

APPENDIX B – BMPs:

Fact Sheets



APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices

DESCRIPTION:

Inspect and maintain all structural BMP's (both existing and new) on a routine basis to remove pollutants from entering storm drain inlets. This includes the establishment of a schedule for inspections and maintenance.

APPROACH:

Regular maintenance of all structural BMP's is necessary to ensure their proper functionality.

- Annual inspections.
- Prioritize maintenance to clean, maintain, and repair or replace structures in areas beginning with the highest pollutant loading.
- Clean structural BMP's in high pollutant areas just before the wet season to remove sediments and debris accumulated during the summer and fall.
- Keep accurate logs of what structures were maintained and when they were maintained.
- Record the amount of waste collected.

LIMITATIONS:

- Cost
- Availability of trained staff
-

TARGETED POLLUTANTS

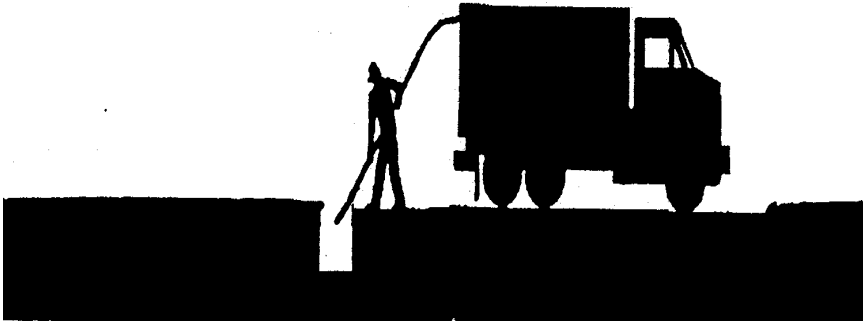
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
 - Medium Impact
 - Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Staffing
- Training
- Administrative

- High
 - Medium
 - Low



PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:

Maintain catch basin and stormwater inlets on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, and restore the catch basins' sediment trapping capacity. A catch basin is distinguished from a stormwater inlet by having at its base a sediment sump designed to catch and retain sediments below the overflow point. This information sheet focuses on the cleaning of accumulated sediments from catch basins.

APPROACH:

Regular maintenance of catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the key to effective catch basins are:

- At least annual inspections.
- Prioritize maintenance to clean catch basins and inlets in areas with the highest pollutant loading.
- Clean catch basins in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.

LIMITATIONS:

There are no major limitations to this best management practice.

MAINTENANCE:

Regular maintenance of public and private catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the keys to effective catch basins are:

- Annual/monthly inspection of public and private facilities to ensure structural integrity, a clean sump, and a stenciling of catch basins and inlets.
- Keep logs of the number of catch basins cleaned.
- Record the amount of waste collected.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

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IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

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BMP: Community Cleanup

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APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices

DESCRIPTION:

An event in which the community will promote and encourage community members to clean up neighborhoods, city parks, streets, streams, or other properties. This effort involves the removal of litter and bulky waste as well as the removal of green waste, such as yard clippings, trees, branches, leaves, or other types of undesirable vegetation.

APPROACH:

- Designate an individual or groups of individuals to schedule and organize the cleanup projects, coordinate waste collection and disposal, and assign leaders for supervision of the projects.
- Identify sites that need to be cleaned up in the community, and plan when to have the cleanups.
- Advertise the program and let residents know about cleanup project dates, locations, and what items will be helpful for them to bring to assist in the projects.
- When volunteers are being used for cleanup efforts, municipalities must address the issue of liability. An attorney should be consulted to determine how liability should be handled and draft a waiver for volunteers to sign before participating.

LIMITATIONS:

- Organization at the municipal level is a limitation to cleanup efforts. Some municipalities do not have the resources to designate staff to oversee a cleanup program and to supervise cleanup activities.
- Limitations to an effective cleanup program are volunteer interest and commitment.

