BMPs for the Agnew Lake Dam Geomembrane and Dam Repair Project 2012

Proposed BMPs are summarized below, followed by a detailed purpose and approach organized by topic.

- Any materials generated by concrete installation operations will not be stored in the streambed area, but will be removed for disposal in an approved disposal site. (BMPs: Concrete Waste Management)

- No foreign materials, such as petroleum or other fuels, will be released into the streambed. All fueling will be performed outside of the streambed. All equipment will be kept in good working order and inspected for leaks prior to use in the streambed. Equipment will be staged in a containment area or within another other suitable barrier overnight to prevent accidental leakage of fluids. (BMPs: Material Delivery and Storage, Vehicle and Equipment Maintenance, Vehicle and Equipment Cleaning, Vehicle and Equipment Fueling)

- Any spills will be cleaned up immediately. (BMPs: Vehicle and Equipment Maintenance, Vehicle and Equipment Cleaning, Vehicle and Equipment Fueling, Hazardous Waste Management)

- When fueling must occur on-site, a designated fueling area will be used. Absorbent spill clean-up materials and spill kits will be available in fueling areas. Drip pans or absorbent pads will be used during vehicle and equipment fueling. Fueling areas will be protected from storm water runon and runoff, and will be located at least 50 feet from watercourses. Fuels will be stored in containment basins. (BMPs: Vehicle and Equipment Fueling, Spill Prevention and Control)

- Equipment washing or cleaning onsite is discouraged. When equipment washing or cleaning must occur on-site, the cleaning area will be located away from water courses. Wash water will be contained or minimized, and will not enter water courses. (BMPs: Vehicle and Equipment Cleaning)

- Vehicles and equipment will be inspected on each day of use for leaks. Leaks will be repaired immediately and problem vehicles or equipment will be removed from the project site. (BMPs: Vehicle and Equipment Maintenance)

- No litter or rubbish will be deposited in the streambed area or any other portion of the work area. All litter and rubbish will be deposited in an appropriate container and hauled out daily from the work area. (BMPs: Solid Waste Management)

- Sediment control measures such as silt fences will be employed to intercept the flow of storm water to settle and trap sediment. Silt fences will be placed between the stream channel and areas where storm water could wash disturbed sediments from work activity into the stream channel. The silt fence will be

inspected before and after each rainfall event. The fence will be repaired as needed. (BMPs: Silt Fence)

- Sand bags will be used to manage sediment control downstream of the construction area. Sand bags are effective for placement in live streams, rather than silt fences or straw bales. (BMPs: Sand Bags)

- Spills will be cleaned up immediately and will not be buried or washed with water. (BMPs: Spill Prevention and Control, Hazardous Waste Management)

- Spilled material will be prevented from entering water courses. Gravel bags should be installed along the river edge of the access road to contain or reduce velocity of potential spills and sediments. (BMPs: Spill Prevention and Control, Hazardous Waste Management)

- Used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for clean up will be stored and disposed of properly. Hazardous and non-hazardous material should be disposed of in the manner specified by the manufacturer. (BMPs: Hazardous Waste Management)

- All vehicles and personnel will be confined to designated roadways and accessways.

- Stockpiled material should be covered with plastic or erosion control blankets.

- Temporary sanitary facilities will be located away from watercourses and drainage facilities.

- Temporary sanitary facilities will be maintained in good working order.

BMP: Concrete Waste Management

Description

Prevent or reduce the discharge of pollutants to Agnew Lake or storm water, and Rush Creek from concrete waste or rip-rap by conducting washout off-site, washing in designated areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water and training employees and subcontractors.

Approach

- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete or cement on-site.
- Perform washout of concrete trucks off-site or in designated areas only. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not dump excess concrete to be on site, except in designated areas.
- For on-site washout:
    - Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. To catch runoff from this area, construct a temporary pit or bermed area large enough for liquid and solid waste.
    - Wash wastes into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
- When washing concrete to remove fine particles and expose the aggregate, drain the water to a bermed or level area to avoid creating runoff.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stock pile, or dispose in the trash.
- Educate employees and subcontractors in proper concrete waste management.

BMP: Material Delivery and Storage

Description

Prevent or reduce the discharge of pollutants to Agnew Lake or storm water, and Rush Creek from material delivery and storage by minimizing the storage of hazardous materials on-site, storing materials in a designated area, installing secondary containment, conducting regular inspection, and training employees and subcontractors.

