thoroughly discussed in employee meetings and training sessions.
- Material Handling Procedures and Storage. Only personnel trained and qualified to load and unload materials should be allowed to do so. All raw materials, intermediate products, finished products, byproducts, and waste products should be stored properly to avoid any potential accident or spill that could impact stormwater and/or ambient water quality.
- Spill Response Procedures and Equipment. Where appropriate, a business should develop and implement a set of procedures to be followed in the event of a spill. The development should include a chain of command and a set of notification, response, and clean-up procedures. A group of personnel should be organized and trained to respond to a spill. Equipment needed to handle the spill should be operational and available. Personnel responsible for spill response should be trained on the operation of the equipment.
- Documentation. All significant spills and leaks should be documented to aid the facility operator in examining existing spill prevention and response procedures and in developing any additional procedures necessary to prevent future spills.

3.7 Vehicles and Equipment

Regulated Commercial Businesses are required to implement these BMPs, or equivalent measures, methods, or practices.

- The following conditions apply to the fueling of vehicles and equipment at Regulated Commercial Businesses:
 - Precautions shall be taken to prevent spills and leaks during fueling activities.
 - Signs denoting “Do Not Top Off” must be posted at every fueling location pursuant to State regulations.
 - Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and staff conducting fueling activities should be instructed in their proper use.
 - Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety.

- All spills that could reach storm drains, the sanitary sewer, rivers, lakes, streams, coastal waters and other ambient water bodies must be reported immediately to the City and other appropriate agencies, which may include the RWQCB and the U.S. Environmental Protection Agency (EPA) regional offices.
- The following conditions apply to the maintenance and repair of vehicles and equipment at Regulated Commercial Businesses:
 - Precautions shall be taken to prevent spills and leaks during maintenance and repair activities.
 - Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and staff conducting maintenance and repair activities should be instructed in their proper use.
 - Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety.
 - All spills that could reach storm drains, the sanitary sewer, rivers, lakes, streams, coastal waters and other ambient water bodies must be reported immediately to the City and other appropriate agencies, which may include the RWQCB and the U.S. Environmental Protection Agency (EPA) regional offices.
- The following conditions apply to the washing of vehicles and equipment at Regulated Commercial Businesses:
 - Storm drain inlets located within or down gradient of wash areas shall be covered or otherwise protected to prevent the entry of washwater or rinse water.
 - Where practicable, the introduction of pollutants (soaps, degreasers, etc.) to washwater shall be reduced or eliminated.
 - The discharge or disposal of untreated washwater to the Stormwater Conveyance System or Receiving Waters is prohibited.
 - All State mandated water conservation measures and regulations must be adhered to.

BMP Description

Washwater should be recycled or reused when possible to reduce waste quantities. Depending on quantities generated, untreated washwater may be disposed of to the sanitary sewer or to licensed sewerage disposal facilities. If washwater is to be disposed of to the sanitary sewer, Vallecitos Water District should be contacted first for approval. Untreated washwater of appropriate quantities that does not contain high levels of pollutants may also be disposed of through infiltration, such as by watering landscaped areas.

- The following conditions apply to the outdoor storage of equipment at Regulated Commercial Businesses:
 - Drip pans or other methods of spill containment shall be used to prevent the discharge of materials to the Stormwater Conveyance System or Receiving Waters.
 - If it is determined that a piece of equipment and / or vehicle is leaking, then a “drip pan” must be placed under the source of the leak immediately. Repairs must be implemented within 72 hours of discovery under State regulations.

- Materials and equipment necessary for spill response shall be maintained and kept readily accessible.
- Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety.

3.8 Outdoor Areas

Regulated Commercial Businesses are required to implement these BMPs, or equivalent measures, methods, or practices.

- The following condition applies to rooftop areas at Regulated Commercial Businesses:
 - Materials that may contaminate stormwater shall not be stored on rooftops unless adequate precautions have been taken to prevent their contact with precipitation and stormwater.
- The following conditions apply to parking areas at Regulated Commercial Businesses:
 - Parking areas shall be periodically cleaned using dry methods (manual sweeping, street sweepers, etc.). Wet methods shall only be used where adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters. If wet methods are used for cleaning purposes then State water conservation regulations must be adhered to.
 - Prior to any improvement or expansion project, parking areas designed to accommodate 100 or more vehicles shall be evaluated to determine the feasibility of installing structural devices, including treatment controls⁶. Such devices shall be installed if practicable. Installed controls shall be inspected and maintained as necessary to ensure their continued proper functioning. Note that the expansion of paved surfaces (i.e. impervious surfaces) at a facility may require the installation of required post construction treatment controls in conformance with the City's Water Quality Improvement Plan and City approval.
- The following conditions apply to landscaping and grounds keeping conducted at Regulated Commercial Businesses:
 - Precautions shall be taken to prevent spills, leaks, and over application of chemical products during landscaping and grounds keeping activities.
 - Precautions shall be taken to prevent over irrigation of landscaped areas.
 - Pesticides, herbicides, fertilizers, and other chemical products shall be used in accordance with label directions and in conformance with all California Department of Pesticide Regulations, the EPA and U.S. Fish and Wildlife regulations. These products shall not be disposed to streets or gutters, but shall be collected and properly disposed.
 - These products may not be applied within 48 hours of predicted storm event.
 - Herbicides and pesticides may not be applied when wind speeds exceed 5 miles per hour.

⁶ Systems designed and constructed to remove pollutants contained in stormwater runoff.

- Grounds and landscaped areas shall be periodically inspected. Litter, debris, organic matter (leaves, cut grass, etc.), and other materials with the potential to contaminate urban runoff shall be collected and properly disposed.
- Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and employees trained in their proper use.
- Significant spills shall be reported promptly to the City (1-858-755-9313). Significant spills are those which discharge, or have the potential to discharge, contaminants directly or indirectly to the Stormwater Conveyance System or Receiving Waters. Spills that have been completely contained and cleaned up onsite are not considered significant unless they pose a threat to human health or safety.

3.9 Good Housekeeping

Good housekeeping practices employ simple common sense in creating and maintaining a clean, orderly environment that reduces the risk of accidents and urban runoff contamination. Good housekeeping practices have been encompassed by the above listed requirements. Because of their importance these good housekeeping measures are further described below. These following descriptions do not describe requirements of businesses but are instead intended as additional guidance for the more effective implementation of the other BMPs to satisfy other requirements.

- **Routine Housekeeping Inspections.** Locations with higher risk of impacting stormwater quality (e.g., stormwater outfalls, loading and unloading areas, materials, products and wastes storage areas, equipment and vehicle maintenance and cleaning areas) should be inspected frequently, such as on a daily basis. Other areas of lower risk should be checked less frequently, such as weekly. Inspections should focus on leaks or conditions that could lead to discharges of pollutants to the Stormwater Conveyance or Receiving Waters.
- **Maintenance of Clean Ground Surfaces.** Sweeping of all paved areas exposed to precipitation or stormwater should be conducted on a regular basis. Litter controls of all exposed surfaces should also be conducted on a regular basis. The frequency of sweeping and litter control should be monthly and daily, respectively, or shorter, if needed, based upon site conditions.
- **Waste Management.** Each facility operator should conduct regular pickup and disposal of garbage and waste materials/products to prevent overfill of waste storage containers, which would increase the risk of waste contacting stormwater.
- **Equipment Inspection.** Each facility operator should conduct routine inspection of equipment to ensure proper functioning. Should problems be identified during inspection, proper and prompt maintenance or repair should be conducted.
- **Storage.** Raw materials, intermediate products, finished products, byproducts, and waste products should be stored in covered areas or sealed containers unless the materials or products are not a threat to urban runoff quality. To prevent accidental spills, materials or products should be stored away from direct traffic routes. All containers should be stacked according to applicable federal, state, and city regulations as well as manufacturers' instructions to avoid damage from improper weight distribution. Pallets or similar devices should be used to prevent corrosion of the containers that can result when containers come in contact with moisture on the ground.
- **Limitations on Handling Sensitive Materials.** Each facility should limit the handling of oil, hazardous, and other sensitive materials to those personnel specially trained to handle these materials.
- **Employee Training.** All good housekeeping practices should be incorporated into a facility's employee-training program.

3.10 Preventive Maintenance

Preventive maintenance is a crucial component of pollution reduction. It focuses on the prevention of the failure of mechanical or structural management systems before problems occur. As with good housekeeping practices, preventive maintenance measures have been encompassed by the above listed requirements. This section provides some additional discussion to assist with the effective implementation of preventative maintenance measures. These following descriptions do not describe requirements of businesses but are instead intended as additional guidance for the more effective implementation of the other BMPs to satisfy other requirements.

- **Maintenance of Stormwater Conveyance System.** Routine inspection and maintenance of privately owned and maintained stormwater conveyance, detention, and treatment systems should be conducted (e.g., underflow/overflow weir, road culvert underflow weir, gutters, storm drains, catch basins, ditches). Necessary repair should be conducted whenever a problem area is identified during the inspection. The frequency of inspection and cleaning should be at least annually, which should occur before the start of the rainy season (typically beginning in October). However, if sediment accumulation within a stormwater device exceeds 60 percent of its capacity within a year, a more frequent inspection and cleaning frequency should be implemented. In addition, for locations and seasons where significant leaf falling is occurring, weekly inspection and cleaning should be conducted to ensure proper functioning of the stormwater system. Note that all storm drain inlets ten inches in size or larger should be labeled – “Don’t dump, drains to creek”.
- **Equipment Maintenance.** Routine inspections and testing of facility equipment and systems should be conducted to identify conditions that could cause breakdowns or failures and result in discharges of pollutants (e.g., fuel/oil piping and pipelines, hoses, pumps). The equipment inspection and testing should follow the manufacturer’s recommended schedule. Appropriate maintenance of all equipment and systems should also be conducted to ensure proper functioning of the equipment and systems.
- **Landscaping.** Some potential sources of urban runoff water quality degradation can be mitigated through proper landscape management practices. Application of landscaping chemicals, such as fertilizer, pesticide, and herbicide, should be properly timed and measured in accordance to the manufacturer or supplier’s directions. Careful control of these substances reduces the possibility of degrading the quality of urban runoff. An application policy should be developed and followed to allow the use of less toxic and non-toxic products whenever possible and effective. Applications of landscaping chemicals should be made based upon need rather than according to a set routine to reduce the amounts of chemicals needed. Landscaping chemicals cannot be applied within 48 hours of a predicted rain event.
- **Sediment and Erosion Control.** Erosion of exposed soils can be a significant source of pollutants into Stormwater Conveyance Systems and Receiving Waters during rainfall runoff events. Not only do sediments themselves enter and clog waterways, they also carry other pollutants such as oils, nutrients, and pesticides with them as these substances accompany or adhere to sediment particles. Minimum BMP measures should include routine inspection and maintenance of all exposed surface areas to ensure the existence of adequate vegetative ground cover at all times. All vegetation as a part of a privately owned and maintained Stormwater Conveyance, detention, and treatment system should be maintained at all times. Unprotected surfaces with exposed soil are highly susceptible to erosion and thus should be eliminated either through re-establishment of vegetation and / or the installation of what are known as straw wattles (i.e. fiber rolls, sediment retention fiber rolls).

4 General Requirements for Specific Businesses or Activities

In addition to the requirements described in Chapters 2 and 3, the following requirements apply to specific businesses and activities. Because these businesses and the activities they conduct have specifically been identified as representing a high threat to water quality, a specific standard of BMP implementation has been developed by the City in order to ensure that pollutants are not present in discharges.

