

# **Snohomish County Drainage Manual**

## **Volume IV Source Control BMPs**

**{insert publication date here (e.g. June 1, July anuary 20210  
Ecology Review DRAFT)}**

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## **Chapter 1 - Introduction ~~t~~To Volume IV**

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Chapter 7.53 Water Pollution Control of Snohomish County Code (SCC) prohibits illicit connections and discharges that could cause water pollution, and requires implementation of pollution-preventing “best management practices,” ~~or~~ “(BMPs),” in a wide variety of circumstances. Chapter 7.53 SCC defines ~~“best management practices” or “BMPs”~~ as “physical objects, structures, managerial practices, or behaviors, that when used singly or in combination, eliminate or reduce the introduction of contaminants to stormwater, receiving waters, or groundwater.” ~~and~~ In addition, Chapter 7.53 SCC defines a specific type of BMPs called “source control best management practices” or “source control BMPs,” as “structures, equipment, supplies, or operations that are intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants.” Volume IV outlines the variety of source control BMPs that are required to be implemented to prevent pollution and ensure illicit discharges do not occur.

Chapter 2 of this volume contains detailed information about the source control BMPs required by Chapter 7.53 SCC for all activities to which that code applies.

Chapter 3 of this volume contains ~~additional~~ pollution source control measures required by Chapter 7.53 SCC for specific activities, facilities, and types of sites.

Chapter 4 contains ~~additional~~ recommendations and information for certain activities that may be performed at a wide variety of sites. These recommendations and information are not directly required by Chapter 7.53 SCC, but may be required through enforcement of that code if ~~polluted~~ illicit discharges occur.

Chapter 5 of this volume contains source control BMPs that must be implemented in the new development or redevelopment of a wide variety of commercial or industrial facilities, in accordance with the requirements of Chapter 30.63A SCC.

Site owners or operators may also find it useful to refer to the appendices in the Department of Ecology 2014 Stormwater Management Manual for Western Washington. These appendices contain more detailed information on selected topics such as common pollutant sources associated with specific businesses, and potential pollution sources and appropriate BMPs for different businesses and activities.

~~Site owners or operators may also refer to the Snohomish Health District publication *Navigating the Regulatory Maze: a Business Guide to Hazardous Waste Handling*, for more information and guidance.~~

The site owners or operators are ultimately responsible for compliance with the applicable federal, state or local regulations, and should contact Snohomish Health District (425-339-5250) for information on meeting solid or hazardous waste handling requirements.

## **Chapter 2 - Source Control BMPs Generally Required bBy Chapter 7.53 SCC**

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Generally speaking, Chapter 7.53 SCC prohibits discharges to streams, lakes, groundwater, or the County's storm sewer if the discharges are not completely composed of stormwater or contain contaminants as defined in that code. Examples of prohibited discharges include discharges from:

- washing vehicles, equipment, or buildings;
- steam cleaning equipment, engines, parts;
- inappropriate manure storage and application;
- fertilizer or pesticide applications;
- inadequate implementation of temporary sediment and erosion control measures;
- illicit connections to the storm drainage conveyance;
- failing septic systems or drainfields;
- ~~fire fighting~~firefighting drills; and
- inappropriate storage, containment or disposal of solid and liquid wastes.

7.53.120 SCC requires any person storing or using materials that may contain contaminants in a manner that could result in prohibited discharges to implement the source control BMPs described in this chapter. The terms "contaminant" and "prohibited discharge" are defined in Chapter 7.53 SCC.

These requirements apply to any person performing these activities, regardless of zoning, other land use attributes, or whether the activity is commercial in nature. However, the code requirements are triggered only if the activities are performed such that prohibited discharges could occur. This may depend on the scale of the activity, the size of the site, the type of site, where on the site the activity is performed, etc. For example, fueling a single lawnmower in the middle of a residential lawn is unlikely to result in a prohibited discharge of gasoline to the storm sewer or adjacent receiving waters, due to the amount of fuel used, distance from the property line or receiving waters, and the fact that the minor amount of possible gasoline spillage would be adsorbed by the soil. In this case, no source control BMPs are necessary. On the other hand, fueling a fleet of lawnmowers on a paved driveway near a public street or a catch basin would have a much higher likelihood of causing a prohibited discharge, and thus would require source control BMPs. Note that these BMPs in this example are required regardless of whether the property is zoned residential or commercial, or whether the lawnmowers are used as part of a business on or off the property.

Snohomish County recognizes that not all of the BMPs need to be implemented at all types of properties or activities, and thus has designated three categories of properties or activities:

- commercial activities or properties with more than one ~~or more~~ employees;
- commercial activities or properties with one employee; and
- non-commercial activities performed at residential properties.

Table 2.14.1 indicates the source control BMPs that are required for each of these categories. For example, a spill kit and posted spill plan are only required for a commercial activity with more than one employee. If the activity performed at a residential property is commercial in nature (such as an automobile repair shop conducted as a home occupation), a spill kit and posted spill plan are required.

If the source control BMPs described in this chapter and Chapter 3 are not sufficient to prevent prohibited discharges, Chapter 7.53 SCC requires the implementation of additional or more stringent BMPs as set forth in the Snohomish County Drainage Manual, or equivalent BMPs as allowed by either the director of the Department of Planning and Development Services and/or the director of the Department of Public Works. These BMPs may include the source control BMPs described in Chapters 4 or 5 of this volume, erosion and sedimentation control BMPs described in Volume II, flow control BMPs described in Volume III, or treatment BMPs described in Volume V.

For many properties and activities, the source control BMPs set forth in Chapters 2 and 3 of this volume will be the simplest and cheapest ways to ~~prevent violations of~~ comply with Chapter 7.53 SCC. However, Chapter 7.53 SCC provides Snohomish County the authority to require implementation of structural source control or treatment BMPs in lieu of the BMPs in Chapter 2. Conversely, a person responsible for a discharge can propose alternative BMPs as equivalents to the director of Planning and Development Services and/or the director of the Department of Public Works or their designees.

**Table 4.1 – Source Control BMPs  
Required For Different Properties Or Activities**

<b>Chapter</b>		<b>Commercial activities or properties– more than one employee</b>	<b>Commercial activities or properties – one employee</b>	<b>Non-commercial activities at residential properties</b>
<b>2.1</b>	<b>Prohibited Discharge Elimination</b>			
	Site map	X	X	
	Prevention of prohibited discharges and connections	X	X	X
	Post onsite storm drains to indicate they are not to receive pollutants	X	X	
<b>2.2</b>	<b>Spill Response and Reporting</b>			
	Spill kit	X	X	
	Spill response plan including materials inventory	X	X	
	Spill containment and cleanup	X	X	X
	Spill reporting	X	X	X

<b>2.3</b>	<b>Pollution Prevention – Storage Areas</b>			
	Materials storage	X	X	X
	Materials containment	X	X	X
	Area cleanup	X	X	X
<b>2.4</b>	<b>Pollution Prevention – Work Areas</b>			
	Materials storage	X	X	X
	Materials containment	X	X	X
	Area cleanup	X	X	X
<b>2.5</b>	<b>Inspection / maintenance</b>			
	Site inspection	X	X	
	Source control BMP repair / maintenance	X	X	
<b>2.6</b>	<b>Management</b>			
	Assigned tasks	X		
	Employee meetings	X		
	Training	X		
	Recordkeeping	X	X	