This best management practice covers only material delivery and storage.

Approach

The following materials are commonly stored on construction sites:

- Pesticides and herbicides;
- Fertilizers;
- Detergents;
- Petroleum products such as fuel, oil, and grease; and
- Other hazardous chemicals such as acids, lime, glues, paints, solvents, and curing compounds.

Storage of these materials on-site can pose the following risks:

- Storm water contamination;
- Injury to workers or visitors;
- Groundwater contamination; and
- Soil contamination.

The following steps should be taken to minimize risks:

- Designate an area of the construction site for material delivery and storage.
  - Place near the construction entrance, away from waterways.
  - Avoid transport near drainage paths or waterways.
  - Surround with earth berms (see DRI, Earth, Dika).
  - Place in an area that will be used to stabilize any residential materials.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- Keep your inventory down. Store only the amount you need, for only as long as you need it.
- Store as few hazardous materials on site as possible.
- Handle hazardous materials as infrequently as possible.

- Whenever possible, store materials in a covered area with secondary containment such as an earthen dike, horse trough, or even kid's wading pool for non-reactive materials such as detergents, oil, grease and paints. Small amounts of material may be secondarily contained in “bus boy” trays or concrete mixing trays.
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items in secondary containment.
- If drums must be kept in an uncovered area, store them at a slight angle to reduce ponding of rainwater in the lids and to reduce corrosion.
- Try to keep chemicals in their original containers, and keep them well labeled.
- Train employees and subcontractors.
- Employees trained in emergency spill cleanup procedures should be present when dangerous materials or liquid chemicals are unloaded.

BMP: Vehicle and Equipment Maintenance

Description

Prevent or reduce the discharge of pollutants to Agnew Lake or storm water, and Rush Creek from vehicle and equipment maintenance and on-site by running a "dry site." This involves using off-site facilities, performing work in designated areas only, providing cover for materials stored outside, checking for leaks and spills, containing and cleaning up spills immediately, and training employees and subcontractors.

Approach

- Keep vehicles and equipment clean; don't allow excessive buildup of oil and grease.
- Use off-site repair shops as much as possible. Maintaining vehicles and equipment outdoors or in areas where vehicle or equipment fluids may spill or leak onto the ground can pollute stormwater. If you maintain a large number of vehicles or pieces of equipment, consider using an off-site repair shop. These businesses are better equipped to handle vehicle fluids and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate maintenance area.
- If maintenance must occur on-site, use designated areas, located away from drainage courses, to prevent the runoff of spills.
- Always use a secondary containment structure to prevent stationary equipment, such as portable generators, from leaking on to the underlying soil where pollutants would have the possibility from reaching the lake or stream when equipment is on site.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Regularly inspect on-site vehicles and equipment for leaks, and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment on-site.
- Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
- Train employees and subcontractors in proper maintenance and spill cleanup procedures.

Requirements

Maintenance

- Keep ample supplies of spill cleanup materials on-site.
- Inspect maintenance areas on a regular schedule.

Limitations

- Sending vehicles/equipment off-site should be done in conjunction with BMP C/PS8 (Stabilized Construction Entrance).

Additional Information - Vehicle and Equipment Maintenance

Outdoor vehicle or equipment maintenance is a potentially significant source of storm water, lake or creek pollution. Activities that can contaminate these waters include engine repair and service, particularly changing or replacement of fluids, and outdoor equipment storage and parking (dripping engines).

Listed below is further information if you must perform vehicle or equipment maintenance on-site.

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, 1, 1, 1-trichloroethane, or methylene chloride. Many of these parts cleaners are harmful and must be disposed of as a hazardous waste. Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents. Also, if possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. For example, replace chlorinated organic solvents (1, 1, 1 -trichloroethane, methylene chloride, etc.) with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check the list of active ingredients to see whether it contains chlorinated solvents. The prefix "chlor" indicates that the solvent is chlorinated. Also, try substituting a wire brush for solvents to clean parts.

Recycling/Disposal

Separating wastes allows for easier recycling and may reduce disposal costs. Keep hazardous and non-hazardous wastes separate, do not mix used oil and solvents, and keep chlorinated solvents (like 1,1,1-trichloroethane) separate from non-chlorinated solvents (like kerosene and mineral spirits). Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

Oil filters disposed of in trash cans or dumpsters can leak oil and contaminate storm water. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.