This chapter contains additional regulations for the following industries and groups of activities:

- Vehicle and Equipment Repair and Maintenance
- Fueling Activities
- Vehicle Body Repair or Painting
- Mobile Vehicle Washing
- Vehicle Parking Lots and Storage Facilities
- Pest Control Services
- Eating or Drinking Establishments
- Mobile Carpet, Drape, or Furniture Cleaning
- Cement Mixing or Cutting
- Masonry
- Equipment / Material Storage Yards (Both sole operator and leased out storage yards)
- Landscape Supply Facilities
- Painting and Coating
- Botanical or Zoological Gardens and Exhibits
- Landscaping
- Nurseries and Greenhouses
- Golf Courses, Parks and Other Recreational Areas/Facilities
- Cemeteries
- Pool, Spa and Fountain Cleaning
- Portable Sanitary Toilet Servicing

For each of these businesses or activities, a section is provided in this chapter with additional requirements for BMP implementation. In addition, each section provides a discussion of the applicability of the requirements. In general, if a business involves or conducts the activities for which the regulations are provided, the business should comply with the BMP requirements. This is regardless of whether or not the activity is the primary activity of the business.

Also contained within each of these sections are recommended BMPs. These BMPs are not required but instead are provided by the City as recommendations for implementation where applicable. All businesses are encouraged to consider these BMPs when determining the necessary measures required in order to meet the MEP standard.

4.1 Vehicle and Equipment Mechanical Repair or Maintenance

4.1.1 Applicability

This activity applies to businesses where body work, engine repairs and maintenance occurs such as those where fuel filters, engine oil, and other fluids such as battery acid, coolants, and transmission and brake fluids are removed and replaced in vehicles and equipment. Specific businesses may include auto repair and maintenance shops, oil filter changing establishments, gas stations with auto maintenance facilities, boat yards conducting engine repairs and maintenance, businesses managing and maintaining

a fleet of vehicles, airplane repair and maintenance facilities, engine repair businesses, and businesses that repair or maintain motorcycles, all-terrain vehicles, other motorized vehicles, lawn mowers, other motorized gardening equipment, gas powered generators, and any other devices that require similar repair and maintenance.

4.1.2 Description of Impacts

Pollutants of concern include toxic hydrocarbons, toxic organic compounds, oils and greases, pH, and heavy metals.

4.1.3 BMP Requirements

In addition to the applicable requirements of Chapters 2 and 3, the following BMPs or equivalent measures, methods, or practices are required of responsible parties for all automobile, airplane, boat, and equipment mechanical repair and maintenance activities:

- Repair and maintenance activities shall be conducted only in designated work areas
- Repair and maintenance work must be conducted indoors or under cover whenever practicable. If this work cannot be conducted indoors or under cover, other precautions must be taken to prevent the discharge of contaminants into the Stormwater Conveyance System or Receiving Waters. At a minimum work shall be performed on paved surfaces.
- Significant repair and maintenance work on boats may not be conducted over water. Minor engine work and routine changing of oil or other fluids are not considered significant, but may only be conducted over water if adequate precautions have been taken to prevent the entry of pollutants into the water.
- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of structural controls if determined necessary.
- Any release of fluids during repair and maintenance shall be promptly contained and cleaned up. Any absorbent materials used must be disposed of properly.
- Repair and maintenance materials and wastes must be stored indoors, under cover, or in secure and watertight containers.

4.1.4 Additional Recommended Measures

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for automobile, airplane, boat, and equipment mechanical repair and maintenance activities, and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Keep the number of solvents used to a minimum to make recycling easier and to reduce hazardous waste management cost.
- Conduct all liquid cleaning at a centralized station to ensure that solvents and residues stay in one area.
- Use drip pans or locate draining boards to direct solvents back into solvent sink or holding tank for reuse.
- Use non-hazardous cleaners when possible.
- Replace chlorinated organic solvents with non-chlorinated ones like kerosene or mineral spirits.
- Use recycled products such as engines, oil, transmission fluid, antifreeze, hydraulic fluid, and recycle used fluids.

- Update facility schematics to accurately reflect all plumbing connections.
- Monitor parked or stored vehicles closely for leaks and place drip pans under any leaks to collect the fluids for proper disposal or recycling.
- Promptly transfer used fluids to recycling drums or hazardous waste containers.
- Store cracked batteries in leak-proof secondary containers.
- Keep pumps and hoses used for liquid transfers in good condition, and make sure they are equipped with control valves to enable quick shutoff if a leak or spill should occur.
- Drain all fluids, from wrecked vehicles and equipment upon arrival. Recover air conditioning coolant.
- Use reusable cloth rags to clean up drips and small spills instead of disposable materials. Cloth rags can be professionally laundered if reused. Do not attempt to launder these at home or at a coin-operated laundry.
- Use absorbent pillows or booms in or around storm drains and catch basins to absorb oil and fuel.
- If the liquid transfer area cannot be paved, provide a containment / stormwater run-on prevention structure such as a curb, dike, or berm. As with all containment devices, spilled materials must be removed from the containment area and properly disposed of, and accumulated water must be properly disposed of or routed to treatment facilities.
- Adopt the “dry shop” principle that encourages spills to be cleaned immediately, without waiting for the spilled fluids to evaporate into the air, to transmit to land, or to contaminate other surfaces.
- Collect leaking or dripping fluids, paint drips, and spills in designated drip pans or containers. Keep all fluids separated so they may be properly recycled.
- Keep a designated drip pan under the vehicle while unclipping hoses, unscrewing filters, or removing other parts. The drip pan prevents splattering of fluids and keeps chemicals from penetrating the shop floor or outside area where the maintenance is occurring.
- Immediately transfer used fluids to proper containers. Never leave drip pans or other open containers unattended.

Spill Clean Up

The following BMPs are recommended for spills:

- Maintain a spill management action plan. Elements of a spill management plan typically include: a facility map denoting the location of all storm drain inlets on and immediately off site, site drainage flow patterns, location of all stored hazardous materials; an emergency contact list; location of nearest medical facilities; a spill report response form, bulleted procedures on how to handle a spill, and etcetera.
- Do not use water to clean spills, leaks, and drips.
- Obtain and use drain mats to cover drains in the event of a spill.
- Always keep spill clean-up materials, such as rags and absorbent materials, close at hand when changing oil and other fluids. Sewer and stormwater requirements can be complied with more easily by running a “dry shop,” thereby reducing consumption/discharge of liquids. Soiled rags and other clean-up materials must be properly disposed of or properly cleaned if reused.
- Pave and slope a designated area for liquid transfer operations to a sump or holding tank drain to facilitate spill capture. The sump should have a two-way valve so that runoff can typically enter the storm drainage system and can be switched to shut off flow during transfer operations. Collect and dispose of spilled material as mentioned above.

Parts Cleaning

The following BMPs are recommended when cleaning engine and motor parts:

- Use detergent-based or water-based cleaning systems instead of organic solvent degreasers.
- Use steam cleaning and pressure washing instead of solvent parts cleaning. The wastewater generated from steam cleaning can be discharged to the onsite oil/water separator and to the sanitary sewer system pending appropriate approval from Vallecitos Water District.
- Provide drip pans underneath hose and pipe connections and other leak-prone areas during liquid transfer operations. Several drip pans should be stored in a covered location near the transfer area so that they are readily available, yet protected from the rain when not in use. Drip pans must be cleaned periodically and drip-collected materials must be disposed of properly.
- If the work is done at a mobile location, use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture all spills and drips. The collected drips and spills must be recycled or disposed of properly.

4.2 Fueling Activities

4.2.1 Applicability

This section applies to any business that conducts fueling activities such as fueling automobiles, airplanes, boats, or equipment. It includes businesses such as retail and wholesale fueling establishments, as well as maintenance and repair facilities that conduct fueling activities. Other businesses included are gas stations, boat fueling docks or vessels, airplane fueling services, and businesses which manage a fleet of vehicles which it fuels itself.

4.2.2 Description of Impacts

These activities involve pollutants such as oils, greases, and fuels that can be discharged into the Stormwater Conveyance Systems and Receiving Waters causing adverse impacts. Fuels and oils contain organic compounds and metals that adversely affect aquatic life.

4.2.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to the fueling of vehicles and equipment:

- Where practicable, fueling areas shall be under permanent cover.
- Where practicable, all storm drain inlets draining the areas of fueling and surrounding areas shall be connected to an oil/water separator and to the sanitary sewer.
- Fueling and parking areas shall be periodically inspected, and significant accumulations of materials and substances (oil, fuel, grease, etc.) removed. All materials shall be properly disposed.
- Only dry cleaning methods shall be used on fueling and parking areas unless adequate precautions have been taken to prevent the discharge of washwater to the Stormwater Conveyance System or Receiving Waters (e.g., the discharge is directed to the sanitary sewer, a sump).
- **In accordance with State regulations post signs near fuel dispensers that state “Don’t top off”.**
- Spill clean-up kits shall be maintained and kept readily accessible, and employees trained in their proper use. Absorbents and other materials used to clean spills shall be collected and properly disposed.
- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the

discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may also order the use of these and other structural controls if it determines that MEP has not been met.

4.2.4 Additional Recommended Measures

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for fueling areas or activities and to assist businesses conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Train employees involved in fueling operations in emergency spill response and appropriate spill clean-up procedures.
- Use oil/fuel absorbent pillows or booms in or around catch basins on the property.
- Retain suitable clean-up materials at the site for prompt cleaning of all spills. Absorbent materials like spill pads, spill booms, or cat litter will be effective in containing certain spills. Do not wash any spills into the storm drain. Dispose of absorbent materials appropriately.
- Post signs to educate employees. Personnel responsible for fueling vehicles should be trained in spill response procedures and instructed to avoid overtopping fuel tanks. Employees should stay with the vehicle while fueling.
- Maintain an Emergency Spill Response and Cleanup Plan.

Fuel Areas and Islands

The following BMPs are recommended specifically for fueling areas or islands:

- Cover fueling area with an overhanging roof structure or canopy with dimensions equal or greater than the area with the grade break and which must not drain onto the fuel dispensing area.
- Make sure areas surrounding the fueling area have a 2 to 4 percent slope to prevent ponding and a grade break to prevent run-on of stormwater.
- Pave the fuel area using Portland cement concrete, not asphalt, and design to contain fuel spills. Asphalt is not used because it deteriorates when it comes in contact with fuels.
- Design the fuel area as a spill containment pad and size to prevent the runoff of spilled fuel and the run-on of stormwater from surrounding pavement.
- Collect liquids spilled at the fuel area in drains, either trench drains or catch basins. The drain(s) should be connected to the sanitary sewer or process treatment. The drain shall have a valve to allow shutoff in the event of a large fuel spill and a baffled oil/water separator vault to minimize the flow of fuels into the sewer.
- Do not clean the fueling island with water and detergents. Spilled fuels, oils, and grease will leave the site and contaminate surface waters if this method is used. Clean the fueling island using dry methods like spot cleaning with absorbents or mechanical sweepers. Use a damp cloth for pumps and a damp mop will be effective for the paved area.

Fueling Boats or Docks

The following BMPs are recommended specifically for fueling boats or docks:

- Install automatic shut off systems on fuel nozzles.
- Display fueling safety and clean operation checklists at each pump.
- Train employees to give information and direction to customers before they begin fueling.

- Provide absorbent pads to contain over spill and excess fuels.
- Keep containment booms, other spill containment, and spill clean-up materials onsite for immediate access in the event of a spill

4.3 Vehicle Body Repair or Painting

4.3.1 Applicability

This section applies to automotive, airplane, boat, and other vehicle or equipment body, paint, interior and glass repair shops. These establishments are involved in repairing and customizing passenger cars, trucks, vans, trailer bodies and interiors; painting auto and trailer bodies; replacing, repairing, and/or tinting glass; and customizing vehicles for the physically disabled or other customers with special requirements.

4.3.2 Description of Impacts

Common wastes generated in an auto body shop include body repair materials, paints and masking material, paint equipment clean-up wastes (solvent and paint booth filters), solid waste (glass, metals, plastics, and tires), automotive fluids (antifreeze, solvents, and thinners), used oils (engine and transmission fluids), fuels, used filters and batteries, etc. If these materials are introduced into the Stormwater Conveyance System or Receiving Waters they can cause substantial degradation of the environment.