## 2.1 Prohibited Discharge Elimination

### Required BMPs for prohibited discharge elimination:

#### Site map showing the following features

~~Surface Water Management (SWM) maintains an interactive drainage inventory web map accessible through Snohomish County's webpage. (Note: not required for noncommercial activities performed at residential properties.) Additionally, maps showing storm sewers onsite stormwater systems may be held on file with Snohomish County Planning and Development Services. Records 425-388-3311 or through accessing publicly available drainage inventory maps via Snohomish County Surface Water Managements website. (Note: Site maps are not required for noncommercial activities performed at residential properties.) Hard copy files are available upon request from SWM at (425) 388-3464 and PDS Records at (425) 388-3311.~~

- Storm~~water system sewer~~ on site (catch basins, pipes, ditches, oil/water separators, detention ponds, treatment systems, etc.)
- Sanitary sewer manholes and internal drains that drain to sanitary sewer
- Dead-end sumps
- Wastewater / process water disposal points
- Spill kit locations
- Potential pollution sources

~~Surface Water Management (SWM) maintains an interactive drainage inventory web map accessible through Snohomish County's webpage. Additionally, maps showing onsite stormwater systems may be held on file with Snohomish County Planning and Development Services. (Note: Site maps are not required for noncommercial activities performed at residential properties.) Hard copy files are available upon request from SWM at (425) 388-3464 and PDS-Records at (425) 388-3311.~~

#### Containment or proper plumbing / sewer connections for non-stormwater discharges

- Wastewater discharges must be plumbed to the sanitary sewer or a wastewater treatment system approved by Ecology (e.g., on regulated by an NPDES permit or State Waste Discharge Permit) or by another appropriate agency (such as a septic system permitted by the Snohomish Health District).
- Parts cleaning, steam cleaning, pressure washing, etc. must be conducted inside a building or on an impervious contained area such as a concrete pad. Contaminated stormwater from such an area must be discharged to a sanitary sewer or a wastewater treatment system approved by Ecology (e.g., on regulated by an NPDES permit or State Waste Discharge Permit) or by another appropriate agency (such as a septic system permitted by the Snohomish Health District).

#### Visible identification of on-site storm drains

(Note: Not required for noncommercial activities performed at residential properties)

- Post “do not discharge wastes” or similar message at catch basins and other storm sewer inlet points. Use posted signs, stenciled pavement, or other clearly visible means.

Identification and elimination of prohibited plumbing or sewer connections

- Identify prohibited plumbing and sewer connections and disconnect them from the storm sewer. Reroute the connection so that discharges are legal or cease the discharge.

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### **Prohibitions**

- Do not hose down pollutants from any area to the ground, storm drain, or receiving water unless necessary for dust control purposes to meet air quality regulations. Runoff from dust control must be conveyed to a stormwater treatment system approved by Snohomish County, to the sanitary sewer, or to a wastewater treatment system approved by Ecology (e.g., on regulated by an NPDES permit or State Waste Discharge Permit) or by another appropriate agency (such as a septic system permitted by the Snohomish Health District).
- Do not discharge liquid or solid wastes, process wastewater, or sewage to ground or surface water, or to storm drains which discharge to surface water, or to the ground.
- Do not connect floor drains in potential pollutant source areas to storm drains, surface water, or to the ground.

## 2.2 Spill Response and Reporting

### Required BMPs for spill response and reporting

Businesses and public agencies located at nonresidential properties are required to prepare and implement a spill containment, response, and reporting plan. Spill response plans are not required for noncommercial activities performed at residential properties.

#### Spill containment and cleanup kit

NOTE:- Not required for noncommercial activities performed at residential properties.

- Spill containment and cleanup kits must be placed at outside areas where there is a potential for spills or polluting materials. These kits must be appropriate for the materials being handled and the size of the potential spill. At a minimum, the kits must consist of:
  - one or more containers of a size and material appropriate to the potential spill substance, such as high-density polyethylene, polypropylene or polyethylene sheet-lined steel; polyethylene or equivalent disposal bags
  - personal protection equipment (safety gloves, protective clothing, goggles, etc.)
  - containment booms, absorbent pads, or other appropriate absorbent material
  - shovels or other appropriate cleanup equipment
  - spill containment and cleanup instructions



**Figure X.X – Spill Kit Contents**

#### Spill response plan

NOTE:— Not required for noncommercial activities performed at residential properties

- The spill response plan should document those items identified in BMP 3.25.
- Copies of the spill response plan must be developed for the site and posted in the main business office and at all locations on the site where spills could enter the storm drainage system. A plan should contain all the information identified for spill response plans in BMP 3.25.

### Spill containment and cleanup

NOTE:—Required for commercial and noncommercial activities performed at residential properties.

- The following actions must be taken in the event of a spill:
  - Immediately upon discovery, stop and contain the spill. Promptly clean up solid and liquid pollutant leaks and spills on any exposed soil, vegetated area, or other pervious area.
  - Clean up pollutant liquid spills and contaminated absorbent materials and store in impervious uncovered containment areas at the end of each working day. Use solid absorbents; (e.g., clay and peat absorbents and rags for cleanup),—where practicable.
  - Promptly repair or replace all substantially cracked or otherwise damaged paved secondary containment, high-intensity parking and any other drainage areas, which are subjected to pollutant material leaks or spills.
  - Dispose of waste in a manner consistent with Snohomish Health District (SHD) Sanitary Code 3.1 and all other federal, state or local regulations for disposal of solid or hazardous waste.

### Spill reporting

NOTE:—Required for commercial and noncommercial activities performed at residential properties

- For a spill that has reached or may reach a sanitary or a storm sewer, ground water, or surface water, make the following calls immediately upon detection:
  - **Call 911.** The dispatcher will route the information to the proper response agency.
  - **Call Snohomish County Water Quality Complaint Hotline at 425-388-6481.**
  - **Call the Washington State Department of Ecology at 425-(425)-649-7000**
  - **Call the Washington State Department of Health at 360-(360)-236-4700**
  - **Call the local sanitary sewer agency.**
- Notification must comply with and federal spill reporting requirements. See also recordkeeping requirements in Chapter 2.6.
- To report a spill or to determine if a spill is a substance of a Reportable Quantity, call the Department of Ecology Northwest Regional Office at 425-(425)-649-7000 and ask for an oil spill operations or a hazardous waste specialist.

For ~~more~~further information, refer to Emergency Spill Response in Washington State Publication #97-1165-CP. ~~Visit. The document may be obtained at~~ <https://fortress.wa.gov/ecy/publications/documents/971165cp.pdf> to view the document -or ~~call by calling~~ the Washington State Department of Ecology Publication Distribution Office at 360-407-7472 to request a copy.

**Prohibitions**

~~Do not flush absorbent materials or other spill cleanup materials to a storm drain. Collect the contaminated absorbent material as a solid and dispose in a manner consistent with SHD Sanitary Code Chapter 3.1 and all other federal, state and local regulations.~~



**Photo of spill kit contents**

**Prohibitions**

Do not flush absorbent materials or other spill cleanup materials to a storm drain. Collect the contaminated absorbent material as a solid and dispose in a manner consistent with SHD Sanitary Code Chapter 3.1 and all other federal, state and local regulations.