Do not dispose of extra paints and coatings by dumping liquid onto the ground or throwing it into dumpsters. Allow coatings to dry or harden before disposing in covered dumpsters.

Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Do not bury used tires.

BMP: Vehicle and Equipment Cleaning

Description

Prevent or reduce the discharge of pollutants to Agnew Lake or storm water, and Rush Creek from vehicle and equipment cleaning by using off-site facilities, washing in designated areas only, eliminating discharges to the storm drain or other areas where the pollution may reach the lake or creek by infiltrating or recycling the wash water, and training employees and subcontractors.

Approach

- Use off-site commercial washing businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto the ground can pollute storm water.
- If you wash a large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area.
- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations leading to storm water and groundwater contamination.

Requirements

Maintenance

- Minimal; some berm repair may be necessary.

Limitations

- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades.
- Sending vehicles/equipment off-site should be done in conjunction with PS7 (Stabilized Construction Entrance).

BMP: Vehicle and Equipment Fueling

Description

Prevent fuel spills and leaks, and reduce their impacts to Agnew Lake or storm water, and Rush Creek by using off-site facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

Approach

- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto the ground can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the runon of storm water and the runoff of spills.
- Discourage "topping-off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all federal and state requirements regarding stationary above ground storage tanks.
- Do not use mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps small forklifts, most vehicles should be able to travel to a designated area with little lost time.
- Train employees and subcontractors in proper fueling and cleanup procedures.

Requirements

Maintenance

- Keep ample supplies of spill cleanup materials on-site.
- Inspect fueling areas and storage tanks on a regular schedule.

Limitations

- Sending vehicles/equipment off-site should be done in conjunction with PS7 (Stabilized Construction Entrance).

BMP: Solid Waste Management

Description

Prevent or reduce the discharge of pollutants to storm water, lake or creek from solid (i.e. construction) waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Approach

Solid waste is one of the major pollutants resulting from construction. Construction debris includes:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction;
- Packaging materials including wood, paper and plastic;
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, masonry products; and
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes.

The following steps will help keep a site clean and reduce storm water pollution:

- Select a designated waste collection area on site.
- When possible, locate containers in a covered area.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it's windy.
- Collect site trash daily.
- Erosion and sediment control devices tend to collect litter. Remove this solid waste promptly.
- Salvage or recycle any useful material.
- Make sure that toxic liquid wastes (used oils, solvents, paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.

- If a container does spill, clean up immediately.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.
- Train employees and subcontractors in proper solid waste management.

Requirements

Maintenance

- Collect site trash daily.
- Inspect construction waste area regularly.
- Arrange for regular waste collection.

BMP: Silt Fence

General Description

A silt fence is a temporary sediment barrier consisting of filter fabric stretched across and attached to supporting posts, entrenched, and, depending upon the strength of the fabric used, supported with wire fence. Silt fences trap sediment in two ways: (1) by intercepting and detaining small amounts of sediment from disturbed areas during construction operations in order to remove sediment from behind the fence: and (2) by decreasing the velocity of flows up to 0.5 cfs in swales.

Silt fences may be used for perimeter control, placed upstream of the point(s) of discharge of runoff from a site but before the flow becomes concentrated. They may also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion, and perpendicular to minor swales or ditch lines for up to one acre of contributing drainage areas. Silt fences are not intended for use in detaining concentrated flows, and are only applicable for sheet or overland flows.

Suitable Applications

- Along the perimeter of the site.
- Along streams and channels.
- Across swales with small catchments.
- Below the toe of a cleared slope.
- Around temporary spoil areas.
- Below other small cleared areas.

Installation/Application

Planning

Silt fences are preferable to straw barriers in many cases. Laboratory work at the Virginia Highway and Transportation Research Council has shown that silt fences can trap a much higher percentage of suspended sediments than straw bales. While the failure rate of silt fences is lower than that of straw barriers, silt fences are often improperly installed. The following installation methods can improve performance and should be followed:

- Construct along a level contour.
- Silt fences should remain in place until the disturbed area is permanently stabilized.
- Provide sufficient room for sediment removal equipment between the silt fences and toes of slopes or other obstructions.
- Turn the ends of the filter fence uphill to prevent stormwater from flowing around the fence.
- Leave an undisturbed or stabilized area immediately downslope from the fence.