Potential pollutants from boat repairs and painting include spent abrasive grits, solvents, oils, ethylene glycol, washwater, paint over-spray, cleaners/ detergents, anti-corrosive compounds, paint chips, scrap metal, welding rods, resins, glass fibers, dust, and miscellaneous trash. Pollutant constituents include total suspended solids (TSS), oil and grease, organics, copper, lead, tin, and zinc. These pollutants can also enter the cause substantial degradation.

4.3.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to vehicle body repair and painting:

- Body work and painting must be conducted indoors or under cover whenever practicable. If this work cannot be conducted indoors or under cover, other precautions must be taken to prevent the discharge of contaminants into the Stormwater Conveyance System or Receiving Waters. At a minimum all work must be performed on paved surfaces.
- Painting work shall be conducted in approved, enclosed areas equipped with vacuum hoods and filters.
- The recycling and reuse of solvents is encouraged.
- Work areas shall be periodically cleaned using dry methods (sweeping, vacuuming, etc.). Wet methods shall only be used where adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters.
- Spill clean-up kits shall be maintained and kept readily accessible, and employees trained in their proper use.

As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.

4.3.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for repair and painting facilities and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP. The BMPs recommended under section 4.1, Vehicle and Equipment Mechanical Repair or Maintenance, should also be reviewed for consideration.

- Regularly check for leaks and spills and immediately clean up when necessary.
- Never dispose of shop wastewater down a storm drain or in a septic system.
- Never dispose of hazardous waste down a storm drain or septic system.
- Contact Vallecitos Water District prior to discharging to the sanitary sewer. Wastewater may need to be tested or pretreated.
- Reuse and recycle materials. For example, reuse slightly dirty thinner as a pre-wash; recycle scrap metal, aluminum cans, glass, tires, etc.; recycle plastic automobile bumpers. Contact your local recycling center for more information and recycle automotive fluids such as used oil, antifreeze, and coolants.
- Encourage employees to conserve water. Measures include using a broom and/or vacuum to clean floors instead of water; fixing leaking faucets immediately; install water-conserving faucets and toilets; turn off hose between rinses when washing vehicles; and use less water to clean paint booths by using a broom and vacuum (this will minimize the amount of wastewater generated).

Painting Activities

The following BMPs are recommended for painting-related activities:

- Purchase materials that are less hazardous. Use high-solids paints that have more solids and less solvents. This can reduce Volatile Organic Compound (VOC) emissions by up to 75 percent. Avoid chlorinated solvents.
- Reduce paint-contaminated wastes. Launder used shop towels and rags. Use reusable paint mixing cups and sticks. Give leftover paint to customers for touch ups.
- Control the use of solvents and paint thinners. Use water-based paints to minimize the need for cleaning solvents. Choose a solvent that can be used to thin paint as well as to clean equipment, etc. Choose a solvent that has a low VOC and Hazardous Air Pollutants content (review the product's MSDS) to protect indoor air quality. Use a mechanical or enclosed cleaning system to reduce air emissions and prevent solvent evaporation. Use used solvent as a pre-wash for tough cleaning jobs.
- Use a distillation unit to recover used solvent and save money. A distillation unit can reduce the volume of waste that is sent out for hazardous waste disposal by recovering most of the solvent for reuse. A small amount of sludge is a byproduct that may or may not be considered hazardous waste.
- Use high-volume, low-pressure (HVLP) spray guns instead of conventional spray guns. When used correctly, HVLP spray guns have higher transfer efficiencies (60 to 70 percent) than conventional spray guns (20 to 30 percent).

Hull Maintenance, Cleaning, and Painting

The following BMPs are recommended for activities relating to hull maintenance, cleaning, and painting:

- Wait 90 days after applying new paint before cleaning. Paints release more toxics when new.

- Soft sloughing or ablative (self-polishing) paints release toxics such as copper and paint to water when cleaned. Refrain from cleaning underwater.
- Use only a piece of “carpet,” sponge and other soft materials to clean the hull. Use soft nylon or similar material on rotary brush machines. Use stainless steel brushes and pads on non-painted, metal areas *only*. Use more rigorous cleaning pads *only* as needed to remove hard marine growth.
- Do not sand or strip hull paint underwater.
- Bring zinc anodes back to shore; recycle or dispose properly.
- Clean gently to avoid creating a plume or cloud of paint in the water.
- Repair paint bonding problems at haul out to avoid further chipping and flaking of paint into the water.

Protection from Fouling Growth

Toxics in some hull paints limit cleaning options and may increase amounts of toxics in marine waters. The following are BMPs relating to anti-fouling techniques:

- Use hard-finish, conventional anti-fouling paints since they release less toxics with underwater cleaning.
- Do not leave most polyurethane painted hulls in water over 72 hours. Polyurethane and silicone paints contain no toxics and do not rub off during cleaning.

4.4 Mobile Vehicle Washing

4.4.1 Applicability

This section applies to automobile washing operations and businesses that do not maintain designated facilities for washing vehicles, but instead, conduct washing activities at various locations. Typically these businesses conduct washing activities in parking lots of office complexes or in driveways.

4.4.2 Description of Impacts

Washwater from vehicle and equipment operations contains a variety of contaminants, which can harm aquatic life and the environment. The activity of vehicle/equipment washing/steam cleaning has the potential to contribute metals, oil and grease, detergents, degreasing chemicals, solvents, phosphates, organics, acids, caustics and suspended solids to the Stormwater Conveyance System and Receiving Waters.

Mobile cleaning activities also generate significant quantities of washwater as a result of their washing operations at various sites. Washwater can contain dirt, debris, soap, oil, grease, acid solution, solvents, paint chips, metals, and/or food waste.

4.4.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to mobile vehicle washing:

- Never wash vehicles on a public street and / or public right of way.
- Pre-sweep wash areas prior to washing vehicles and dispose of all waste appropriately.
- Washwater and rinse water may not be disposed to the Stormwater Conveyance System or Receiving Waters under any circumstances. The Stormwater Conveyance System includes driveways, streets, and gutters.
- Storm drain inlets located within or downhill of wash areas shall be covered or otherwise protected to prevent the entry of washwater or rinse water.

- Vehicles shall be washed over porous surfaces such as lawns and gravel areas where feasible, such areas will infiltrate all the washwater and rinse water generated during the washing.
- Washwater and rinse water may be infiltrated or disposed to the ground (e.g., soaked into a lawn or landscaped area) if adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters.
- Washwater and rinse water that cannot be properly disposed at a job site shall be collected and contained for recycling, reuse, or proper disposal (e.g., sanitary sewer). Dischargers are responsible for obtaining all necessary approvals from the City prior to discharging to the sewer.
- The use of hose off or single-use engine degreasing chemicals is prohibited, unless captured and properly disposed.
- Where practicable, the introduction of pollutants (soaps, degreasers, etc.) to washwater shall be reduced or eliminated.
- Dry cleaning methods are encouraged.
- Always use an automatic shut off with the hose to prevent water from simply flowing out of the hose following washing and rinsing activities.
- Following washing activities sweep wash area clean of all loose debris and sediment and dispose of appropriately.

4.4.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for mobile vehicle washing activities and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Use a temporary wash pad or containment devices to contain all wash- and rinse waters.
- Pump up all contained wash- and rinse waters for reuse or disposal.
- Use designated community wash areas if adequate pollution prevention controls are in place.
- Construct a designated wash area at office complexes or other facilities with large parking lots with proper BMPs for use by mobile washers when washing employee vehicles.
- Promote employee awareness on the water quality impacts of mobile washing operations.
- When using degreasing agents employ wipe off methods, rather than hosing them off.

4.5 Vehicle Parking Lots and Storage Facilities

4.5.1 Applicability

This section applies to commercial parking lots of any size. Parking lots include those used for employee parking, customer parking, long-term parking, storage, vehicle dealer lots, fleet vehicle lots (including rent-a-car and car dealerships), equipment sale lots, and rental parking lots. In addition, these requirements apply to privately owned commercial parking lot driveways, accesses, internal circulation roads and thoroughfares. Other vehicle storage facilities are also included.

4.5.2 Description of Impacts

Parking lots contain pollutants such as heavy metals, oil and grease, and petroleum hydrocarbons that are deposited on parking lot surfaces by drippings and engine system leaks of motor vehicles. These pollutants are directly transported to surface waters. BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to the parking lots and storage facilities:

- Parking facilities shall not be cleaned using wet methods (e.g., hosing, steam-cleaning, and pressure-washing) unless adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters. If wet methods are being considered be sure to adhere to all State water conservation mandates / regulations.
- Parking areas shall be periodically cleaned using dry methods (e.g., sweeping, scraping) to prevent the accumulation of significant materials. Accumulated materials shall be properly disposed.
- Signs shall be posted which prohibit littering, dumping, and vehicle servicing.

4.5.3 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for commercial vehicle parking lots and vehicle storage facilities and to assist business with those areas in selecting appropriate BMPs in order to achieve MEP.

- Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g., fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, discount warehouse stores).
- Develop and implement a weekly sweeping/ cleaning program.
- Install treatment BMPs in storm drain inlets and ensure adequate operation and maintenance of treatment systems.
- Divert runoff to natural treatment BMPs such as filter strips, swales, and biofiltration area.
- Cover vehicle storage areas.
- In vehicle storage areas, conduct routing inspections of stored vehicles to detect leaks.
- Use porous pavement and other infiltration surfacing techniques.

4.6 Pest Control Services

4.6.1 Applicability

This section applies to businesses that handle and apply insecticides, herbicides, fungicides and rodenticides, or any chemical that is used in pest control or extermination. These businesses include exterminators, pest control services, gardening/ landscaping services, agricultural services, and maintenance services.

4.6.2 Description of Impacts

The EPA estimates that nearly 70 million pounds of active pesticide ingredients are applied to urban lawns each year. California residents purchase more than one million pounds of pesticides each year. These pesticides are being increasingly detected in several streams and in treated wastewater at levels that are toxic to marine life at the base of food chain. Water quality problems are occurring as a result of pesticide runoff and improper use and disposal of these toxic chemicals.

4.6.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to pest control services:

- Agricultural pest control businesses must be supervised by a currently certified Qualified Applicator Licensee.

- Pesticides and other chemical products shall be applied and disposed in accordance with label instructions and MSDS(s).
- Pesticides, fertilizers, and other chemical products shall be used and disposed in accordance with applicable federal, state, and local laws and regulations.
- Pesticides, fertilizers, and other chemical products shall be stored in closed, labeled containers, under cover and off the ground.
- Weather conditions shall be considered prior to the outdoor application of pesticides and other chemical products. Regulations stipulate that pesticides cannot be applied within 48 hours of a predicted storm event and they cannot be applied if wind speed exceeds 5 mph. Their outdoor application during rainfall is prohibited.
- Precautions shall be taken during the application of pesticides and other chemical products to prevent drift into non-target areas or onto non-target vegetation, insects, or animals.

4.6.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for commercial pesticide application and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Utilize the least toxic application to successfully perform the task. The pesticide should readily degrade in the environment and have properties that minimize release of the product via leaching into the groundwater or wash off by stormwater. For additional information on safe alternatives visit the Our Water Our World website at: <http://www.ourwaterourworld.org/>
- Do not apply pesticides to Stormwater Conveyance Systems.
- Strictly adhere to state and federal regulations concerning the restrictions of applying pesticides near a waterway.
- Locate pest control devices that contain pesticides and are left onsite for application away from drainage routes, Stormwater Conveyance Systems, Receiving Waters and where possible, in an area sheltered from precipitation and runoff.

4.7 Eating or Drinking Establishments

4.7.1 Applicability

The requirements in this section apply to food-handling facilities or drinking establishments, such as restaurants, grocery stores, bakeries, delis, cafes, bars, snack shops, and food stands.