## **2.3 Pollution Prevention in Outside Storage Areas**

### **Required BMPs for pollution prevention in storage areas**

#### Materials storage

- Where feasible, and not in conflict with International Fire Code, store potential stormwater pollutant materials inside a building or under a cover and/or containment.
- When exposed to stormwater, cover and contain stockpiled materials, which includes but is not limited to manure or soils, such that contamination of storm drainage conveyance systems or water of the state is prevented. This may be accomplished by building a structure to cover the materials or using temporary tarps held in place. Note: building a structure may be subject to permitting required by Snohomish County Planning and Development Services or other agencies as necessary. To determine if your project needs permits you may call 425-388-3311.
- Convey any contaminated stormwater to a wet pond, settling pond, swale media filter or other treatment system approved by a federal, state or local agency.
- Liquid and applicable solid materials must be stored in containers suitable for the contents and inspected for corrosion, structural failure, tight fitting lids, leaks and overfills.
- Businesses storing liquids shall use secondary containment, such as spill palettes or berms such that a volume of either 10 percent of the total enclosed container volume or 110 percent of the volume contained in the largest container, whichever is greater, or, if a single container, 110 percent of the volume of that container.
- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters including lids.
- Store materials in areas sloping to dead end sumps or other sufficient containment area away from storm drain systems or surface waters.
- Sweep and clean materials storage areas regularly to prevent buildup of contaminating materials.

#### Materials containment

- Use drip pans to collect leaks from equipment, storage containers, vehicles, and other potential pollution sources that are stored outside.
- Where exposed to stormwater, use containers, piping, tubing, pumps, fittings, and valves that are appropriate for their intended use and for the contained liquid.
- Empty drip pans immediately after a spill or leak is collected in an uncovered area.
- Promptly repair or replace all leaking connections, pipes, hoses, valves, etc., that contain material that can contaminate stormwater.

- Household hazardous wastes transported in a sealed, non-leaking container may be disposed of free of charge at the Snohomish County Hazardous Materials Drop off station located at 3434 McDougall Ave., Everett WA. 98201. For more information call Snohomish County Solid Waste at 425-388-6050.
- A business which generates small quantities of hazardous waste may use the McDougall facility noted above for a fee, but must make an appointment to do so.
- Small quantities are defined as generating fewer than 220 lbs. of hazardous waste (e.g., sludges, solvents, inks) per month or batch or accumulating fewer than 2,200 lbs. of hazardous waste, or accumulating fewer than 2.2 lbs. of acutely or extremely hazardous waste per month or batch. For more information, call the Snohomish County Health District at 425-339-5250.

#### Storage area cleanup

- Sweep paved material storage areas with vacuum sweepers at least quarterly. Clean up pollutant liquid leaks and spills in impervious uncovered containment areas at the end of each working day. Use solid absorbents, e.g., clay and peat absorbents and rags for cleanup, where practicable.
- Promptly clean up solid and liquid pollutant leaks and spills on any exposed soil, vegetated area, or other pervious area.
- Dispose of collected material in a manner consistent with Snohomish Health District Sanitary Code Chapter 3.1 and all other federal, state and local regulations regarding the disposal of solid waste or hazardous waste, to prevent stormwater pollution. For more information on disposal options call the Snohomish Health District at 425-339-5250 or Snohomish County Solid Waste at 425-388-6050.

## **2.4 Pollution Prevention in Outside Work Areas**

### **Required BMPs for pollution prevention in work areas**

#### Materials storage

- Where feasible, store potential stormwater pollutant materials inside a building or under a cover and/or containment.

#### Materials containment

- Use drip pans to collect leaks from equipment, storage containers, vehicles, and other potential pollution sources that are stored outside.
- Where exposed to stormwater, use containers, piping, tubing, pumps, fittings, and valves that are appropriate for their intended use and for the contained liquid.
- Empty drip pans immediately after a spill or leak is collected in an uncovered area.
- Dispose of collected material in a manner consistent with Snohomish Health District Sanitary Code Chapter 3.1 and all other federal, state and local regulations regarding the disposal of solid waste, to prevent stormwater pollution. For more information on disposal options call the Snohomish Health District at 425-339-5250 or Snohomish County Solid Waste at 425-388-6050.
- Promptly repair or replace all leaking connections, pipes, hoses, valves, etc., that contain material that can contaminate stormwater.
- Install dust and spray containment barriers around areas where activities such as painting, pressure washing, and sandblasting are performed. Follow requirements in Chapter 2.1 for prevention of prohibited discharges of wastewater and other polluted discharges.
- Apply pesticides and fertilizers in a manner that will not result in stormwater contamination. Do not apply immediately before or during a rainstorm.

#### Work area cleanup

- Sweep paved surfaces with vacuum sweepers at least quarterly, and dispose of collected material in a manner that will not cause stormwater pollution.
- Clean up pollutant liquid leaks and spills in impervious uncovered containment areas at the end of each working day. Use solid absorbents, e.g., clay and peat absorbents and rags for cleanup, where practicable.
- Promptly clean up solid and liquid pollutant leaks and spills on any exposed soil, vegetated area, or other pervious area.
- Dispose of collected material in a manner consistent with Snohomish Health District Sanitary Code Chapter 3.1 and all other federal, state and local regulations regarding the disposal of solid waste, to prevent stormwater pollution. For more information on disposal options call the Snohomish Health District at 425-339-5250 or Snohomish County Solid Waste at 425-388-6050.

## 2.5 Source Control BMP Inspection / Maintenance

### Required inspections and maintenance

#### Site inspections

- Conduct and document site inspections quarterly to collect information adequate to answer the questions or information requirements in the form below.
  1. ~~1)~~—Spill kits
    - spill control kits available and stocked
    - spill plans posted
  2. ~~2)~~—Storage area BMPs
    - polluting materials covered or stored indoors
    - drip pans in use
    - drip pans emptied and waste properly disposed of
    - containment systems (berms, dikes, etc.) functional and structurally intact
    - paved containment areas structurally intact
  3. ~~3)~~—Work area BMPs
    - polluting materials covered or stored indoors
    - drip pans in use
    - drip pans emptied and waste properly disposed of
    - containment systems (berms, dikes, etc.) functional and structurally intact
    - paved containment areas structurally intact
  4. ~~4)~~—Site map
    - site map accurately and completely depicts all information set forth in site map requirements in Chapter 2.1
  5. ~~5)~~—Pollution source observations
    - evidence of polluted discharges: polluted material in catch basins, stains or corrosion on pavement or other ground surfaces, and odors.

#### Source control BMP Source Control BMP maintenance

- Repair or replace all source control BMPs that are damaged or otherwise not functioning, or that are inadequate to contain or prevent prohibited discharges.

## 2.6 Management

### Required management BMPs

#### Assignment of Pollution Prevention Tasks

NOTE:—Not required for noncommercial activities performed at residential properties or for businesses with only one employee.

- Site owners, operators, or managers will assign responsibility to one or more staff for implementation of all BMPs in this chapter, plus implementation of any other BMPs required by Chapter 7.53 SCC or other Snohomish County codes. A sample task assignment sheet is included below.
- During hours of business operation, at least one person trained in spill response must be present.

**Table 4.2 - Sample  
Stormwater Pollution Prevention  
Task Assignment Sheet**

<b>BMP / TASK</b>	<b>ASSIGNED TO</b>	<b>DATE</b>
Site inspections		
Training		
Recordkeeping		
Drip pan content disposal		
Other containment system content disposal		
Spill kit deployment / maintenance / refill		
Spill plan preparation / posting		
Spill response		
Spill reporting		
Work area cleanup		
Emergency task assignments		

Pollution prevention meetings

- Hold regularly-scheduled meetings to review the overall operation of the BMPs. These may be incorporated into other employee meetings.

Training

- Train all team members in the operation, maintenance and inspections of BMPs, and reporting procedures. Use Ecology's "Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities" (Publication Number 04-10-030) as a training reference.