MAINTENANCE:

- To maintain water quality, cleanup efforts must be recurring; a one-time-only cleanup event might raise awareness in the community, but it will not keep trash out of the river.
- Seasonal or annual cleanup events will help make sure that trash and debris are kept out of public areas as much as possible.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

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IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

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Municipalities can establish training programs to educate contractors about erosion and sediment control practices



Construction reviewers periodically inspect construction sites to ensure that contractors have installed and maintained their erosion and sediment controls properly (Source: University of Connecticut Cooperative Extension System, 2000)

APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices

DESCRIPTION:

One of the most important factors determining whether or not erosion and sediment controls will be properly installed and maintained on a construction site is the knowledge and experience of the contractor. Many communities require certification for key on-site employees who are responsible for implementing the ESC plan. Several states have contractor certification programs. The State of Delaware requires that at least one person on any construction project be formally certified. The Delaware program requires certification for any foreman or superintendent who is in charge of onsite clearing and land-disturbing activities for sediment and runoff control associated with a construction project.

APPROACH:

- Training and certification will help to ensure that the plans are properly implemented and that best management practices are properly installed and maintained.
- Inspector training programs are appropriate for municipalities with limited funding and resources for ESC program implementation.
- Contractor certification can be accomplished through municipally sponsored training courses, or more informally, municipalities can hold mandatory pre-construction or pre-wintering meetings and conduct regular and final inspection visits to transfer information to contractors (Brown and Caraco, 1997).
- To implement an inspector training program, the governing agency would need to establish a certification course with periodic recertification, review reports submitted by private inspectors, conduct spot checks for accuracy, and institute fines or other penalties for noncompliance.
- Curb systems should be maintained through curb repair (patching and replacement).
- To minimize the amount of spilled material tracked outside of the area by personnel, grade within the curbing to direct the spilled materials to a down-slope side of the curbing, thus keeping the spilled materials away from personnel and equipment. Grading will also facilitate clean-up.

LIMITATIONS:

- Contractor certification and inspector training programs require a substantial amount of effort on the part of the municipality or regulatory agency.
- They need to develop curricula for training courses, dedicate staff to teach courses, and maintain a report review and site inspection staff to ensure that both contractors and inspectors are fulfilling their obligations and complying with the ESC program.

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IMPLEMENTATION REQUIREMENTS

- Capital Costs
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- Maintenance
- Training

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Students learn about storm water pollution (Source: City of Sacramento Storm Water Management Program, no date)

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DESCRIPTION:

Classroom education is an integral part of any storm water pollution outreach program. Providing storm water education through schools exposes the message not only to students but to their parents as well. Topics can include Water conservation, proper lawn and garden care, and proper disposal of hazardous household wastes.

APPROACH:

- Building a strong relationship with the school district is the most important step in getting storm water education into the schools.
- When developing an outreach message for children, choose the age ranges to target.
- Many additional classroom materials are available for use free of cost. Educational materials available for downloading from the Internet at www.csu.org/water/watereducation/watereducation.html.
- Should make students aware of the potential impacts of hazardous household materials on water quality and inform residents of ways to properly store, handle, and dispose of the chemicals
- Water usage in the home can easily be reduced by 15 to 20 percent—without major discomfort—by implementing a program to conserve water in the home.
- Lawn and garden activities can result in contamination of storm water through pesticide, soil, and fertilizer runoff. Proper landscape management, however, can effectively reduce water use and contaminant runoff and enhance the aesthetics of a property.

LIMITATIONS:

- One of the limitations of classroom education is being able to incorporate storm water issues into the school curricula. With so many subjects to teach, environmental issues might be viewed as less important.

MAINTENANCE:

- Programs and educational materials can be re-used, but they must be presented on a continual basis.