4.7.2 Description of Impacts

These establishments can contribute to urban runoff pollution, mainly through improper clean-up practices that allow trash, food particles, oil and grease, and cleaning products to flow to a street, gutter, or storm drain. Food-handling facilities sometimes discharge toxic chemicals, including cleaning products, disinfectants, and pesticides. Even biodegradable soaps contain ingredients that are initially toxic to aquatic life. All substances left in a street, gutter, parking lot, and alley or dumped into a storm drain can cause pollution. In addition to drawing flies, rodents, and causing odor and public health problems, decaying organic materials use up dissolved oxygen in streams, stressing or killing aquatic animals. Oil and grease can also plug sanitary sewer lines, causing sewer backups and severe risks to human health.

4.7.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to eating and drinking establishments:

- Dumpsters and grease bin areas shall be kept securely closed when not in use, and shall be inspected and cleaned regularly. Leaking dumpsters shall be repaired or replaced as soon as possible.
- Grease Bins, often referred to as Fats, Oils and Grease bins ideally should be stored under cover on a paved surface.
- During transfer of grease to the grease bin employ the use of a funnel and never allow the temporary storage / transfer container to be more than $\frac{1}{2}$ full before transferring to the grease bin.
- If a spill occurs during the transfer of fats, oils and grease to the grease bin clean up immediately using dry clean methods.
- Grease bin servicing should be performed at a minimum every 90 days or prior to the bin becoming $\frac{3}{4}$ full. Grease bin storage areas should be routinely cleaned, including the exterior of the grease bin.
- Parking areas and other outside surfaces shall be routinely cleaned using dry methods (e.g., sweeping) to prevent the accumulation of significant materials. Accumulated materials shall be properly disposed.
- Parking areas and other surfaces shall not be cleaned using wet methods (e.g., hosing, steam-cleaning, pressure-washing) unless adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters.
- Outdoor grease interceptors shall be properly maintained, and routinely inspected to ensure their proper functioning. Any problems noted shall be corrected as soon as possible. At a minimum these devices should be serviced every 90 days or prior to the device becoming $\frac{3}{4}$ full.
- Equipment (mats, grease filters, etc.) may not be washed in areas where washwater or rinse water will drain to the Stormwater Conveyance System or Receiving Waters. Dischargers are responsible for obtaining all necessary approvals from the City prior to discharging to the sewer. As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.

4.7.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for activities at eating and drinking establishments and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

Spill Clean Up and Pavement Cleaning

The following BMPs are recommended for Spill Cleanup and Pavement Cleaning activities at eating and drinking establishments:

- First stop any spill at its source whenever a spill occurs at a dumpster area, loading docks, and other paved surfaces. Then dry clean by sweeping and using absorbents such as rags and

granular absorbents (i.e., cat litter). If necessary, mop or wash and collect water, and dispose of water in sink or sewer drain, not the storm drain.

- Have a spill clean-up plan that includes procedures for different types of spills, training for new and existing employees about the procedures, clean-up kits in well-marked, accessible locations, and designation of a key employee who monitors clean up at each establishment.

Dumpsters Areas

The following BMPs are recommended for dumpster areas at eating and drinking establishments:

- Make sure that dumpsters and containers of grease, meat fat, and used cooking oil are always tightly covered.
- Arrange for leaking dumpsters to be replaced immediately when a leak is detected.
- Store dumpsters in covered area.
- Screen or wall areas to prevent off-site transport of trash.
- Liquids cannot be disposed of via regular refuse / waste collection services.
- All waste products must be bagged prior to placing into the refuse / waste bin.

Cleaning and Maintaining Equipment

The following BMPs are recommended for cleaning floor mats, carts, tray racks, exhaust filters, hoods, cooking equipment, food containers, etc.

- Clean equipment in a designated indoor area, such as a kitchen sink or floor, with a drain connected to the sanitary sewer.
- Clean equipment in a designated covered outdoor area with a drain connected to the sanitary sewer. This area should be isolated from the storm drain with a berm or other barrier.
- Clean equipment in a small designated outdoor area, isolated from the storm drain with a berm or other barrier, where water can be collected for disposal in the sanitary sewer (no direct connection to sanitary sewer).
- Use a static rinse tank to clean filters, screens, frying racks, etc. and tubs or sinks for smaller items.
- Wherever possible, use floor mats that are small enough to be cleaned inside near a floor sink or drain connected to the sanitary sewer.

Hood vents and other associated apparatuses should be cleaned annually by a professional service that employs full wash water recapturing.

Grease Handling and Disposal

The following BMPs are recommended when cleaning frying equipment or storing fat or grease for removal to a grease recycler.

- Never pour oil, grease, or oily liquids such as sauces or salad dressings down a sink, sanitary sewer, storm drain, or into a dumpster.
- Recycle waste oil and grease whenever possible. Most landfills will not accept grease or other liquid wastes for disposal.
- To ensure proper operation of the traps and prevent sewer blockages, minimize the amount of grease your facility sends to the grease trap or interceptor.
- Inspect and clean grease traps and interceptors regularly. Grease traps should be cleaned at least every three months, although in some cases, they may have to be cleaned weekly to ensure adequate grease removal.

- Keep solids out of sink drains by scraping pots and dishes prior to washing and installing screens over drains to trap solids.
- Never use solvents or emulsifiers as grease trap additives. When the additives are diluted by the wastewater of other users, the grease comes out of the solution and settles in the lateral and sewer lines causing blockages.

4.8 Mobile Carpet, Drape, or Furniture Cleaning

4.8.1 Applicability

This section contains requirements that apply to mobile carpet, drape, or furniture cleaning services including any of the following: extraction, self-contained carpet extraction machine, extraction restoration, bonnet cleaning, rotary brush or dry foam, pressure, and steam cleaning.

4.8.2 Description of Impacts

Mobile carpet, drape, or furniture wash services use a number of products and solutions to clean. Wastewater from these wash services contain sediments, chemicals, detergents, acids, caustics, oils, greases, heavy metals, excessive pH levels and other contaminants harmful to aquatic life, which must not enter the Stormwater Conveyance System.

4.8.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to mobile carpet, drape, and furniture cleaning:

- Wastewater may not be disposed to the Stormwater Conveyance System or Receiving Waters under any circumstances. The Stormwater Conveyance System includes driveways, streets, and gutters.
- Wastewater may not be infiltrated or disposed to the ground.
- Wastewater must be disposed to the sanitary sewer at the job site or to a holding tank. Wastewater contained in holding tanks must be disposed to the sanitary sewer at company headquarters or at an approved location. Dischargers are responsible for obtaining all necessary approvals from sewerage agencies, including the City, prior to discharging to the sewer.
- Tanks, hoses, and fittings must be maintained in leak-proof condition.
- All trucks should be equipped with a spill kit.

4.8.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for mobile carpet, drape, and furniture cleaning businesses and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Store cleaning, sanitizing, and deodorizing chemicals, solvents, acids, and caustics in a secure area where spills will be contained and will not be discharged.
- Ensure that all employees and your customers are aware of their important role in preventing storm drain contamination.
- Contain and clean up spills immediately to prevent the material from being discharged. Follow the clean-up procedures as listed in the products manual.

4.9 Cement Mixing or Cutting

4.9.1 Applicability

The regulations in this section apply to cement mixing and cutting activities such as those that take place during roadway, driveway, sidewalk, and building repairs, additions, and construction.

4.9.2 Description of Impacts

The soluble cement constituents will raise the pH of urban runoff, effluent and Receiving Waters dramatically, well over drinking water and ambient life criteria. Some pH values over 12.5 are found in un-hydrated sludge. The high pH is also corrosive to metals. There are substantial cement, sand, and fine materials in cement industry runoff that are harmful to fish and their spawning beds and cause a visible plume in Receiving Waters. A number of specific chemicals are added to cement to retard or speed up set times, prepare exposed aggregate, and clean surfaces and these are toxic in varying degrees. There is also incidental leakage of lubricating oils and greases, hydraulic fluids, and fuel associated with the use of the requisite heavy equipment.

4.9.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to cement mixing and cutting:

- Loose aggregate, mortar, and dust shall be routinely cleaned up using dry methods (e.g., sweeping, vacuuming). Wet methods may be used if adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters. All materials shall be reused, recycled, or properly disposed.
- Storage of cement shall be above ground and covered.
- Gutters, alleys, streets, and sidewalks should be swept rather than hosed.
- Slurries should be diverted to a collection area or sedimentation basin, and shoveled or vacuumed daily. Slurries may not be disposed to the Stormwater Conveyance System or Receiving Waters under any circumstances. The Stormwater Conveyance System includes driveways, streets, and gutters.
- Rinsate must be confined to a designated area (e.g., a dead-end sump, process treatment system, or a hole where water percolates/ evaporates and solids are removed for disposal and collected). Rinsate and solids must be reused, recycled, or properly disposed.

4.9.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for cement mixing and cutting operations and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Collect, settle, and reuse much of the washwater and some of the solids, in making concrete, depending on the required quality of the next batch of concrete to be made.
- When cutting cement, cooling/rinsing water can be collected by vacuuming and then treated or properly disposed.
- Use returned concrete to make small products for sale to avoid creating waste concrete.
- In locations where the native soil is freely draining, surround exposed aggregate to be washed by a trench or wide expanse of exposed subsoil where the topsoil has been removed. The volume of the excavation should be sufficient to contain all the washwater and the dimensions

adequate to catch all the spray and washwater. There may be pits dug in this subsoil to contain the washwater while it drains.

- Provide a compacted granular subbase under the concrete to absorb the washwater, where the native soil is not freely draining.
- Pump washwater from collecting pits around the concrete and allow it to percolate into the soil elsewhere on the lot where soil conditions are appropriate and there is adequate area around the concrete works to collect and infiltrate all the washwater.
- Use expansion joint board, polyethylene, and sandbags or some such methods to dam the concrete works and prevent washwater from reaching gutters and storm drains or streams, especially when constructing driveways that reach the street.
- Pump washwater from collecting pits around the concrete and take it to acceptable off-site disposal sites.
- Channel washwater to an impervious, lined catch basin or collecting pit, pumping it out and taking it to acceptable off-site disposal sites, in areas close to drainage ditches, wells and drain tiles, or any circumstances where there is risk of the washwater getting into surface or subsurface waters.
- Minimize vehicle traffic on contaminated surfaces to reduce dust dispersal.
- Cover sludge piles to prevent leachate and dust dispersal.
- Store drums of admixture chemicals, preferably in corrosion-free plastic tanks, on concrete pads and surrounding them with curbs capable of holding at least 110 percent of the contents of the largest drum.
- Store aggregate stockpiles under a rain shelter on an impervious surface if possible. Also, grading the area, ditching and berthing the site, and providing walls to minimize stormwater leaching through the piles are recommended to restrict any water from leaving the site untreated.
- Provide settling and collection basins large enough to handle stormwater from the yard area.
- Use socks, curtains, or a metered water spray while loading dry ingredients into delivery trucks to minimize dust production.

4.10 Masonry

4.10.1 Applicability

This section contains regulations that apply to masonry-related activities, such as, stone, brick, concrete laying, and cleaning. Co-related activities are addressed in the previous section.

4.10.2 Description of Impacts

Similar to cement, masonry material may contain soluble constituents that raise the pH of stormwater. There are also typically results in sand and fine materials during cutting, laying, and cleaning. Adhesives and setting materials can contain a number of chemicals that can be toxic in varying degrees.

Cleaning solvents for masonry in the industry are either alkaline or acidic based. They cannot be neutralized and are categorized as pollutants. These pollutants are often toxic and can easily runoff into the Stormwater Conveyance System. Since most water in Stormwater Conveyance Systems is not treated, solvent-based cleaners introduced into the systems can be a major problem to the shellfish, fish, and other aquatic organisms.