Recordkeeping

The following records of BMPs implemented in order to comply with Chapter 7.53 SCC shall be kept:

*Spill reports*

Reports on spills of oil or hazardous substances in greater than Reportable Quantities (Code of Federal Regulations Title 40 Parts 302.4 and 117), including the following: oil, gasoline, or diesel fuel, that causes a violation of the State of Washington's Water Quality Standards, or, that causes a film or sheen upon or discoloration of the waters of the State or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

*Site inspections*

Site inspection reports including time and date of inspection, summary of site conditions and remedial actions taken, and a signature by the owner or manager certifying accuracy of the information.

*Training*

At a minimum, for each type of training, documentation shall consist of a list of staff trained, type of training, date training was given, and a signature by the owner or manager certifying accuracy of the information.

*Materials and equipment purchased related to pollution source control*

Records should include spill kit contents, spill control materials, pollution control equipment, etc.

*Material use and disposal*

Records related to spill cleanup or other pollution prevention actions.

*Maintenance*

Maintenance of storm drainage system and equipment or facilities related to spill control or pollution prevention

*Records retention*

Records shall be made available to Snohomish County upon request, and shall be retained for three years.

## **2.7 Additional Recommendations**

1. Recycle materials, such as oils, solvents, and wood waste, to the maximum extent practicable.
2. Construct impervious areas that are compatible with the materials handled. Portland cement concrete, asphalt, or equivalent material may be considered.
3. At industrial and commercial facilities, drain oil and fuel filters before disposal. Discard empty oil and fuel filters, oily rags and other oily solid waste into appropriately closed and properly labeled containers, and in compliance with the International Fire Code, or applicable federal, state or local solid waste handling regulations.
4. For the storage of liquids use containers, such as steel and plastic drums, that are rigid and durable, corrosion resistant to the weather and fluid content, non-absorbent, water-tight, rodent-proof, and equipped with a close-fitting cover.
5. For the temporary storage of solid wastes contaminated with liquids or other potential pollutant materials use dumpsters, garbage cans, drums and comparable containers, which are durable, corrosion resistant, non-absorbent, non-leaking, and equipped with either a solid cover or screen cover to prevent littering. If covered with a screen, the container must be stored under a lean-to or equivalent structure.
6. Minimize use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals.
7. Use environmentally safer raw materials, products, additives, etc. such as substitutes for zinc used in rubber production.
8. Recycle waste materials such as solvents, coolants, oils, degreasers, and batteries to the maximum extent feasible.
9. Stencil warning signs at stormwater catch basins and drains, e.g., “Dump no waste.”
- ~~1.~~10. Do not pave over contaminated soil unless approved by the Department of Ecology Toxics Clean-up Program. Call the Snohomish Health District for assistance with contaminated soils at 425-339-5250.
- ~~2.~~11. Where feasible, store potential stormwater pollutant materials inside a building or under a cover and/or containment.
- ~~3.~~12. Dispose of waste in a manner consistent with Snohomish Health District Sanitary Code Chapter 3.1 and all other federal, state or local regulations for disposal of solid or hazardous waste.
- ~~4.~~13. Minimize runoff from lawn and landscape irrigation by watering only as needed, and by properly directing spray from sprinklers. Runoff from lawn and landscape irrigation can contain contaminants such as fertilizers, pesticides, and bacteria.

## **Chapter 3 - Source Control BMPs Required bBy Chapter 7.53 SCC For Specific Activities oOr Land Uses**

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This chapter sets forth BMPs required by Chapter 7.53 SCC for specific activities, facilities, or types of sites.

### **3.1 BMPs for the Building, Repair, and Maintenance of Boats and Ships**

#### **3.1 BMPs for the Building, Repair, and Maintenance of Boats and Ships**

**NOTE:** All boatyards in Washington State with haul out facilities are required to be covered under the NPDES General Permit for Boatyard Activities. All shipyards in Washington State with haul out facilities such as drydocks, graving docks, marine railways or synchrolifts are required to be covered under an individual NPDES Permit. Any facility conducting boatyard or shipyard activities strictly from dockside, with no vessel haul out, must be covered by the NPDES Industrial Stormwater General ~~Stormwater~~ Permit for Industrial Activities. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit shall constitute compliance with that code chapter.

#### **Description of Pollutant Sources**

Sources of pollutants at boat and shipbuilding, repair, and maintenance at boatyards, shipyards, ports, and marinas include pressure washing, surface preparation, paint removal, sanding, painting, engine maintenance and repairs, and material handling and storage, if conducted outdoors. Potential pollutants 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 TSS, oil and grease, organics, copper, lead, tin, and zinc.

#### **Source Control BMPs**

- Use fixed platforms with appropriate plastic or tarpaulin barriers as work surfaces and for containment when work is performed on a vessel in the water to prevent blast material or paint overspray from contacting stormwater or the receiving water. Minimize use of such platforms. Do not perform overwater repair or construction of more than 25 percent of the surface area of the vessel above the waterline).
- Use plastic or tarpaulin barriers beneath the hull and between the hull and dry dock walls to contain and collect waste and spent materials. Clean and sweep regularly to remove debris.
- Enclose, cover, or contain blasting and sanding activities to the maximum extent practicable to prevent abrasives, dust, and paint chips, from reaching storm sewers or receiving water. Use plywood and/or plastic sheeting to cover open areas between decks when sandblasting (scuppers, railings, freeing ports, ladders, and doorways).
- Direct deck drainage to a collection system sump for settling and/or additional treatment.
- Store cracked batteries in a covered secondary container.

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## **3.2 BMPs for Commercial Animal Handling Areas**

### **Description of Pollutant Sources**

Animals at racetracks, kennels, fenced pens, veterinarians, and businesses that provide boarding services for horses, dogs, cats, etc., can generate pollutants from the following activities: manure deposits, animal washing, grazing and any other animal handling activity that could contaminate stormwater. Pollutants can include coliform bacteria, nutrients, and total suspended solids.

### **Source Control BMPs**

- Regularly sweep and clean animal keeping areas to collect and properly dispose of droppings, uneaten food, and other potential stormwater contaminants
- Do not hose down to storm drains or to receiving water those areas that contain potential stormwater contaminants
- Do not allow any washwaters to be discharged to storm drains or to receiving water without proper treatment
- If animals are kept in unpaved and uncovered areas, the ground must either have vegetative cover or some other type of ground cover such as mulch
- Surround the area where animals are kept by a fence or other means that prevents animals from moving away from the controlled area where BMPs are used.
- Contact [Snohomish County Surface Water Management and/or](#) the Snohomish Conservation District for more information.

### **3.3 BMPs for Commercial Composting**

#### **Description of Pollutant Sources**

Commercial compost facilities, operating outside without cover, require large areas to decompose wastes and other feedstocks. These facilities should be designed to separate stormwater from leachate (i.e., industrial wastewater) to the greatest extent possible. When stormwater is allowed to contact any active composting areas, including waste receiving and processing areas, it becomes leachate. Pollutants in leachate include nutrients, biochemical oxygen demand (BOD), organics, coliform bacteria, acidic pH, color, and suspended solids. Stormwater at a compost facility consists of runoff from areas at the facility that are not associated with active processing and curing, such as product storage areas, vehicle maintenance areas, and access roads.

**NOTE:** Discharge of leachate from a compost facility will require a State Waste Discharge Permit or NPDES permit from Ecology, depending on the disposal method chosen for managing leachate at the facility. An additional alternative, zero discharge, is possible by containing all leachate from the facility (in tanks or ponds) or preventing production of leachate (by composting under a roof or in an enclosed building). Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit shall constitute compliance with that code chapter.