- Do not place in live steams or intermittently flowing channels.

Design

Limit the upstream drainage area to 1 acre or less when used alone or in combination-with-sediment basin in a larger site.

Limit the maximum slope perpendicular to the fence line, it should be 1:1.

Limit the maximum sheet or overland flow path length to any point along the fence to 100 feet.

Limit the concentrated flows reaching the fence to 0.5 cfs.

Selection of a filter fabric is based on soil conditions at the construction site (which affect the equivalent opening size (EOS) fabric specification) and characteristics of the support fence (which affect the choice of tensile strength). The designer shall specify a filter fabric that retains the soils found on the construction site yet will have openings large enough to permit drainage and prevent clogging. The following criteria are recommended for selection of the equivalent opening size:

a. If 50 percent or less of the soil, by weight, will pass the U.S. Standard Sieve No. 200, select the EOS to retain 85 percent of the soil. The EOS should not be finer than EOS 70.

b. For all other soil types, the EOS should be no larger than the openings in the U.S. Standard Sieve No. 70 (0.0083 in. [0.21 mm.]) except where direct discharge to a stream, lake or wetland will occur, then the EOS shall be no larger than Standard Sieve No. 100.

To reduce the chance of clogging, it is preferable to specify a fabric with openings as large as allowed by the criteria. No fabric should be specified with an EOS smaller than U. S. Standard Sieve No. 100 (0.0059 in. (0. 15 mm)). If 85 percent or more of a soil, by weight, passes through the openings in a No. 200 sieve (0.0029 in. (0.074 mm)), filter fabric shall not be used. Most of the particles in such a soil would not be retained if the EOS was too large, and they would clog the fabric quickly if the EOS was small enough to capture the soil.

The fence should be supported by a wire mesh if the fabric selected does not have sufficient strength and bursting strength characteristics for the planned application (as recommended by the fabric manufacturer). Filter fabric material should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0°F to 120°F.

Installation Guidelines

Filter fences are to be constructed on a level contour. Sufficient area should exist behind the fence for ponding to occur without flooding or overtopping the fence.

a. Posts should be spaced a maximum of 6 feet apart and driven securely into the ground a minimum of 30 inches.

b. A trench should be excavated approximately 8 inches wide and 12 inches deep along the line of posts and upslope from the barrier.

c. When standard strength filter fabric is used, a wire mesh support fence should be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch long, tie wires or hog rings. The wire should extend into the trench a minimum of 4 inches.

d. The standard strength filter fabric should be stapled or wired to the fence, and 20 inches of the fabric should extend into the trench. When extra-strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated and filter fabric stapled or wired directly to the posts.

e. The filter fabric should be purchased in a continuous role/piece, cut to the length of the barrier to avoid use of joints. When joints are necessary, filter cloth should be spliced together only at a support post, with a minimum 6 inch overlap, and both ends securely fastened to the post.

f. The trench should be backfilled with 3/4-inch minimum diameter washed gravel or compacted native material.

Requirements

Maintenance

- Inspect monthly during dry periods and immediately after each rainfall. Repair as necessary. Sediment must be removed when it reaches approximately one third the height of the fence, especially if heavy rains are expected.
- Filter fences should not be removed until the upslope area has been permanently stabilized.

Limitations

- Filter fences will create a temporary sedimentation pond on the upstream side of the fence which may cause temporary flooding. Fences not constructed on a level contour will be overtopped by concentrated flow resulting in failure of the filter fence.
- Filter fences are not practical where large flows of water are involved, hence the need to restrict their use to drainage areas of one acre or less, and flow rates of less than 0.5 cfs.
- Problems may arise from incorrect selection of pore size and/or improper installation.
- Do not allow water depth to exceed 1.5 feet at any point.
- Improperly installed fences are subject to failure from undercutting, overlapping, or collapsing.

BMP: Sand Bag Barrier

General Definition

Stacking sandbags along a level contour creates a barrier which detains sediment-laden water, ponding water upstream of the barrier and promoting sedimentation.