4.10.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to masonry:

- Storm drain inlets located within or downhill of work areas shall be covered or otherwise protected to prevent the entry of washwater or other materials.
- Work areas shall be routinely cleaned using dry methods (e.g., sweeping).
- Work areas shall not be cleaned using wet methods (e.g., hosing, steam-cleaning, pressure-washing) unless adequate precautions have been taken to prevent the entry of washwater and other contaminants into the Stormwater Conveyance System or Receiving Waters.
- Washwater shall be diverted from storm drains, and directed to sanitary sewer or landscaping, where approved, or otherwise prevented from entering Stormwater Conveyance Systems or Receiving Waters unless adequate treatment or other measures have been taken to eliminate pollutants from the washwater.
- Materials shall be covered (e.g., with a tarp) and stored above ground to prevent contact with precipitation and stormwater.
- Stockpiles of sand shall be covered and bermed to prevent contact with precipitation and stormwater.

4.10.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations with regard to masonry and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Use only water-cleaning. Water cleaning methods can be used safely to remove dirt from all types of masonry building or structure. There are essentially four kinds of water-based methods: soaking; pressure water washing; water washing supplemented with non-ionic detergent; and steam, or hot pressurized water cleaning. Once water cleaning has been completed, it is often necessary to follow up with a water rinse to wash off the loosened soiling material from the masonry. (Water cleaning methods may not be appropriate to use on some badly deteriorated masonry because water may exacerbate the deterioration, or on gypsum or alabaster, which are soluble in water.)
- Install vinyl guttering or polyethylene-lined troughs placed around the perimeter of the base of the building. They can serve to catch chemical cleaning waste as it is rinsed off the building. This will reduce the amount of chemicals entering and polluting the soil, potentially discharging into a storm drain, and also will keep the cleaning waste contained until it can be removed safely.
- Apply waterproof coatings on the masonry exterior of the building or structure. The coatings can help rinse off the dirt easily by rains without applying chemical cleaning.

4.11 Painting and Coating

4.11.1 Applicability

Those businesses that repair, renovate, improve, or replace any types of paints or coatings inside or outside the building or structure are subject to the requirements of this section.

4.11.2 Description of Impacts

All paints, coatings, and finishing contain chemicals that are harmful to wildlife and humans. In particular, some paints are lead-based and can cause lead poisoning in children. Improper handling of the cleaning residues or rags may drain the toxic chemicals into the surface water and further into the storm sewer system. Since most Stormwater Conveyance Systems do not connect to any treatment plants, discharged untreated toxic chemicals will become pollutants in the Receiving Waters. Building

parts such as doors, window frames, painted woodwork, and paint chips also contribute additional wastes. Improper disposal of these wastes will have similar polluting effects on the Receiving Waters.

4.11.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to painting and coating activities:

- When not in use, paints, coatings, and solvents shall always be stored under cover and in a contained area.
- Containers shall be kept in good condition, and shall be kept securely closed when not in use.
- Where practicable, work areas shall be enclosed in a building, or with tarping or plastic sheeting to prevent drift.
- Storm drain inlets located within or downhill of areas where painting or coating is conducted shall be covered or otherwise protected to protect discharge of dust, chips, and rinsate.
- Areas where painting and coating work is being actively conducted shall be cleaned daily using dry methods (e.g., sweeping, wiping, vacuuming). Wet methods (e.g., hosing) may only be used if adequate precautions have been taken to prevent the discharge of washwater to the Stormwater Conveyance System or Receiving Waters.
- Drop cloths and drip pans shall be used in mixing areas.
- Paints, coatings, thinners, and other materials may not be disposed to the Stormwater Conveyance System or Receiving Waters. The Stormwater Conveyance System includes driveways, streets, and gutters.
- Water-based paints may be disposed to the sanitary sewer. Dischargers are responsible for obtaining all necessary approvals from sewerage agencies, such as the City, prior to discharging to the sewer.
- Filtering, reuse, and recycling of thinners and other solvents are encouraged. All materials must be properly disposed.
- Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and all employees involved in painting or coating activities should be trained in their proper use.

4.11.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations recommended for painting and coating activities and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Educate employees who are doing the work on the importance of keeping pollutants out of the storm drainage system.
- Collect paint chips, dust, and dirt in plastic trash bags for disposal as household waste.
- Store large lead-based paints and building parts in containers until ready for disposal.
- Have a licensed hazardous waste collector dispose of the waste. Chemical paint stripping residue is a hazardous waste.
- Avoid stripping or cleaning building exteriors with high-pressure water; seal storm drains. If conducted, water used cannot be discharged to the Stormwater Conveyance System or Receiving Waters.
- For water-based paints, paint out brushes and rollers to the extent possible, and rinse in the sink.

- For oil-based paints, paint out brushes and rollers to the extent possible. Clean with thinner and then filter and reuse thinner/solvent or dispose as hazardous waste.
- When thoroughly dry and no longer hazardous, dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths with other construction debris.
- Dispose of oil-based paints as hazardous wastes.
- Use a covered mobile dumpster (such as a roll-off container) to store lead-based paints debris until the job is done.
- Do not use paints over 15 years old. They may contain toxic levels of lead.
- Reuse paint thinner. Set used thinner aside in a closed jar to settle out paint particles. Then pour off clear liquid for future use.
- Use only 100 percent non-VOC or low-VOC products. Always insist on full information about the volatility and toxicity of materials being sold or used. All products have a MSDS available from wholesale and retail product suppliers, which can and should be reviewed for the presence of specific harmful substances and for methods of responding to overexposure.
- Store paint so that it will last longer. Cover the top with plastic wrap tightly (bread wrappers are ideal for this) and replace the lid securely. When this is done, turn the can upside down to create an airtight seal.
- Use up all the paint. Small amounts of paint can be mixed with other colors or bulked together and used as a primer coat or on jobs where the final finish is not critical.
- Donate unopened cans of paint or return them to the place of purchase. Most schools, church and community groups, local Habitat for Humanity, as well as social service and theatre groups, will accept unopened cans of paint, especially white paint. Even a neighbor or relative may need some extra paint. Also, most stores will accept their own unopened cans of paint even if it has been specially mixed or formulated.
- To dispose of latex paint, solidify it. Add mulch, cat litter, shredded paper, or waste paint hardener available at some paint stores and home improvement centers.

4.12 Botanical or Zoological Gardens and Exhibits

4.12.1 Applicability

This section contains requirements that pertain to botanical or zoological gardens and exhibits which are dedicated to the collection, cultivation, preservation and display of a wide range of plants labeled with their botanical names, selecting and applying fertilizers, selecting and applying pesticides, fertilizer proportions, monitoring salinity and runoff, cleaning animals and areas, and maintenance.

4.12.2 Description of Impacts

A large amount of fertilizers and pesticides are often used in biological and zoological gardens. With lack of proper management, these fertilizers and pesticides can easily drain into the Stormwater Conveyance System inside and surrounding the gardens. Rains can wash nitrates from improperly disposed green waste directly into the surface water. The surface water will eventually go into the lakes through the storm drains. Nitrate is a naturally occurring form of nitrogen found in soils. Nitrates also result from the biological decay of plants, animals, and organic matter. In addition, nitrates in the soil result from nitrogen fertilizers and animal manure. The greatest danger from nitrate-contaminated water is for babies less than one year old. Small babies have bacteria in their digestive tract that converts nitrate into nitrite, which is toxic. Nitrates contribute to algal blooms in the Receiving Waters, decreasing dissolved oxygen content and threatening aquatic organisms. In addition, green wastes persist for a long time and clog the Stormwater Conveyance System, creating potential flooding problems.

4.12.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to botanical and zoological gardens and exhibits:

- The requirements of section 4.1, Vehicle and Equipment Repair and Maintenance, apply to botanical and zoological gardens and exhibits.
- The requirements of section 4.6, Pest Control Services, apply to botanical and zoological gardens and exhibits.
- The requirements of section 4.7, Eating or Drinking Establishments, apply to botanical and zoological gardens and exhibits.
- The requirements of section 4.13, Landscaping, apply to botanical and zoological gardens and exhibits.
- Waste Management BMPs ...
- Material Management and Storage BMPs...
- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.
- Employ appropriate water conservation regulations and principles.
- Where appropriate employ applicable construction related erosion and sediment control principles and practices as detailed in the Construction Site BMP Manual.

4.12.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for biological and zoological gardens and exhibits and to assist business with these facilities in selecting appropriate BMPs in order to achieve MEP.

- Do not over-water plants. Reduce irrigation runoff.
- Monitor planting area during irrigation and rain to ensure that erosion is not occurring.
- Do not mix green waste with the regular garbage.
- Do not leave plant clippings after regular maintaining on open areas.
- Do not leave or dump animal wastes on the pavements, streets, or open areas.
- Recycle and compost the green waste in combination with natural waste.
- Do not leave the fertilizers or pesticides open and exposed outside.
- Employ Integrated Pest Management Principles and Concepts when appropriate. For additional details please visit: <http://www.ipm.ucdavis.edu/>.
- Adhere to State water conservation regulations at all times.

Where feasible employ California Urban Water Conservation Councils BMPs. For additional details visit: <http://www.cuwcc.org/>

4.12.5 Landscaping Applicability

The requirements in this section apply to landscaping activities such as landscape maintenance, fertilization, chemical application, seeding, aeration, planting, and trimming. Businesses conducting these activities include landscaping, gardening, and building maintenance services.

4.12.6 Description of Impacts

A variety of pollutants including eroded soil, green waste, fertilizers, and pesticides are conveyed by urban runoff. These untreated pollutants are washed directly into lake and water bodies resulting in adverse impacts to both aquatic organisms and humans. Land surfaces without vegetation can be a serious source of pollutants. Uncontrolled sediment can clog Stormwater Conveyance Systems, leading to flooding. As it settles, sediment can smother the fish eggs and bottom-dwelling organisms and destroy aquatic habitat. Suspended sediment can lower the transmission of light through water and interfere with the respiration and digestion of aquatic organisms. Other pollutants are adsorbed on the surfaces of soil particles and as sediments wash off-site they carry these pollutants with them. Pollutant sources in landscaping include septic systems, fertilizers, animal waste, cleaning products, plant debris, and eroded soil. Phosphorus, nitrogen, and other nutrients can over stimulate aquatic weed and algae growth. As they decay, excess weeds and algae take up oxygen in the water, which is needed by fish and other aquatic life. Most of the pesticides are considered to be toxic substances. Toxins can accumulate in the aquatic food chain, as a larger organism eats many smaller ones that have been contaminated. Even in very small concentrations, toxic substances can harm aquatic plants and animals.

4.12.7 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to landscaping activities:

- Pesticides, fertilizers and other chemical products shall be used in accordance with applicable federal, state, and local laws and regulations.
- Pesticides, fertilizers, and other chemical products shall be stored in closed, labeled containers, under cover and off the ground.
- Landscaping waste shall be properly disposed by composting onsite or at an approved composting location or permitted landfill. Composting cannot be situated next to a waterway. Stockpiles shall be placed away from watercourses, bermed and covered to prevent the release of materials to the Stormwater Conveyance System or Receiving Waters.
- Where practicable, native vegetation shall be retained or planted to reduce water, fertilizer, and pesticide needs.
- **When applicable employ Integrated Pest Management BMPs.** Refer to the Our Water Our World website for details at: <http://www.ourwaterourworld.org/>
- Areas where work is being actively conducted shall be routinely cleaned up using dry methods (e.g., sweeping, raking). Wet methods (e.g., hosing) may only be used if adequate precautions have been taken to prevent the discharge of washwater or other materials to the Stormwater Conveyance System or Receiving Waters.
- The use of blowers is permitted so long as materials are collected and properly disposed. Leaving blown materials in the Stormwater Conveyance System or Receiving Waters is a violation of City Code. The Stormwater Conveyance System includes driveways, streets, and gutters.
- Measures shall be taken to reduce or eliminate landscaping and irrigation runoff. Examples of practices include proper irrigation programming, programming shorter irrigation cycle times, and decreasing frequency after the application of fertilizers and pesticides.
- Where practicable, fertilizers and pesticides shall not be applied within 48 hours of a predicted storm event. These products may not be applied during storm events.