#### **Source Control BMPs**

- Train employees to ensure that the compost feedstocks do not contain dangerous wastes, regulated under Chapter 173-303 WAC or hazardous products of a similar nature, or solid wastes that are not beneficial to the composting process.
- Develop a plan of operations if required in accordance with NPDES permit or State Waste Discharge permit.
- Store finished compost in a manner to prevent contamination of stormwater.

### 3.4 BMPs for Commercial Printing Operations

#### Description of Pollutant Sources

Materials used in the printing process include inorganic and organic acids, resins, solvents, polyester film, developers, alcohol, vinyl lacquer, dyes, acetates, and polymers. Waste products may include waste inks and ink sludge, resins, photographic chemicals, solvents, acid and alkaline solutions, chlorides, chromium, zinc, lead, spent formaldehyde, silver, plasticizers, and used lubricating oils. With indoor printing operations, the only likely points of potential contact with stormwater are the outside temporary storage of waste materials and offloading of chemicals at external unloading bays. Pollutants can include TSS, pH, heavy metals, oil and grease, and COD.

#### Source Control BMPs

- Discharge process wastewaters to a sanitary sewer, if approved by the local sewer authority, or to an approved process wastewater treatment system.
- Do not discharge process wastes or wastewaters into storm drains or surface water.
- Train employees in proper identification, handling, and disposal of dangerous wastes. *Note: Snohomish County does not regulate waste handling or disposal; and recommends that the site owner or operator contact the Snohomish Health District and the Washington State Department of Ecology to determine applicable regulations.*
- Store raw materials or waste materials that could contaminate stormwater in covered and contained areas.
- Train all employees in pollution prevention, spill response, and environmentally acceptable materials handling procedures.
- Store materials in proper, appropriately labeled containers. Identify and label all chemical substances.
- Inspect all stormwater management devices regularly and maintain in accordance with the standards set forth in Volume V of this Manual.
- Place cleanup sludges into a container with a tight lid. *—Note: Snohomish County does not regulate waste handling or disposal; and recommends that the site owner or operator contact the Snohomish Health District and the Washington State Department of Ecology to determine applicable regulations.*

For additional information on pollution prevention, the following Washington Department of Ecology publications are recommended: A Guide for Screen Printers, Publication #94-137 and A Guide for Lithographic Printers, Publication #94-139.

### **3.5 BMPs for Deicing and Anti-Icing Operations - Airports and Aircraft**

#### **Description of Pollutant Sources**

Deicing and/or anti-icing compounds are used on airport runways and aircraft to control ice and snow. Typically, ethylene glycol and propylene glycol are deicers used on aircraft. The deicing and anti-icing compounds become pollutants when they are conveyed to storm drains or to surface water after application. Leaks and spills of these chemicals can also occur during their handling and storage.

#### **BMPs for Airport De/anti-icing Operations**

##### Source Control BMPs for aircraft

- Conduct aircraft deicing or anti-icing applications in impervious containment areas. Collect aircraft deicer or anti-icer spent chemicals, such as glycol, draining from aircraft in deicing or anti-icing application areas and convey to a sanitary sewer, treatment, or other approved disposal or recovery method. Divert deicing runoff from paved gate areas to appropriate collection areas or conveyances for proper treatment or disposal.
- Do not allow spent deicer or anti-icer chemicals or stormwater contaminated with aircraft deicer or anti-icer chemicals to be discharged from application areas including gate areas, to surface water, or ground water, directly or indirectly. Transfer deicing and anti-icing chemicals on an impervious containment pad, or equivalent spill/leak containment area, and store in secondary containment areas.
- Spent glycol discharges in aircraft application areas are process wastewaters that are regulated under Ecology's industrial stormwater general permit. (Contact the Ecology Regional Office for details.) BMPs for aircraft de/anti-icers must be consistent with aviation safety and the operational needs of the aircraft operator.

##### Source Control BMPs for airport runways/taxiways

- Avoid excessive application of all de/anti-icing chemicals, which could contaminate stormwater.
- Store and transfer de/anti-icing materials on an impervious containment pad or an equivalent containment area and/or under cover in accordance with BMP Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products in this volume. Other material storage and transfer approaches may be considered if it can be demonstrated that stormwater will not be contaminated with or that the de/anti-icer material cannot reach surface or ground waters.
- Include limits on toxic materials and phosphorous in the specifications for de/anti-icers, where applicable.
- Consider using anti-icing materials rather than deicers if it will result in less adverse environmental impact.
- Select cost-effective de/anti-icers that cause the least adverse environmental impact.

### **3.6 BMPs for Deicing and Anti-Icing Operations – Commercial Parking Lots and Paved Areas**

#### **Description of Pollutant Sources**

Deicing and/or anti-icing compounds are used on paved surfaces to control ice and snow. Common pavement deicers include calcium magnesium acetate (CMA), calcium chloride, magnesium chloride, sodium chloride, urea, and potassium acetate. The deicing and anti-icing compounds become pollutants when they are conveyed to storm drains or to surface water after application. Leaks and spills of these chemicals can also occur during their handling and storage.

#### **Source Control BMPs**

- Select de and anti-icers that cause the least adverse environmental impact. Apply only as needed using minimum quantities.
- Where feasible and practicable use roadway deicers, such as calcium magnesium acetate, potassium acetate, or similar materials, that cause less adverse environmental impact than urea, and sodium chloride.
- Store and transfer de/anti-icing materials on an impervious containment pad in accordance with BMP Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products in this volume.
- Sweep/clean up accumulated de/anti-icing materials and grit from paved areas as soon as possible after the paved surface is free of ice.

### **3.7 BMPs for Dust Control at Unpaved Commercial or Industrial Sites**

#### **Description of Pollutant Sources**

Dust can cause air and water pollution problems particularly at demolition sites and in arid areas where reduced rainfall exposes soil particles to transport by air.

#### **Source Control BMPs**

- Sprinkle or wet down soil or dust with water ~~as long as~~ as if it does not result in a wastewater discharge.
- Use only state government approved dust suppressant chemicals such as those listed in Ecology Publication #96-433, “Techniques for Dust Prevention and Suppression.”
- Avoid excessive and repeated applications of dust suppressant chemicals. Time the application of dust suppressants to avoid or minimize their wash-off by rainfall or human activity such as irrigation.
- Apply stormwater containment to prevent the conveyance of stormwater TSS into storm drains or receiving waters.
- The use of motor oil for dust control is prohibited. Care should be taken when using lignin derivatives and other high BOD chemicals in excavations or areas easily accessible to surface water or ground water.
- Consult with the Ecology Northwest Regional Office on discharge permit requirements if the dust suppression process results in a wastewater discharge to the ground, ground water, storm drain, or surface water.

### **3.8 BMPs for Dust Control at Manufacturing Areas**

#### **Description of Pollutant Sources**

Industrial material handling activities can generate considerable amounts of dust that is typically removed using exhaust systems. This can generate air emissions that can contaminate stormwater. Dusts can be generated at cement and concrete products mixing, and wherever powdered materials are handled. Particulate materials that are of concern to air pollution control agencies include grain dust, sawdust, coal, gravel, crushed rock, cement, and boiler fly ash. The objective of this BMP is to reduce the stormwater pollutants caused by dust generation and control.

#### **Source Control BMPs**

- Regularly sweep dust accumulation areas that can contaminate stormwater. Sweeping should be conducted using vacuum filter equipment to minimize dust generation and to ensure optimal dust removal.
- In manufacturing operations, train employees to carefully handle powders to prevent generation of dust.