Suitable Applications

Sandbag berms may be used during construction activities in stream beds and utility construction in channels, temporary channel crossing for construction equipment, etc. Sandbag berms may also be installed parallel to roadway construction. Sandbag berms may also be used to create temporary sediment traps, retention basins and in place of straw bales or silt fences. Examples of applications include:

- Check dams across stream channels,
- Barrier for utility trenches or other construction in a stream channel,
- Temporary channel crossing,
- Barrier on a slope in place of straw bales or silt fences,
- Direct or divert flow,
- Create temporary sediment basin or retention basin,
- Near the toe of slopes, and
- At construction perimeter.

Advantages

- Provides a semi-permeable barrier in potentially wet areas.
- More permanent than silt fences or straw bales.
- Allows for easy relocation on site to meet changing needs during construction.

Installation/Application

Sandbag berms are appropriate to use when construction of check dams or sumps in a stream is undesirable. The sandbag berms can provide the same function as a check dam without disturbing the stream or vegetation. The sandbag berm will also allow a small sediment retention area to be created prior to construction of final detention basins. For installation of a sandbag berm, the following criteria should be observed:

- Drainage Area - Up to five (5) acres.
- Height of Berm - 18 inches minimum height, measured from the top of the existing ground at the upslope toe to the toe of the barrier.
- Width of Berm - 48 inches minimum width measured at the bottom of the barrier; 18 inches at the top.
- Sandbag Size – length: 24 to 30 inches, width: 16 to 18 inches, and thickness: 6 to 8 inches. Weight: 90 to 125 pounds.

- Sandbag Material - Polypropylene, polyethylene or polyamide woven fabric, minimum unit weight four (4) ounces per square yard, mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70 percent. Use of burlap is discouraged since it rots and deteriorates easily.
- Grade of Sand - Coarse sand, gravel.
- Streambed Materials will be used for sandbags.
- Runoff water shall flow over the tops of the sandbags or through four (4) inch polyvinyl chloride.

Requirements

Maintenance

- Inspect after each rain.
- Reshape or replace damaged sandbags immediately.
- Remove sediment when it reaches six inches in depth.

Limitations

- Sandbags are more expensive than other barriers, but also more durable.
- Burlap should not be used for sandbags.

BMP: Spill Prevention and Control

Description

Prevent or reduce the discharge of pollutants to storm water, lake, and creek from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, Material Delivery and Storage and Material Use also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this appendix.

Approach

The following steps will help reduce the storm water impacts of leaks and spills:

General Measures

- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.

Cleanup

- Clean up leaks and spills immediately.
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and an absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Sweep up or excavate the material and dispose of properly. See the waste management BMPs in this chapter for specific information.

Reporting

- Report spills to local agencies such as the Fire Department; they can assist in the cleanup.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur on-site, use a designated area, located away from drainage courses, to prevent the runon of storm water and the runoff of spills.
- Regularly inspect on-site vehicles and equipment for leaks, and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment on-site.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under pacing equipment when not in use.
- Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trash cans or dumpsters can leak oil and contaminate storm water. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the runon of storm water and the runoff of spills.
- Discourage "topping-off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.

Requirements

Maintenance

- Keep ample supplies of spill control and cleanup materials on site, near storage, unloading, and maintenance areas.
- Update your spill cleanup materials as changes occur in the types of chemicals on site.

Limitations

- If necessary, use a private spill cleanup company.

BMP: Hazardous Waste Management

Description

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

Approach

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 grease;
- Fertilizers, herbicides and pesticides;
- Acids for cleaning masonry;
- Soil stabilization additives such as calcium carbonate;
- Asphalt products; 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. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints;
- Asbestos; and
- PCBs (particularly in older transformers).

The following steps will help reduce storm water pollution from hazardous wastes:

<u>Material Use</u>

- 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 fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Till fertilizers and lime into soil rather than hydro-seeding the materials. 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 rain. People applying pesticides must be certified in accordance with federal and state regulations.

<u>Waste Recycling/Disposal</u>

- Select a designated waste collection area on site.

- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix waste. This can cause chemical reactions, make recycling impossible, and complicate disposal.
- Recycle any useful material such as used oil.
- Make sure that toxic liquid wastes (used oils, solvents, paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.

Training

- Train employees and subcontractors in proper hazardous waste management.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Requirements

Maintenance

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

Limitations

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