4.12.8 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for landscapers, gardeners, and other persons working with landscaping and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Reduce or eliminate chemical use.
- Use pesticides with low mobility, high adsorption, and low persistence.
- Train employees in proper pesticide preparation, application, and safe-handling procedures to maximize product effectiveness and reduce the risk of accidental spills.
- Use proper lawn care product application equipments and techniques to minimize excessive spraying.
- Practice Integrated Pest Management (IPM) to minimize use of pesticides by utilizing organic equivalents, beneficial insects, and pest-tolerant plant species. For additional details please visit: <http://www.ipm.ucdavis.edu/>.
- Avoid unnecessary pesticide use. Spot application of pesticide ensures that the smallest amount of chemical is applied to the ground and that the chemical is applied only in areas where it is needed. This reduces contamination of surrounding soil. Timely application ensures that applied chemicals do the most good when application is needed. This includes applying chemicals at times when they are most likely to be absorbed by the target species and not spraying in windy conditions or immediately before predicted precipitation events, which could blow or wash the applied chemical into the surrounding environment.
- Employ environmentally sound fertilizer management. For facilities, consider developing and implementing a comprehensive nutrient management plan. Avoid applying excess fertilizer by using the rates that are recommended for the product. Understand the needs and growth requirements of the plants, and use the minimum amount of fertilizer necessary to meet the plant needs.
- Improve mowing practices. The facility should set the mower height so that no more than 1/3 of lawn height (no more than 1 inch total) is removed with each mowing.
- Compost landscaping waste or dispose of properly through City's green waste program. Composted green waste can be substituted for organic matter such as mulch and topsoil.
- Use erosion control mats and fabrics in channels to reduce the potential for erosion. If necessary, provide sodding or seeding on channels that are not stabilized with erosion control mats.
- After seeding, divert flows temporarily from seeded areas until stabilized.
- Sod stabilizes the area by immediately covering the surface with vegetation and enabling stormwater to infiltrate into the ground.
- Stabilize all emergency spillways with plant material that can withstand strong flows. Root material should be fibrous and substantial but lacking a taproot.

4.13 Nurseries and Greenhouses

4.13.1 Applicability

This section contains requirements that apply to nurseries and greenhouses. These businesses grow, store, and/or sell plants and may include the following activities: pesticide and fertilizer storage, nutrient management, pest and pesticide control, weed control, and greenhouse maintenance.

4.13.2 Description of Impacts

The pesticide and fertilizer storage areas for the nursery and greenhouse contain relatively large quantities of concentrated chemicals. These chemicals must be stored and managed properly to prevent the potential release, through broken, damaged, or leaking containers. Containment tanks used to store concentrated solutions of fertilizer can cause a significant hazard. Broken, damaged, or weak tanks can lead to spills that may contaminate urban runoff, which will drain to the Stormwater Conveyance System or Receiving Waters. Since most of the storm sewers do not connect to treatment plants, the untreated stormwater carrying large amount of chemicals would cause a significant pollution in the Receiving Waters. Most of the pesticides are considered to be toxic substances. Toxins can accumulate in the aquatic food chain, as one larger organism eats many smaller ones that have been contaminated. Even in very small concentrations, toxic substances can harm aquatic plants, animals, and human. So, any reduction in the use of chemical pesticides will also reduce pollutants from nurseries and greenhouses.

4.13.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to nurseries and greenhouses:

- Product containers shall be kept in good condition, shall be kept securely closed when not in use, and shall be stored in a manner that protects them from contact with stormwater.
- IPM practices and other non-chemical pest control methods (e.g., traps, sticky tape, hot-wire lamps) shall be considered where practicable. For additional details please visit: <http://www.ipm.ucdavis.edu/>.
- Nozzles, intermitters, and other application equipment shall be maintained in good working condition.
- Pesticides, fertilizers, and other chemical products shall be used and disposed in accordance with applicable federal, state, and local laws and regulations.
- Pesticides, fertilizers, and other chemical products shall be applied and disposed in accordance with label instructions and MSDS(s).
- Pesticides, fertilizers, and other chemical products shall be stored in closed, labeled containers, under cover and off the ground. Appropriate methods (e.g., timed application, combination slow-release and constant liquid fertilizer) shall be utilized to reduce excessive fertilization.
- Employ alternative pest control practices where feasible. For more details visit the Our Water Our World website at: <http://www.ourwaterourworld.org/>.
- Where practicable, low-volume watering methods (e.g., drip-, sub-, and pulse-irrigation) shall be used to minimize the potential for excess flows.
- Where practicable, tail-water recovery systems or subsurface drains shall be used to recycle irrigation water.
- Stockpiles shall be placed away from watercourses, bermed, and covered to prevent the release of materials to the Stormwater Conveyance System or Receiving Waters.
- Areas where work is being actively conducted shall be routinely cleaned up using dry methods (e.g., sweeping, raking). Wet methods (e.g., hosing) may only be used if adequate precautions have been taken to prevent the discharge of washwater or other materials to the Stormwater Conveyance System or Receiving Waters. Weather conditions and irrigation schedules shall be considered prior to the outdoor application of fertilizers and pesticides. Where practicable, these products shall not be applied outdoors prior to irrigation or rainfall. Their outdoor application during rainfall is prohibited.

- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.
- Adhere to State water conservation regulations at all times.
- Where feasible employ California Urban Water Conservation Councils BMPs. For additional details visit: <http://www.cuwcc.org/>
- Employ alternative pest control practices where feasible. For more details visit the Our Water Our World website at: <http://www.ourwaterourworld.org/>.
- Keep a spill kit on site at all times.

4.13.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for nurseries and greenhouses and to assist business with those facilities in selecting appropriate BMPs in order to achieve MEP.

- Dedicate buildings to chemical storage. These buildings should be separated from offices, workshops, laboratories, and surface water sources. They should be in flood free areas, downwind and downhill from sensitive areas such as houses and ponds. The underlying soils, geologic and hydrologic characteristics will have properties that prevent contamination of any water systems through runoff or percolation.
- Do not allow floor drains in storage areas. Floors should be impermeable and provide containment in the event of a spill. Secondary containment is routinely used for most open containers.
- Check the pesticides containers often for corrosion, leaks, loose caps, or bungs.
- Visibly post emergency contact numbers inside and outside the storage area. Train staff to call emergency contact numbers for any emergency of spilling chemicals. Train employees to respond for different emergency scenarios.
- Train all employees who work with fertilizers and/or fertilizer injector equipment in the proper use and maintenance of the equipment. Greenhouse staff should also be provided with training in the proper interpretation of nutrient analysis reports, the identification of nutrient deficiencies in plant material, and the correct selection of fertilizers and rates based on crop needs.
- Biannually inspect fertilizer equipment accuracy. Secondary containment around concentrated fertilizer reservoirs is routine. The inspection should also include containment tanks, back flow preventers and any equipment or container that holds fertilizer in the dry or liquid form. Manufacturer recommendations should be followed when calibrating or working on any fertilizer injector equipment.
- Use computer or automatically controlled injection systems for fertilizer equipment.
- Create an inventory of the amount of fertilizer purchased and the location of application.
- Make a conscious attempt to limit the amount of leaching of fertilizing water to 10 percent or less; ebb and flow benches and trickle tube irrigation should be used whenever possible.
- Check plants in a systematic fashion to detect problems early every week. Scouting and spray records are kept and used in making predictions and decisions. Plants are carefully examined by

a designated person for signs of disease or insect infestation when they first arrive at a facility, or before they are moved from one location to another.

- Maintain regular upkeep and repairs of the greenhouse structure. This will affect the manager's ability to minimize pesticide use. The structure should drain well, and there should not be a continuous population of algae or saprophytic fungi that thrive in moist, composting debris.
- Keep the floor of the storage area free of debris. Damaged or leaking containers should be repaired and/or replaced as soon as possible. All spilled material should be cleaned up upon discovery, and clean-up materials should be discarded promptly and properly. Shelving and counters should be kept free of debris and miscellaneous items. Inventory is controlled to prevent accumulation of excess material that may become difficult to use. Pesticides are segregated based on hazard class and function.

4.14 Golf Courses, Parks and Other Recreational Areas/Facilities

4.14.1 Applicability

The requirements in this section pertain to golf courses, parks, and other recreational areas/facilities.

4.14.2 Description of Impacts

Golf courses, parks, and other recreational areas are good environmental neighbors. However, a major environmental concern regarding these areas is the degradation of water quality as a result of the use of high rates of fertilizers and pesticides, which are often cited as incompatible with management strategies for Urban Runoff. Nitrogen and phosphorus (common components of turf fertilizers) are the cause of the most concern. Nitrogen (nitrates) is the component in fertilizer that promotes leaf growth and the green color. Phosphorus (phosphates) and potassium (potash) promote root development. They are considered the major source of pollutants. Since Stormwater Conveyance Systems do not connect to treatment plants, the untreated pollutants from the overuse of fertilizers and pesticides can endanger aquatic organisms and humans. Most pesticides are considered to be toxic substances. So, any reduction in the use of chemical pesticides and fertilizers will also reduce the possibility pollutants from the golf courses, parks, and other recreational areas.

4.14.3 BMP requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to golf courses, parks, and other recreational facilities:

- The requirements of section 4.6, Pest Control Services, apply to golf courses, parks, and other recreational facilities.
- The requirements of section 4.7, Eating and Drinking Establishments, apply to golf courses, parks, and other recreational facilities.
- The requirements of section 4.13, Landscaping, apply to golf courses, parks, and other recreational facilities.
- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.

4.14.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for golf courses and parks, and other recreational areas/facilities and to assist business conducting with these facilities in selecting appropriate BMPs in order to achieve MEP:

- Maximize the use of the open spaces of the area by using natural drainages for stormwater conveyance and daylighting other drainages.
- Design storm drainage systems to maximize the amount of rainfall runoff returning to the irrigation reservoir thus creating a closed system in which no undesirable chemical could reach an ESA or leave the site.
- Control erosion by careful phasing of construction around seasonal rains and by using proper erosion control methods. For additional construction site recommended BMPs please review the City's JRMP on Construction Site Runoff Requirements Manual.
- Specify turf grasses that are culturally and climatically well adapted and will therefore be drought resistant, have minimal fertility requirements and be resistant to local pests.
- Design and construct an irrigation system that will provide maximum watering flexibility to the use of these areas. Such a system will allow the operator to meet the course's varying water requirements created by the presence of possibly disparate microclimates.
- Construct a building dedicated to fertilizer and equipment storage and separated from surface water flooding effects. Locate the building downwind and downhill from sensitive areas such as houses and ponds. Construct over soil that will not lead to contamination of any water systems through runoff or percolation.
- Prohibit the use of fertilizers and pesticides in ESAs including water quality swales.
- Carefully store and clearly label fertilizers, pesticides and other toxic products to prevent accidental misuse. The facility in which they are located should have a sealed floor with a lip to insure that a spill would be contained. A spill prevention and control plan should be applied.
- Whenever possible, use alternate methods to pesticides. These would include biological, cultural or structural techniques that would make the habitat inhospitable to the pest. Such techniques would include introducing predator insects and beneficial nematodes to control undesirable populations.
- If pesticides are unavoidably required, use them in a judicious manner and use the least toxic formulation that will accomplish the desired task.
- Use only those pesticides with a short to intermediate half-life and which are approved by the local governing agency and apply them in accordance with all applicable laws and regulations.
- Follow manufacturer's instructions explicitly. A licensed applicator shall be responsible for all pesticide policy and applications.
- Take all possible precautions to insure sprayed pesticides arrive and remain at target surface. These would include using specialized equipment such as hooded sprayers and applying chemicals when weather conditions are favorable for maximum efficacy. Spraying should only occur when winds are below five miles per hour and when dry weather is forecast. If repeat treatments are required, rotate formulations to avoid development of pesticide resistant pathogens.
- Irrigate to carefully provide only the quantity of water required by the plant. To accomplish this goal, the U.S. Golf Association suggests scheduling irrigation in accordance with rainfall amounts, irrigating roughs only as needed and daily monitoring to avoid over watering.
- Use computer or automatically controlled injection systems for fertilizer equipment.