### **3.9 BMPs for Fueling aAt Dedicated Stations**

#### **Description of Pollutant Sources**

A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes above or under-ground fuel storage facilities. In addition to general service gas stations, fueling may also occur at 24-hour convenience stores, construction sites, warehouses, car washes, manufacturing establishments, port facilities, and businesses with fleet vehicles. Typically, stormwater contamination at fueling stations is caused by leaks/spills of fuels, lube oils, radiator coolants, and vehicle washwater.

#### **Source Control BMPs**

- Prepare an emergency spill response and cleanup plan (per BMPs for Spills of Oil and Hazardous Substances) and have designated trained person(s) available on-site during business hours, properly implement that plan and immediately cleanup all spills. Keep suitable cleanup materials, such as dry adsorbent materials, within 25 feet of all fueling and fuel transfer areas to allow prompt cleanup of a spill.
- Train employees on the proper use of fuel dispensers. Post “No Topping Off” signs (topping off gas tanks causes spillage and vents gas fumes to the air).
- The person conducting the fuel transfer must be present at the fueling pump during fuel transfer, particularly at unattended or self-serve stations.
- Keep drained oil filters in a suitable container or drum.

### **3.10 BMPs for Landscaping and Lawn/Vegetation Management at Commercial Sites or Performed Commercially at Other Sites**

#### **Description of Pollutant Sources**

Landscaping can include grading, soil transfer, vegetation removal, pesticide and fertilizer applications, and watering. Stormwater contaminants include toxic organic compounds, heavy metals, oils, total suspended solids, coliform bacteria, fertilizers, and pesticides.

Lawn and vegetation management can include control of objectionable weeds, insects, mold, bacteria and other pests with chemical pesticides and is conducted commercially at commercial, industrial, and residential sites. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; sap stain and insect control on lumber and logs; rooftop moss removal; killing nuisance rodents; fungicide application to patio decks, and residential lawn/plant care. Toxic pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of the vegetation and poor application of pesticides or fertilizers can cause appreciable stormwater contamination.

Although it is not required, pesticide and herbicide pollution can be minimized by developing and implementing **pest management, and in particular** an Integrated Pest Management (IPM) Plan. (See BMPs 3.34 and 4.34.) –If pesticides/herbicides are used they must be carefully applied in accordance with label instructions on U.S. Environmental Protection Agency (EPA) registered materials. Maintain appropriate vegetation, with proper fertilizer application where practicable, to control erosion and the discharge of stormwater pollutants. Where practicable grow plant species appropriate for the site, or adjust the soil properties of the subject site to grow desired plant species.

#### **Source Control BMPs for Landscaping**

- Do not dispose of collected vegetation into waterways or storm drainage systems.
- If oil or other chemicals are handled, store and maintain appropriate oil and chemical spill cleanup materials in readily accessible locations. Ensure that employees are familiar with proper spill cleanup procedures.

#### **Source Control BMPs for the Use of Pesticides**

- Apply the pesticide according to label directions. Under no conditions shall pesticides be applied in quantities that exceed manufacturer's instructions.
- Mix the pesticides and clean the application equipment in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.
- Store pesticides in enclosed areas or in covered impervious containment. Ensure that pesticide contaminated stormwater or spills/leaks of pesticides are not discharged to storm drains. Do not hose down the paved areas to a storm drain or conveyance ditch. Store and maintain appropriate spill cleanup materials in a location known to all near the storage area.

- Clean up any spilled pesticides and ensure that the pesticide contaminated waste materials are kept in designated covered and contained areas.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.
- Do not spray pesticides within 100 feet of open waters including wetlands, ponds, and streams, sloughs and any drainage ditch or channel that leads to open water except when approved by Ecology. All sensitive areas including wells, creeks and wetlands must be flagged prior to spraying.
- As required by applicable regulations, complete public posting of the area to be sprayed prior to the application.
- Rinseate from equipment cleaning and/or triple-rinsing of pesticide containers should be used as product, recycled into product, or disposed of properly. *Note: Snohomish County does not regulate waste handling or disposal, and recommends that the site owner or operator contact the Snohomish Health District and the Washington State Department of Ecology to determine applicable regulations.*

#### **Source Control BMPs for Vegetation Management**

- Do not dispose of collected vegetation into waterways or storm drainage systems.

#### **Fertilizer Management**

- Properly trained persons should apply all fertilizers. At commercial and industrial facilities fertilizers should not be applied to grass swales, filter strips, or buffer areas that drain to sensitive water bodies unless approved by Snohomish County.

### 3.11 BMPs for Loading and Unloading Areas for Liquid or Solid Material

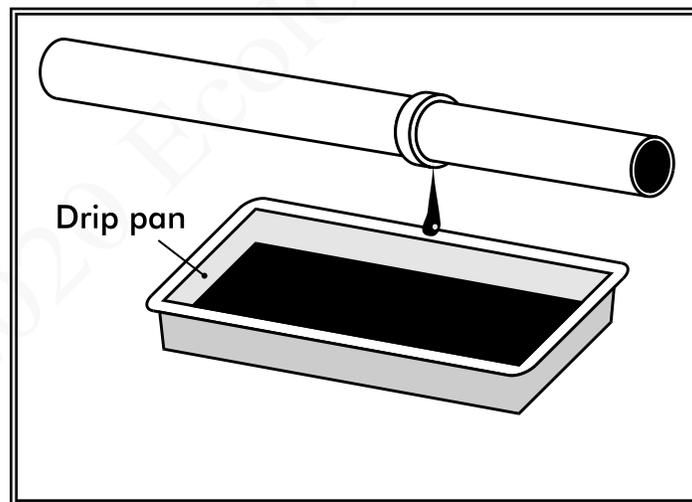
#### Description of Pollutant Sources

Loading/unloading of liquid and solid materials at industrial and commercial facilities is typically conducted at shipping and receiving, outside storage, fueling areas, etc. Materials transferred can include products, raw materials, intermediate products, waste materials, fuels, scrap metals, etc. Leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc. during transfer are potential causes of stormwater contamination. Spills from hydraulic line breaks are a common problem at loading docks.

#### Source Control BMPs

##### At All Loading/ Unloading Areas

- A significant amount of debris can accumulate at outside, uncovered loading/unloading areas. Sweep these surfaces frequently to remove loose material that could otherwise contaminate stormwater. Sweep areas temporarily covered after removal of the stored materials. Place drip pans, or other appropriate temporary containment device, at locations where leaks or spills may occur such as hose connections, hose reels and filler nozzles. Drip pans shall always be used when making and breaking connections (see Figure 4.1). Check loading/unloading equipment such as valves, pumps, flanges, and connections regularly for leaks and repair as needed.
- Provide signage clearly designating loading and unloading areas.



**Figure 4.1 – Drip Pan**

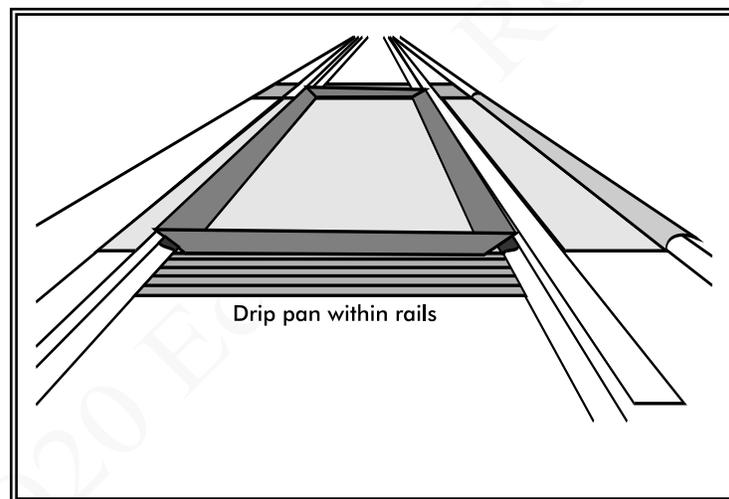
##### At Tanker Truck and Rail Transfer Areas to Above/Below-ground Storage Tanks

- To minimize the risk of accidental spillage, prepare an "Operations Plan" that describes procedures for loading/unloading. Train the employees, especially fork lift operators, in its execution and post it or otherwise have it readily available to employees.