TARGETED POLLUTANTS

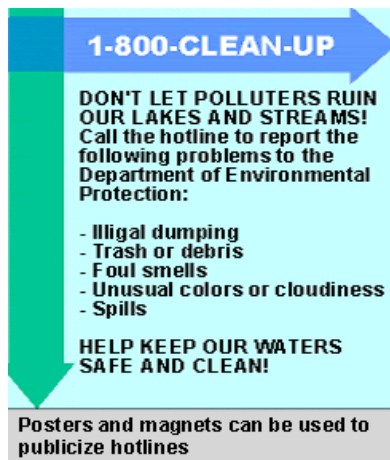
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IMPLEMENTATION REQUIREMENTS

- Capital Costs
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DESCRIPTION:

Because regulators and authorities cannot monitor all water bodies at once, they sometimes rely on the public to keep them informed of water polluters. Community hotlines provide a means for concerned citizens and agencies to contact the appropriate authority when they see water quality problems.

APPROACH:

- Once a city has determined that they need a hotline, they should choose between a telephone or an e-mail hotline.
- A party or agency responsible for maintaining the hotline and responding to incoming complaints must first be identified. The responsible party could be a division of local government, a water quality board, a public utility, or an environmental agency.
- All distributed materials should include pollution hotline numbers and information.
- Curbs should have pumping systems, instead of drainage systems, for collecting spilled materials.
- Generally, an investigation team promptly responds to a hotline call and, in most cases, visits the problem site.
- If a responsible party can be identified, the team informs the party of the problem, offers alternatives for future disposal, and instructs the party to resolve the problem.

LIMITATIONS:

- The community's ability to pay for it.
- The ability of the community to keep the hotline staffed.

MAINTENANCE:

- The most important part is the responsiveness of the hotline. If a citizen reports an illegal dumping but no action is taken by the appropriate authority, that citizen could lose faith in the hotline and might not call back with future information.

TARGETED POLLUTANTS

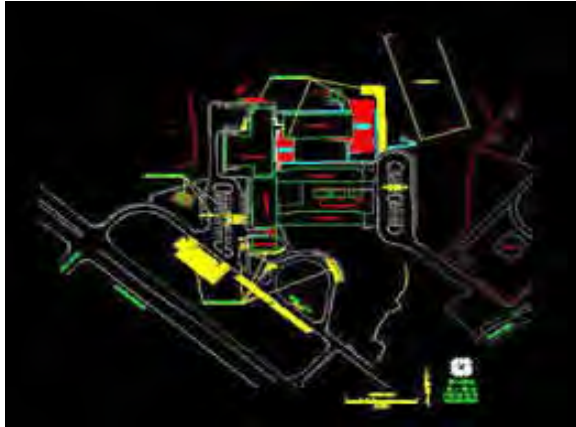
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IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

- High Medium Low



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DESCRIPTION:

Drawings of cities standards that depict specifications for building, construction practices etc. are helpful in communicating to contractors what their responsibilities are. Furthermore Standard drawings show inspectors what is proper practice and provides a minimum requirement to enforce. This also includes compilation of storm water related drawings with other city standard drawings. Drawings may sold to contractors so they can abide by city specs when working inside the city boundary.

APPROACH:

- Decide on specifications that reduce water pollutants in a given city.
- Make drawings depicting proper construction practices and acceptable designs
- Compile storm water related drawings into a specification booklet for contractors.
- Require that the design standards be met.
- Train inspectors on what to look for and how to enforce the standards.
- City requirements for an erosion control plan prior to breaking ground on a large development, can have great benefits.

LIMITATIONS:

- Some time may be required to decide on standards.
- Drawings will do no good without proper inspection and enforcement

MAINTENANCE:

- Specification Drawings may need to change as demands changes

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IMPLEMENTATION REQUIREMENTS

- Capital Costs
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APPLICATIONS

- Manufacturing
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- Waste Containment
- Housekeeping Practices

DESCRIPTION:

Erosion control measures must be taken during a construction project. An Erosion Control Plan will be submitted and approved before work can begin on the project. An Erosion Control Plan describes what erosion control BMPs will be implemented, when and where, during the project.