- Employ Integrated Pest Management Principles and Concepts when appropriate. For additional details please visit: <http://www.ipm.ucdavis.edu/>.
- Adhere to State water conservation regulations at all times.
- Where feasible employ California Urban Water Conservation Councils BMPs. For additional details visit: <http://www.cuwc.org/>

Employ alternative pest control practices where feasible. For more details visit the Our Water Our World website at: <http://www.ourwaterourworld.org/>.

4.15 Cemeteries

4.15.1 Applicability

The requirements in this section apply to cemeteries. Ongoing operations such as pesticide and fertilizer control, nutrient and sediment management, and landscape maintenance are the primary activities of concern at cemeteries.

4.15.2 Description of Impacts

An environmental issue has been raised regarding cemetery areas and the degradation of water quality as a result of the use of high rates of fertilizers and pesticides, which are often cited as incompatible with management strategies for Urban Runoff. Nitrates and phosphates in fertilizers are considered to be major pollutants. Any reduction in the use of chemical pesticides and fertilizers will also reduce pollutants from cemetery areas. Sediments from the graveyards are another significant problem in the stormwater. Sediments are usually relatively inert particles of sand, silt, grits, and other fine-to-coarse materials that are carried by the water when it flows. Sediments are deposited when the water slows down. Excess sediments can cause physical damage and clogging in fish gills and filter feeders, reduce visibility and light penetrations into the water, and impede free movement of freshwater through spawning gravel.

4.15.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to cemeteries:

- The requirements of section 4.6, Pest Management, apply to cemeteries.
- The requirements of section 4.13, Landscaping, apply to cemeteries.
- As necessary to prevent the entry of pollutants into the Stormwater Conveyance System or Receiving Waters, designated work areas shall utilize structural controls to (1) prevent the discharge of spills from the work area, (2) prevent run-on from contacting work surfaces and pollutants, and (3) prevent rainfall from contacting work surfaces and pollutants. The City may order the use of these and/or other structural controls if it determines that MEP has not been met.

4.15.4 Additional Recommended BMPs

The following BMP is not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations recommended for cemeteries and to assist business conducting with these facilities in selecting appropriate BMPs in order to achieve MEP. The BMPs recommended in sections 4.6, 4.13, and 4.16 should also be considered.

- Provide dumper for self-disposal of any old plants and flowers from visitors.
- Employ Integrated Pest Management Principles and Concepts when appropriate. For additional details please visit: <http://www.ipm.ucdavis.edu/>.

- Adhere to State water conservation regulations at all times.
- Where feasible employ California Urban Water Conservation Councils BMPs. For additional details visit: <http://www.cuwcc.org/>

Employ alternative pest control practices where feasible. For more details visit the Our Water Our World website at: <http://www.ourwaterourworld.org/>.

4.16 Pool, Spa and Fountain Cleaning

4.16.1 Applicability

This section contains regulations pertaining to those regulated commercial businesses that operate, clean, or maintain swimming pools, fountains, and spas.

4.16.2 Description of Impacts

Pollutants of concern for swimming pools, fountains and spas are nutrients, suspended solids, biocides such as chlorine and bromine, pH, and increased COD. Introduction of these pollutants into the Receiving Waters can harm aquatic organisms and humans.

4.16.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to pool and fountain cleaning:

- Chemicals shall be stored in leak-proof containers and under cover.
- Backwash wastewater may not be discharged to the Stormwater Conveyance System or Receiving Waters. Acceptable disposal options include the following: (1) discharge to sanitary sewer via a toilet or clean-out, (2) allowing infiltration to the soil, (3) discharging to a holding tank or settling pond. Please note that prior to discharging to the sanitary sewer system contact Vallecitos Water District for limitations and restrictions.
- Pool and fountain water should be discharge to the sanitary sewer system via toilet and / or cleanout. Please note that prior to discharging to the sanitary sewer system contact Vallecitos Water District for limitations and restrictions.
 - If discharge to the sanitary sewer system is not possible, then pool and fountain water must be dechlorinated to less than 0.2 parts per million- (ppm-) free chlorine prior to discharge to the Stormwater Conveyance System.

Pool water discharged after acid washing must be neutralized to a pH of 7.2 to 8.0. Discharge to the Stormwater Conveyance System is discouraged.

4.16.4 Additional Recommended BMPs

The following BMPs are not required, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These BMPs are provided as recommendations for business involved in pool, spa, and fountain cleaning activities and to assist business conducting those activities in selecting appropriate BMPs in order to achieve MEP.

- Discharge pool, spa, or fountain water to the sanitary sewer system (the preferred method). Prior to discharge contact Vallecitos Water District for restrictions and / or limitations.
- Dechlorinate pool and spa water even if it is to be emptied into a vegetated area or a lawn. Contact your pool chemical supplier to obtain the neutralizing chemicals you will need. Letting the pool or spa "sit" may also reduce chlorine levels. Use a test kit to determine the concentration. Water discharged to the ground or a lawn must not cross property lines and must not produce runoff. The pool or spa owner should be informed of the method of disposal.

- Regulate the rate of flow of any discharge so that it does not cause problems such as erosion, surcharging, or flooding.
- Do not dispose of diatomaceous material used in pool filters in surface waters, on the ground, into storm drainage systems or septic systems. Dry it out as much as possible, bag it in plastic, and dispose of at the landfill. Better yet, spread it out along the base of decorative landscape plants since it will act as a barrier to many pests.
- Allow heated water to cool to air or standing temperature prior to discharge.
- Do not add copper-based algae control products to the water.

4.17 Portable Sanitary Toilet Servicing

4.17.1 Applicability

The regulations in this section apply to businesses that conduct servicing activities pertaining to portable sanitary toilets (commonly referred to as a Port-a-Potty).

4.17.2 Description of Impacts

Port-a-Potty or portable toilets can usually be found when the sites or areas have no permanent sanitary facilities or where a permanent facility is too far from activities. Improperly managing this servicing may cause the sanitary waste to accidentally fall into the surface water because of overflowing or spilling. Once the surface water is contaminated with the sanitary waste, the pollutants will drain directly into the storm sewer. Since storm sewers do not connect to treatment plants, the untreated pollutants will cause a significant environmental problem in streams, lakes, lagoons, and the ocean.

4.17.3 BMP Requirements

In addition to the applicable requirements in Chapters 2 and 3 of this Manual, the following conditions apply to portable sanitary toilet servicing:

- Rinse water from the cleaning of closets may not be disposed to the Stormwater Conveyance System or Receiving Waters.
- If rinse water cannot be properly disposed at a job site, it must be contained for proper disposal.
- Paper trash shall be removed prior to cleaning closets.
- Service facility wash areas must have a bermed perimeter and properly slope to a grated floor drain.
- Service facility wash areas shall be drained to the sanitary sewer or to a holding tank. Dischargers are responsible for obtaining all necessary approvals from sewerage agencies prior to discharging to the sewer.
- Service facility wash area surfaces shall be kept clean and maintained in good condition.
- Materials and equipment necessary for spill response shall be maintained and kept readily accessible, and all employees conducting cleaning of closets trained in their proper use.
- Hoses, couplings, tanks, etc., shall be maintained in good condition to prevent leaks or spills.
- Where practicable, closets shall be located away from the Stormwater Conveyance System and Receiving Waters. They should also be located away from high vehicular traffic areas.
- Portable toilets cannot be placed within the public right of way (i.e. sidewalk, street and etcetera).
- Portable toilets should be secured to prevent tipping.
- Closets shall be posted or otherwise labeled to encourage reporting of needed cleaning or repair.
- Portable toilets should be placed on a secondary containment plan.

4.18 Other Commercial Sites/Sources Contributing Significant Pollutant Loads

At any time, the City may determine that additional specific regulated commercial businesses or activities may contribute significant pollutant loads to the Stormwater Conveyance System. When the City makes these determinations, it may choose to develop additional BMP requirements.

Areas and activities that the City has identified at this time to generally be potential contributors of significant pollutant loads include spills and non-stormwater discharges, loading and unloading activities, and exposed storage areas. These areas and activities are covered in the previous sections and BMP requirements are specified where applicable. Additional guidance on these activities is provided in this section. These are not requirements, however, these and/or other BMPs may be required by the City if it is determined that MEP has not been met. These sections are provided as recommendations and to assist business with these areas and activities in selecting appropriate BMPs in order to achieve MEP.

4.18.1 Spills and Non-Stormwater Discharges

Spills and non-stormwater discharges can contribute a variety of pollutants at significant levels to Stormwater Conveyance Systems and/or Receiving Waters. These types of discharges are not only illicit discharges but also often preventable. The discharge of any spilled materials and/or non-stormwater could significantly impact Receiving Water quality. During dry weather when there is less flow in the streams, impact from spills and non-stormwater discharges can be devastating to ecosystems and even the tourist industry. Some spilled materials may accumulate in the Stormwater Conveyance System until a significant storm event washes the materials off, impacting wet-weather stormwater quality. Other spilled materials may infiltrate the ground surface and contaminate both soil and groundwater. Therefore, spills and non-stormwater discharge activities are considered High Threats to water quality.

Both spills and non-stormwater discharges are caused by human factors and therefore are preventable if appropriate inspection, maintenance, chemical/waste handling, and response practices were implemented.

The following BMPs are recommended and should be considered at any facilities with potential for spills or other non-stormwater discharges:

- Spill Management Plan: Develop a spill prevention, response, and clean-up plan. The plan should outline procedures, responsible personnel, equipment needed for spill containment and clean up and locations where the equipment should be kept and maintained. The procedures outlined in the plan should include procedures to prevent spills and other non-stormwater discharge of materials from the facility, as well as procedures to respond and clean up when a spill occurs. The plan should also include inspection procedures and frequency to reduce the risk of a spill and eliminate all non-stormwater discharge. An appropriate reporting procedure should also be developed to allow timely reporting of a spill and non-stormwater discharge to proper authorities.
- Implement the developed spill prevention, response, and cleanup plan to reduce the risk of potential spills; respond immediately to a spill and eliminate any non-stormwater discharge.
- Spill Kit: Provide and maintain all necessary containment, response, and clean-up equipment onsite. Spill kit should include: facility map (Develop a site map showing the locations of all material storage areas and locations and types of commercial activities. Locations of inlets and outfalls of Stormwater Conveyance System as well as drainage patterns within the facility should be clearly marked on the site map. Locations, names, and Hydrological Unit numbers of Receiving Water bodies should be marked on the site map to the extent possible. Locations and

description of any devices that are installed to stop spills from leaving the facility should also be identified on the site map), absorbent materials, storm drain mat covers, booms, personal protection equipment (disposal gloves, knee high rubber boots, face shield) plastic bags for material cleanup, flat shovel, spill report form, list of agencies to contact based upon type and quantity of material spilled and etcetera. However, note that the contents of the spill kit must be appropriate to the type and quantities of materials stored or used at the facility.

- Train responsible personnel regularly regarding inspection, spill prevention, response, and clean-up procedures and equipment to be used, as well as reporting procedures.
- Train all employees to have a basic knowledge of spill control procedures.
- Train all employees, responsible for handling materials, on the application of up-to-date techniques to prevent spills and check for leaks.
- Document all spills, leaks and non-stormwater discharge events. Retain these records onsite for at least three years from the events.
- Update the spill prevention, response, and clean-up plan when activities or responsible personnel change, after each spill event or whenever necessary. At a minimum, the plan should be reviewed and updated annually.
- Post a written summary of the plan at appropriate locations within the facility, identifying the spill clean-up coordinators, location of clean-up kits, and phone numbers of regulatory agencies to be contacted in the event of a spill.
- Transport and store all liquid materials in appropriate containers with tight-fitting lids or seals.
- Use drip pans underneath all containers, fittings, valves, and other devices where materials are likely to spill or leak.
- Use tarps, ground cloths, or drip pans areas where materials are mixed, carried, and apply to prevent any spilled materials from leaving the areas.
- Store emergency spill containment and clean-up kits near areas having high potential for spills, leaks, and other accidental releases of materials. Contents of the spill kit must be appropriate to the type and quantities of materials stored or used at the facility.
- Routinely evaluate and improve all commercial activities within the facility that involve the storage, handling, transportation, manufacturing and use of all liquid and solid materials and products for the threat to contaminate stormwater runoff and ambient water quality.
- To the extent possible, conduct high-threat activities that could result in spills or other discharges in locations well away from storm drains and other waterways or water bodies.
- To the extent possible, avoid conducting high-threat activities that could result in spills or other discharges during storm events.