- Report spills of reportable quantities to Ecology (refer to Chapter 2 for telephone numbers of Ecology Regional Offices).
- Prepare and implement an Emergency Spill Cleanup Plan for the facility (BMP Spills of Oil and Hazardous Substances) which includes the following BMPs:
  - Ensure the cleanup of liquid/solid spills in the loading/ unloading area immediately, if a significant spill occurs, and, upon completion of the loading/unloading activity, or, at the end of the working day.
  - Retain and maintain an appropriate oil spill cleanup kit on-site for rapid cleanup of material spills. (See BMP Spills of Oil and Hazardous Substances).
  - Ensure that an employee trained in spill containment and cleanup is present during loading/unloading.

At Rail Transfer Areas to Above/below-ground Storage Tanks

- Install a drip pan system as illustrated within the rails to collect spills/leaks from tank cars and hose connections, hose reels, and filler nozzles.



**Figure 4.2 – Drip Pan Within Rails**

Loading/Unloading from/to Marine Vessels

- Facilities and procedures for the loading or unloading of petroleum products must comply with Coast Guard requirements.

Transfer of Small Quantities from Tanks and Containers

- Refer to BMPs Storage of Liquids in Permanent Above-Ground Tanks, and Storage of Liquid, Food Waste, or Dangerous Waste Containers, for requirements on the transfer of small quantities from tanks and containers, respectively.

### 3.12 BMPs for Log Sorting and Handling

#### Description of Pollutant Sources

Log yards are paved or unpaved areas where logs are transferred, sorted, debarked, cut, and stored to prepare them for shipment or for the production of dimensional lumber, plywood, chips, poles, or other products. Log yards are generally maintained at sawmills, shipping ports, and pulp mills. Typical pollutants include oil and grease, BOD, settleable solids, total suspended solids (including soil), high and low pH, heavy metals, pesticides, wood-based debris, and leachate.

The following are pollutant sources:

- Log storage, rollout, sorting, scaling, and cutting areas
- Log and liquid loading areas
- Log sprinkling
- Debarking, bark bin and conveyor areas
- Bark, ash, sawdust and wood debris piles, and other solid wastes
- Metal salvage areas
- Truck, rail, ship, stacker, and loader access areas
- Log trucks, stackers, loaders, forklifts, and other heavy equipment
- Maintenance shops and parking areas
- Cleaning areas for vehicles, parts, and equipment
- Storage and handling areas for hydraulic oils, lubricants, fuels, paints, liquid wastes, and other liquid materials
- Pesticide usage for log preservation and surface protection
- Application of herbicides for weed control
- Contaminated soil resulting from leaks or spills of fluids

**NOTE:** -Industries with log yards are required to obtain coverage under the baseline general permit for discharges of stormwater associated with industrial activities to surface water. The permit requires preparation and on-site retention of Stormwater Pollution Prevention Plans (SWPPP). The SWPPP must identify operational, source control, erosion and sediment control and, if necessary, treatment BMPs. Required and recommended source control and treatment BMPs are presented in detail in Ecology's Guidance Document: "Industrial Stormwater General Permit Implementation Manual for Log Yards, Publication # 04-10-031". Implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit is adequate to comply with Snohomish County Code 7.53 unless these BMPs do not prevent prohibited discharges.

### **3.13 BMPs for Maintenance and Repair of Vehicles and Equipment**

#### **Description of Pollutant Sources**

Pollutant sources include parts/vehicle cleaning, spills/leaks of fuel and other liquids, replacement of liquids, outdoor storage of batteries/liquids/parts, and vehicle parking.

#### **Source Control BMPs**

- Inspect for leaks all incoming vehicles, parts, and equipment stored temporarily outside.
- Use drip pans or containers under parts or vehicles that drip or that are likely to drip liquids, such as during dismantling of liquid containing parts or removal or transfer of liquids.
- Remove batteries and liquids from vehicles and equipment in designated areas designed to prevent stormwater contamination.
- Store used or damaged batteries in a designated area with covered secondary containment designed to prevent run-on and runoff.
- Empty oil and fuel filters before disposal. Provide for proper disposal of waste oil and fuel.
- Do not pour/convey washwater, liquid waste, or other pollutant into storm drains or to surface water. Check with the local sanitary sewer authority for approval to convey to a sanitary sewer.
- Do not connect maintenance and repair shop floor drains to storm drains or to surface water. To allow for snowmelt during the winter a drainage trench with a sump for particulate collection can be installed and used only for draining the snowmelt and not for discharging any vehicular or shop pollutants.
- Inspect all BMPs regularly, particularly after a significant storm. Identify and correct deficiencies to ensure that the BMPs are functioning as intended.
- For additional required or recommended source control BMPs refer to the following BMPs:
  - Fueling at Dedicated Stations
  - Washing and Steam Cleaning
  - Vehicle/Equipment/Building Structures
  - Loading and Unloading Areas for Liquid or Solid Material
  - Storage of Liquids in Permanent Above-Ground Tanks
  - Storage of Liquid, Food Waste, or Dangerous Waste Containers
  - Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products
  - Spills of Oil and Hazardous Substances
  - Illicit Connections to Storm Drains

### **3.14 BMPs for Maintenance of Public and Private Utility Corridors and Facilities**

#### **Description of Pollutant Sources**

Passageways and equipment at petroleum product, natural gas, and water pipelines, and electrical power transmission corridors and rights-of-way can be sources of pollutants such as herbicides used for vegetation management, and eroded soil particles from unpaved access roads. At pump stations waste materials generated during maintenance activities may be temporarily stored outside. Additional potential pollutant sources include the leaching of preservatives from wood utility poles, PCBs in older transformers, water that is removed from underground transformer vaults, and leaks/spills from petroleum pipelines. The following are potential pollutants: oil and grease, TSS, BOD, organics, PCB, pesticides, and heavy metals.

#### **Source Control BMPs**

- Implement BMPs for Landscaping and Lawn/Vegetation Management.
- When water or sediments are removed from electric transformer vaults, determine whether contaminants might be present before disposing of the water and sediments. This includes inspecting for the presence of oil or sheen, and determining from records or testing if the transformers contain PCBs. If records or tests indicate that the sediment or water are contaminated above applicable levels, manage these media in accordance with applicable federal and state regulations, including the federal PCB rules (40 CFR 761) and the state MTCA cleanup regulations (Chapter 173-340 WAC). Water removed from the vaults can be discharged in accordance with the federal 40 CFR 761.79, and state regulations (Chapter 173-201A WAC and Chapter 173-200 WAC), or via the sanitary sewer if the requirements, including applicable permits, for such a discharge are met.
- Maintain ditches and culverts at an appropriate frequency to ensure that plugging and flooding across the roadbed, with resulting overflow erosion, does not occur.
- Apply the appropriate BMPs in this Volume for the storage of waste materials that can contaminate stormwater.
- Implement temporary erosion and sediment control in areas where clear-cuts are conducted and new roads are constructed.