APPROACH:

- Create a list of possible erosion control BMPs that could be implemented in any given project.
- Require submittal of erosion & sediment control plans for projects that are on 1 acre and larger sites.
- Develop a review checklist for plan review personnel.
- Provide the review checklist to contractors/developers so they know what is expected.
- Provide inspectors with a copy of the approved plans.

LIMITATIONS:

- Must be enforced to be affective.
- Sometimes site conditions are different then planned on and the plans have to be modified.
- The erosion control measures have to be maintained.
- The BMPs have to be installed early on in the project.
- The BMPs have to be removed at the end of the project.

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IMPLEMENTATION REQUIREMENTS

- Capital Costs
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APPLICATIONS

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- Housekeeping Practices

DESCRIPTION:

Educational Materials to present information to the public on storm water issues and water quality awareness is an integral part of any storm water education program. Providing storm water education by sending out information with bills, newsletters, or presented at city activities, in city offices, schools, and fair booths, exposes the message to a wide variety of people, if not city-wide. Topics can include Water conservation, proper lawn and garden care, and proper disposal of hazardous household wastes. Many educational materials can be used for city personnel, contractors as well as homeowners or businesses.

APPROACH:

- Building a strong relationship with citizens is the most important step in getting storm water education city-wide.
- Educational materials can be tailored to all different age groups and technical background.
- Should make people aware of the potential impacts of hazardous household materials on water quality and inform residents of ways to properly store, handle, and dispose of the chemicals
- Water usage in the home can easily be reduced by 15 to 20 percent—without major discomfort—by implementing a program to conserve water in the home.
- Lawn and garden activities can result in contamination of storm water through pesticide, soil, and fertilizer runoff. Proper landscape management, however, can effectively reduce water use and contaminant runoff and enhance the aesthetics of a property.

LIMITATIONS:

- Not everyone will actually read or incorporate the information into their lives.
- Budgets need to have sufficient funds to obtain educational materials and their distribution.

MAINTENANCE:

- Programs and educational materials can be re-used, but they must be presented on a continual basis.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
- Medium Impact
- Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

- High
- Medium
- Low



PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:

Employee training, like equipment maintenance, is a method by which to implement BMPs. Employee training should be used in conjunction with all other BMPs as part of the facility's SWPPP.

The specific employee training aspects of each of the source controls are highlighted in the individual information sheets. The focus of this information sheet is more general, and includes the overall objectives and approach for assuring employee training in stormwater pollution prevention. Accordingly, the organization of this information sheet differs somewhat from the other information sheets in this chapter.

OBJECTIVES:

Employee training should be based on four objectives:

- Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater;
- Identify solutions (BMPs);
- Promote employee ownership of the problems and the solutions; and
- Integrate employee feedback into training and BMP implementation.

APPROACH:

- Integrate training regarding stormwater quality management with existing training programs that may be required for other regulations.
- Employee training is a vital component of many of the individual source control BMPs included in this manual.

TARGETED POLLUTANTS

- Sediment
 - Nutrients
 - Heavy Metals
 - Toxic Materials
 - Oxygen Demanding Substances
 - Oil & Grease
 - Floatable Materials
 - Bacteria & Viruses
- High Impact
 - Medium Impact
 - Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- High
 - Medium
 - Low



PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

APPLICATION:

Many of the chemicals used on-site can be hazardous materials which become hazardous waste upon disposal. These wastes may include:

- Paints and solvents; petroleum products such as oils; fuels and greases; herbicides and pesticides; acids for cleaning masonry; and concrete curing compounds.

In addition, sites with existing structures may contain wastes which must be disposed of in accordance with federal, state and local regulations, including:

- Sandblasting grit mixed with lead, cadmium or chromium based paints, asbestos, and PCBs.