The following list is provided to assist in the preparation and maintenance of spill prevention, response, and clean-up plans:

- Provide a description of the facility including the owner's name, address, and phone number, the nature of the facility activities, and a detailed list of materials handled in the facility that may potentially impact stormwater and/or ambient water quality. The material list should include all raw materials, intermediate products, finished products, byproducts and waste products that may be exposed or in contact with stormwater or ambient water.
- Provide a list of designated employees who are trained and responsible for the implementation of the spill prevention, response, and clean-up plan. A list of names, addresses, and phone numbers (office, home and mobile) of these designated employees must be kept current in the plan.

- Develop a site map showing the locations of all material storage areas and locations and types of commercial activities. Locations of inlets and outfalls of Stormwater Conveyance System as well as drainage patterns within the facility should be clearly marked on the site map. Locations, names, and Hydrological Unit numbers of Receiving Water bodies should be marked on the site map to the extent possible. Locations and description of any devices that are installed to stop spills from leaving the facility should also be identified on the site map.
- Describe routine inspection procedures and frequency to reduce the risk of a spill and eliminate all non-stormwater discharge.
- Describe spill cleanup and disposal procedures.
- List the names and numbers of agencies to contact in the event of a spill.
- Document historical inspection and training events.
- Document historical spill and clean-up events.
- Document revisions to the spill prevention, response, and clean-up plan including nature, reasons, and time of the revisions.

In the event of a spill the following should be considered:

- Start spill cleanup immediately. Follow procedures outlined in the spill prevention, response, and clean-up plan properly. Use cloth rags or whatever appropriate to clean up spills. Do not use emulsifiers or dispersants such as liquid detergents or degreasers because they would further mobilize the spilled materials.
- Contact employees responsible for implementing the spill prevention, response, and clean-up plan immediately.
- Seal all inlets to the storm sewer or other conveyance systems nearby the spill area to prevent materials from entering the drainage system.
- Immediately report all spills that could reach storm drains, sanitary sewer, streams, lakes, coastal waters, and other ambient water bodies to the appropriate agencies.
- Do not wash absorbent material down interior floor drains or exterior storm drains.
- Dispose of used spill control materials in accordance with applicable solid waste and hazardous waste regulations.

4.18.2 Loading and Unloading Activities

Loading and unloading of liquid or solid materials via trucks, rail carts, or ships are high-threat activities because of their high potential of having a spill or leak. While most of loading and unloading activities occur at commercial or commercial-loading docks, the spilled or leaked materials could enter ambient water bodies directly or through a Stormwater Conveyance System. Depending on the type of commercial facilities, the spills or leaks may contain oxygen-demanding organic and chemical matters, toxic organic compounds, oil and grease, heavy metals, nutrients, and acidic or alkaline products. Without proper clean up, some of such materials would accumulate in soils and Stormwater Conveyance System that could adversely impact stormwater, groundwater, and ambient water quality.

The following BMPs are recommended and should be considered at any facilities or other activities involving the loading and unloading of liquid and solid materials:

- Review and follow those recommendations and regulations relating to spill and non-stormwater discharges. Review and follow loading and unloading of liquid and solid materials can potentially result in spills or other discharges.

- Regularly train employees responsible for loading and unloading operations on spill prevention, response, and clean-up procedures. At least one trained employee must always be onsite during loading and unloading activities.
- Well maintain all loading/unloading equipment such as pumps and hoses to ensure a sealed operation. Control or shutoff valves and other emergency devices should be installed at appropriate locations and clearly marked to enable quick shutoff if a leak or spill occurs.
- During loading, unloading and other material-transfer activities as well as when making or breaking connections, use drip pans underneath all hose and pipe connections, tank cars, hose reels, filler nozzles, and other potential locations where spilling and leaking are possible. Drip pans should be stored in a covered area adjacent to the loading area to ensure quick access while preventing them from contact with stormwater when not in use.
- Properly clean drip pans after each use to remove any leaked material collected, which should be disposed of according to applicable solid waste and hazardous waste regulations.
- Install temporary seals or covers on storm drain inlets that may receive runoff from the loading areas.
- Except for areas where large equipment cannot maneuver under a roof, cover the loading area to prevent rainfall from coming into contact with unloading/loading equipment and materials.
- Pave the loading/unloading areas with materials that are compatible with the material(s) to be loaded / unloaded.
- Grade the loading areas so that all runoff from the loading areas can be directed to a sump or a holding tank so that any spilled material not contained onsite can be captured.
- For covered loading areas, have no outlet for the sump. All captured spilled material must be removed and disposed of according to applicable solid waste and hazardous waste regulations.
- For uncovered loading areas, have a capacity for the containment system sump from the greater volume of the following: the volume that would be discharged from the largest nozzle used to load/unload over a 15-minute period, or 0.6 inch of runoff over the entire loading/unloading areas. The control valve of the sump should remain open when loading/unloading activities are not taking place to allow stormwater runoff to discharge into a Stormwater Conveyance System, but the valve should be closed when loading/unloading activities are ongoing. Any spilled material captured in the sump must be removed and properly disposed of before the control valve can be re-opened.
- For loading/unloading of liquid materials, have an adequate capacity for the sump or containment system to hold the volume of material that would be discharged from the largest nozzle used to load/unload for a period of 15 minutes.
- Grade the areas outside the loading areas so that runoffs from these areas will not mix with each other.
- For operations in uncovered areas, avoid loading/unloading activities during storm events.
- For loading/unloading of powdered or lightweight materials, avoid loading/unloading activities during high-wind conditions.

4.18.3 Exposed Storage Areas

If not properly contained, sealed, or covered, materials or products stored at exposed outdoor facilities may get in contact with stormwater and impact water quality. Exposed storage facilities may include above-ground stationary or portable storage tanks, portable storage containers, stockpiles and other non-contained storage of materials or products. Spills and leaks from above-ground storage tanks storing liquid chemicals, fertilizers, pesticides, solvents, grease, or petroleum products may contain toxic organic compounds, solvents, fuel, oil and grease, heavy metals, nutrients, acidic or alkaline materials,

and oxygen-demanding chemical or organic contents. Outdoor portable containers may store liquids, food wastes including vegetable grease, animal grease, or other accumulated food wastes, hazardous wastes including used oil, liquid feedstock, cleaning compounds chemicals, etc. that may contaminate stormwater and ambient water quality by releasing organic compounds, solvents, fuel, oil and grease, heavy metals, nutrients, acidic or alkaline materials, bacteria and oxygen-demanding chemical or organic contents.

Stockpiles are temporary or permanent storage of soils and other materials outside that are exposed to rainfall and stormwater runoff. Erosion of stockpiles and leaching of chemicals from the stored materials can significantly impact the quality of Stormwater Conveyance System and nearby waterways. Significant erosion of solid materials not only will increase the levels of suspended solids in stormwater and ambient water, but also can reduce the capacity of drainage system resulting in significant maintenance problems and even flooding. Elevated levels of suspended solids due to erosion will impact water quality and adversely affect aquatic life. In addition, pollutants contained in storage materials such as salts (e.g., sodium, calcium, and magnesium), organic compounds, heavy metals, etcetera can leach out and contaminate soil, stormwater, surface water, and groundwater.

Outdoor storage of raw materials, intermediate products, finished products, byproducts, or waste products that are not covered, sealed, or contained will get in contact with stormwater and may impact water quality. Materials and products, such as pesticides, fertilizers, contaminated soil, food products and wastes, metals, construction materials and wastes (e.g., lumber, roofing materials, insulation, piping, concrete), erodible materials (e.g., sand, gravel, road salt, topsoil, compost, excavated soil, wood chips, mulch materials), can significantly impact water quality if not properly stored.

All outside storage facilities are considered high threat facilities and the following BMPs are recommended and should be considered at locations where these storage facilities exist:

The following BMP implementation or equivalent measures are required for commercial facilities involving the storage of raw materials, intermediate products, finished products, byproducts and waste products in areas exposed to stormwater:

- Cover all non-containerized materials and products stored in exposed areas by plastic sheeting or other impermeable materials when not in use.
- Anchor covers with gravel bags, tires, or other means.
- Grade the areas outside the storage areas so that the storage areas are hydraulically isolated to prevent mixing with nearby stormwater runoff.
- If applicable, store materials/products in containers that are compatible with the material being stored.
- Seal well, leak-proof, and keep in good condition all containers without corrosion or leaky seams. All storage tanks, fittings (e.g., valves, pipe connections), and containment systems should be inspected daily for leaks and spills. All leaking, corroded, or otherwise deteriorating containers and fittings must be replaced.
- Protect all storage tanks from potential physical damage from vehicles or other equipment.
- Recycle sweep materials to the storage areas or dispose the materials according to applicable regulations.
- Conduct cleaning activities on exposed storage areas in accordance with the BMP implementation requirements for commercial washing activities. All washwater must be collected and properly treated or disposed.

- Make sure all construction-related stockpiling operations comply with all BMP implementation requirements for construction activities. This includes soil, compost and aggregate stockpiling.
- Secure all exposed storage areas that are accessible to unauthorized personnel or the general public to prevent accidental spills, vandalism, or any unauthorized use, misplace or removal of the materials or products.
- Inspect daily all liquid and solid storage containers, including waste dumpsters, for leaks, spills, and other signs of contamination.
- Regularly sweep and clean all paved storage areas exposed to rainfall, at least monthly or as needed depending on site conditions. Washing of paved surfaces with water is not recommended but, if conducted, must comply with applicable BMP implementation requirements for such activities.
- Make sure all reactive, ignitable, or flammable materials stored comply with applicable Fire Code and other regulations.
- Store exposed materials or products only on impervious and covered areas, or pave or line the storage area with an impermeable material that is compatible with the materials being stored.
- Store erodible or leachable materials away from storm drain inlets.
- For stockpiles, cover the storage areas to prevent contact with rainwater by either storing the materials or products inside a building or other covered areas, construct canopy or other roof structure over storage area or cover stockpiles with plastic sheeting or other impermeable material such as tarps.
- For large storage areas that cannot be covered, install a system to collect and treat stormwater runoff from the material storage area. Grade the storage areas to ensure hydraulic isolation from other areas. Provide treatment to collected stormwater runoff before discharge off-site.
- For permanent container/tank storage areas, install a secondary containment system with suitable capacity to prevent spilled or leaked materials from leaving the areas or entering a drainage system or adjacent waterways. Any materials collected in the containment system should be properly treated or disposed.
- Install a control valve at the outlet of the containment system. Keep the valve closed during normal operation period and only open the valve when there is a need to release uncontaminated stormwater.
- For temporary container/tank storage areas that are used for less than 30 days, use a portable secondary containment system.
- For outdoor petroleum storage tanks, provide treatment to stormwater runoff from the storage containment areas by an American Petroleum Institute (API) or coalescing plate oil/water separator before discharging off-site.
- For stockpiling, avoid low-elevation areas where stormwater runoff tends to concentrate. Grade the area in and around the stockpiles to a minimum slope of 1.5 percent to prevent pooling.
- Maintain all existing vegetation around and downstream from stockpile areas to serve as a buffer or treatment area to trap suspended solids.
- Limit access to stockpile areas to minimize the amount of dust and other loose material generated.