INSTALLATION/APPLICATION CRITERIA:

The following steps will help reduce stormwater pollution from hazardous wastes:

- Use all of the product before disposing of the container.
- Do not remove the original product label, it contains important safety and disposal information.
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.

LIMITATIONS:

Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste collector.

MAINTENANCE:

- Inspect hazardous waste receptacles and areas regularly.
- Arrange for regular hazardous waste collection.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
- Medium Impact
- Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- High
- Medium
- Low

PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:
 This BMP represents an important opportunity to reduce pollutants in stormwater runoff by using a comprehensive planning process to integrate water quality concerns into the development and redevelopment process. It is applicable to all types of land use and represents one of the most effective pollution prevention practices.

APPROACH:
 The land use planning process need not be complex. A basic schematic model involves:

- Phase 1 - Goals: Determine clear-cut water quality goals.
- Phase 2 - Study: Identify planning area, gather pertinent data, and write a description of the planning area and its associated problems.
- Phase 3 - Analysis and Synthesis: Determine and prioritize the water quality needs as they relate to land use.
- Phase 4 - Recommendations: Future courses of action are developed to address the identified problems and needs determined previously.
- Phase 5 - Adoption: The recommendations are presented to a political body for acceptance and implementation.
- Phase 6 - Implementation: Recommendations adopted by the political body are implemented by the locality.

LIMITATIONS:

- Land use planning/management frequently addresses sensitive public issues. Restrictions on certain land uses for the purpose of mitigating stormwater pollution may be politically unacceptable.
- The use of land use controls and planning for water quality improvements may be limited by the lack of staff to enforce various aspects of local zoning and building codes.
- The planning process addresses many public needs and legal requirements which often are in conflict with one another. It is difficult but extremely important to integrate and balance these sometimes competing programs.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
- Medium Impact
- Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- High
- Medium
- Low

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

DESCRIPTION:

Create maps of existing storm water drain systems to facilitate spill cleanup and identify illicit connections.

APPLICATION:

- Use the map of the storm water drain system to track drainage paths and trace any contaminant problems to their source.
- In the event of a major spill, use the map of the storm water drain system to identify where the contaminants will flow to and cut off the flow before further contamination.

INSTALLATION/APPLICATION CRITERIA:

- Using GIS or other mapping programs, create accurate maps of the storm water drain system, including street names and pipe diameters.

LIMITATIONS:

MAINTENANCE:

- Annually review any development that has occurred and update the map of the storm drain system accordingly.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

- | |
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| <input checked="" type="checkbox"/> High Impact |
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IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

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OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from material use by using alternative products, minimizing hazardous material use on-site, and training employees and subcontractors.

APPLICATION:

The following materials are commonly used on construction sites:

- Pesticides and herbicides, fertilizers, detergents, plaster and other products, petroleum products such as fuel, oil, and grease.
- Other hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds.

INSTALLATION/APPLICATION CRITERIA:

- Use less hazardous, alternative materials as much as possible.
- Minimize use of hazardous materials on-site.
- Use only materials where and when needed to complete the construction activity.
- Follow manufacturer's instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Personnel who use pesticides should be trained in their use.
- Do not over apply fertilizers, herbicides, and pesticides. Prepare only the amount needed.
- Unless on steep slopes, till fertilizers in to the soil rather than hydroseeding.
- Do not apply these chemicals just before it rains.

LIMITATIONS:

Alternative materials may not be available, suitable, or effective in every case.

MAINTENANCE:

Maintenance of this best management practice is minimal.

TARGETED POLLUTANTS

- Sediment
- Nutrients
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APPLICATIONS

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DESCRIPTION:

Eliminate non-stormwater discharges to the stormwater collection system. Non-stormwater discharges may include: process wastewaters, cooling waters, wash waters, and sanitary wastewater.

APPROACH:

The following approaches may be used to identify non-stormwater discharges:

- Visual inspection: the easiest method is to inspect each discharge point during dry weather. Keep in mind that drainage from a storm event can continue for three days or more and groundwater may infiltrate the underground stormwater collection system.
- Piping Schematic Review: The piping schematic is a map of pipes and drainage systems used to carry wastewater, cooling water, sanitary wastes, etc... A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system. Inspect the path of floor drains in older buildings.
- Smoke Testing: Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems. During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.
- Dye Testing: A dye test can be performed by simply releasing a dye into either the sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

LIMITATIONS:

- Many facilities do not have accurate, up-to-date schematic drawings.
- Video and visual inspections can identify illicit connections to the storm sewer, but further testing is sometimes required (e.g. dye, smoke) to identify sources.

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DESCRIPTION:

Existing ordinances relating to storm water are reviewed for compliance. New ordinances are written to prohibit non-storm water discharges into the Municipal Separate Storm Sewer System (MS4), require proper erosion and sediment controls on construction sites, and require the implementation of post-construction runoff controls.

APPROACH:

- Review existing storm drain ordinances for consistency and compliance with state regulations and make improvements, if necessary. Ensure that no conflicts will occur with new ordinances that will be written and adopted.
- Write and adopt an ordinance that prohibits (to the extent allowable under State, Tribal, or local law) the discharge of non-storm water discharges into the MS4 with appropriate enforcement procedures and actions.
- Write and adopt an ordinance, with sanctions to ensure compliance, requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites.
- Write and adopt an ordinance requiring the implementation of post-construction runoff controls to the extent allowable under State, Tribal, or local law.
- Educate the public about the new ordinances.
- Enforce the new ordinances.

LIMITATIONS:

- Wording of ordinances is often difficult. It should be specific to serve the intended purpose, but not too specific to cause potential conflicts with other ordinances or situations.
- Once an ordinance is adopted, it can be difficult to modify ordinances to meet changing needs.
- Ordinances have to be enforced to be beneficial.
- Ordinances take time to change.

TARGETED POLLUTANTS

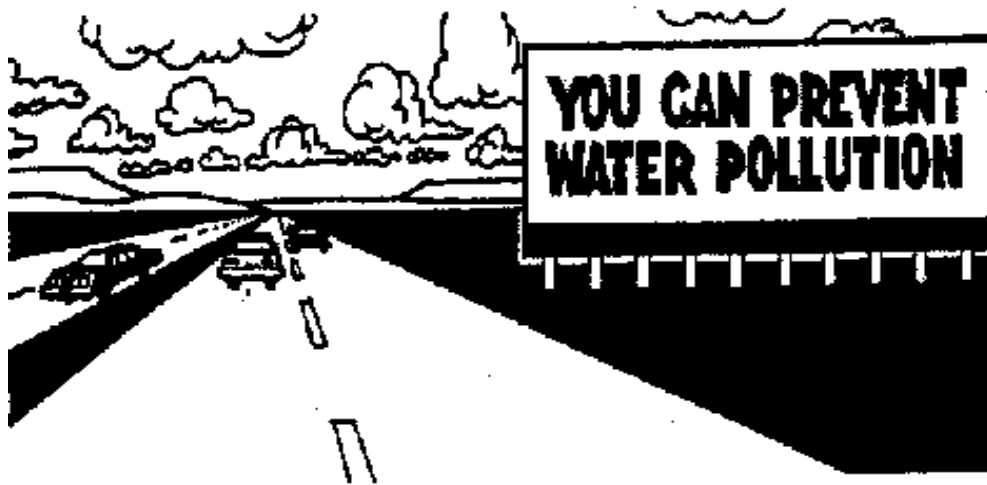
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
- Medium Impact
- Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

- High
- Medium
- Low



PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:

Public education/participation, like an ordinance or a piece of equipment, is not so much a best management practice as it is a method by which to implement BMPs. This information sheet highlights the importance of integrating elements of public education and participation into a municipality's overall plan for stormwater quality management.

A public education and participation plan provides the municipality with a strategy for educating its employees, the public, and businesses about the importance of protecting stormwater from improperly used, stored, and disposed of pollutants. Municipal employees must be trained, especially those that work in departments not directly related to stormwater but whose actions affect stormwater. Residents must become aware that a variety of hazardous products are used in the home and that their improper use and disposal can pollute stormwater. Increased public awareness also facilitates public scrutiny of industrial and municipal activities and will likely increase public reporting of incidents.

APPROACH:

- Pattern a new program after the many established programs around the country.
- Implement public education/participation as a coordinated campaign in which each message is related to the last.
- Present a clear and consistent message and image to the public regarding how they contribute to stormwater pollution and what they can do to reduce it.
- Utilize multi-media to reach the full range of audiences.
- Translate messages into the foreign languages of the community to reach the full spectrum of your populace and to avoid misinterpretation of messages.
- Create an awareness and identification with the local watershed.
- Use everyday language in all public pieces. Use outside reviewers to highlight and reduce the use of technical terminology, acronyms, and jargon.
- Make sure all statements have a sound, up-to-date technical basis. Do not contribute to the spread of misinformation.
- Break complicated subjects into smaller more simple concepts. Present these concepts to the public in a metered and organized way to avoid "overloading" and confusing the audience.

LIMITATIONS:

None.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- | |
|--|
| <ul style="list-style-type: none"> ■ High Impact <input checked="" type="checkbox"/> Medium Impact <input type="checkbox"/> Low or Unknown Impact |
|--|

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- | |
|--|
| <ul style="list-style-type: none"> ■ High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low |
|--|



PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges

DESCRIPTION:

Reduce the discharges of pollutants to stormwater from street surfaces by conducting street cleaning on a regular basis.

APPROACH:

- Prioritize cleaning to use the most sophisticated sweepers, at the highest frequency, and in areas with the highest pollutant loading.
- Restrict street parking prior to and during sweeping.
- Increase sweeping frequency just before the rainy season.
- Proper maintenance and operation of sweepers greatly increase their efficiency.
- Keep accurate operation logs to track programs.
- Reduce the number of parked vehicles using regulations.
- Sweepers effective at removing smaller particles (less than 10 microns) may generate dust that would lead to concerns over worker and public safety.
- Equipment selection can be key for this particular BMP. There are two types used, the mechanical broom sweepers (more effective at picking up large debris and cleaning wet streets), and the vacuum sweepers (more effective at removing fine particles and associated heavy metals). Many communities find it useful to have a compliment of both types in their fleet.

LIMITATIONS:

- Conventional sweepers are not able to remove oil and grease.
- Mechanical sweepers are not effective at removing finer sediments.
- Effectiveness may also be limited by street conditions, traffic congestion, presence of construction projects, climatic conditions and condition of curbs.

MAINTENANCE:

- Replace worn parts as necessary.
- Install main and gutter brooms of the appropriate weight.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

- High Impact
- Medium Impact
- Low or Unknown Impact

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- High Medium Low

BMP: Spill Clean-Up

SCU



OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion

DESCRIPTION:

Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:

All sites

GENERAL:

- Store controlled materials within a storage area.
- Educate personnel on prevention and clean-up techniques.
- Designate an Emergency Coordinator responsible for employing preventative practices and for providing spill response.
- Maintain a supply of clean-up equipment on-site and post a list of local response agencies with phone numbers.

METHODS:

- Clean-up spills/leaks immediately and remediate cause.
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL.
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste.
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity.

TARGETED POLLUTANTS

- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

- | |
|---|
| <input checked="" type="checkbox"/> High Impact |
| <input checked="" type="checkbox"/> Medium Impact |
| <input type="checkbox"/> Low or Unknown Impact |

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

- | | | |
|--|--|------------------------------|
| <input checked="" type="checkbox"/> High | <input checked="" type="checkbox"/> Medium | <input type="checkbox"/> Low |
|--|--|------------------------------|