### **3.15 BMPs for Maintenance of Private Roadside Ditches**

#### **Description of Pollutant Sources**

Common road debris including eroded soil, oils, vegetative particles, and heavy metals can be sources of stormwater pollutants.

#### **Source Control BMPs**

- Inspect roadside ditches regularly, as needed, to identify sediment accumulations and localized erosion.
- Clean ditches on a regular basis, as needed. Ditches should be kept free of rubbish and debris.
- Vegetation in ditches often prevents erosion and cleanses runoff waters. Remove vegetation only when flow is blocked or excess sediments have accumulated.
- Diversion ditches on top of cut slopes that are constructed to prevent slope erosion by intercepting surface drainage must be maintained to retain their diversion shape and capability.
- Ditch cleanings are not to be left on the roadway surfaces. Sweep dirt and debris remaining on the pavement at the completion of ditch cleaning operations.
- Roadside ditch cleanings contaminated by spills or other releases known or suspected to contain dangerous waste must be handled following the Dangerous Waste Regulations (Chapter 173-303 WAC) unless testing determines it is not dangerous waste
- Examine culverts on a regular basis for scour or sedimentation at the inlet and outlet, and repair as necessary. Give priority to those culverts conveying perennial and/or salmon-bearing streams and culverts near streams in areas of high sediment load, such as those near subdivisions during construction.

**3.16 [RESERVED]**

July 2020 Ecology Review Draft

### **3.17 BMPs for Manufacturing Activities – Outside**

#### **Description of Pollutant Sources**

Manufacturing pollutant sources include outside process areas, stack emissions, and areas where manufacturing activity has taken place in the past and significant pollutant materials remain and are exposed to stormwater.

#### **~~Source control BMPs~~ Source Control BMPs**

- Sweep paved areas regularly, as needed, to prevent contamination of stormwater.
- Cover the activity. NOTE: A building permit may be required if a structure is proposed to cover the activity. Contact Snohomish County Planning and Development Services at 425-388-3311.

### **3.18 BMPs for Mobile Fueling of Vehicles and Heavy Equipment**

#### **Description of Pollutant Sources**

Mobile fueling, also known as fleet fueling, wet fueling, or wet hosing, is the practice of filling fuel tanks of vehicles by tank trucks that are driven to the yards or sites where the vehicles to be fueled are located. Mobile fueling is only conducted using diesel fuel, as mobile fueling of gasoline is prohibited. Diesel fuel is considered as a Class II Combustible Liquid, whereas gasoline is considered as a Flammable Liquid. Historically mobile fueling has been conducted for off-road vehicles that are operated for extended periods of time in remote areas. This includes construction sites, logging operations, and farms. Mobile fueling of onroad vehicles is also conducted commercially in the State of Washington.

#### **Source Control BMPs**

Organizations and individuals conducting mobile fueling operations must implement the following BMPs. The operating procedures for the driver/operator should be simple, clear, effective and their implementation verified by the organization that will potentially be liable for environmental and third party damage.

- Ensure that all mobile fueling operations are approved by the local fire department and comply with local and Washington State fire codes. • In fueling locations that are in close proximity to sensitive aquifers, designated wetlands, wetland buffers, or other waters of the State, approval by local jurisdictions is necessary to ensure compliance with additional local requirements.
- Ensure the presence and the constant observation/monitoring of the driver/operator at the fuel transfer location at all times during fuel transfer and ensure that the following procedures are implemented at the fuel transfer locations:
  - Locate the point of fueling at least 25 feet from the nearest storm drain or inside an impervious containment with a volumetric holding capacity equal to or greater than 110 percent of the fueling tank volume, or covering the storm drain to ensure no inflow of spilled or leaked fuel. Storm drains that convey the inflow to a spill control separator approved by the local jurisdiction and the fire department need not be covered. Potential spill/leak conveyance surfaces must be impervious and in good repair.
  - Placement of a drip pan, or an absorbent pad under each fueling location prior to and during all dispensing operations. The pan (must be liquid tight) and the absorbent pad must have a capacity of 5 gallons. Spills retained in the drip pan or the pad need not be reported.
  - The handling and operation of fuel transfer hoses and nozzle, drip pan(s), and absorbent pads as needed to prevent spills/leaks of fuel from reaching the ground, storm drains, and receiving waters.
  - Do not extend the fueling hoses across a traffic lane without fluorescent traffic cones, or equivalent devices, conspicuously placed so that all traffic is blocked from crossing the fuel hose.
  - Do not “top off” the fuel receiving equipment.

- Provide the driver/operator of the fueling vehicle with two-way communication with his/her home base and adequate flashlights or other mobile lighting to view fill openings with poor accessibility. Consult with local fire district for additional lighting requirements.
- Train the driver/operator annually in spill prevention and cleanup measures and emergency procedures. Make all employees aware of the significant liability associated with fuel spills. Document training.
- The fueling operating procedures should be properly signed and dated by the responsible manager, distributed to the operators, retained in the organization files, and made available in the event an authorized government agency requests a review.
- Ensure that the local fire department (911) and the appropriate regional office of the Department of Ecology are immediately notified in the event of any spill entering the surface or ground waters. Establish a “call down list” to ensure the rapid and proper notification of management and government officials should any significant amount of product be lost off-site. Keep the list in a protected but readily accessible location in the mobile fueling truck. The “call down list” should also pre-identify spill response contractors available in the area to ensure the rapid removal of significant product spillage into the environment.
- Maintain a minimum of the following spill clean-up materials in all fueling vehicles, that are readily available for use:
  - Non-water absorbents capable of absorbing 15 gallons of diesel fuel;
  - A storm drain plug or cover kit;
  - A non-water absorbent containment boom of a minimum 10 feet in length with a 12-gallon absorbent capacity;
  - A non-metallic shovel; and,
  - Two, five-gallon buckets with lids.
- Maintain and replace equipment on fueling vehicles, particularly hoses and nozzles, at established intervals to prevent failures.

### **3.19 BMPs for Painting/Finishing/ Coating of Vehicles/Boats/ Buildings/ Equipment**

#### **Description of Pollutant Sources**

Surface preparation and the application of paints, finishes and/or coatings to vehicles, boats, buildings, and/or equipment outdoors can be sources of pollutants. Potential pollutants include organic compounds, oils and greases, heavy metals, and suspended solids.

#### **Source control BMPs**

- Train employees in the careful application of paints, finishes, and coatings to reduce misuse and over spray. Use ground or drop cloths underneath outdoor painting, scraping, sandblasting work, and properly clean and temporarily store collected debris daily.
- Do not conduct spraying, blasting, or sanding activities over open water or where wind may blow paint into water.
- Wipe up spills with rags and other absorbent materials immediately. Do not hose down the area to a storm drain or receiving water or conveyance ditch to receiving water.
- On marine dock areas sweep or vacuum rather than hose down debris.
- Use a storm drain cover, filter fabric, or similarly effective runoff control device if dust, grit, washwater, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the workday. Collect contaminated runoff and solids and properly dispose of such wastes before removing the containment device(s) at the end of the workday.
- Use a ground cloth, pail, drum, drip pan, tarpaulin, or other protective device for activities such as paint mixing and tool cleaning outside or where spills can contaminate stormwater.
- Properly dispose of all wastes and prevent all uncontrolled releases to the air, ground or water.
- Store toxic materials under cover (tarp, etc.) during precipitation events and when not in use to prevent contact with stormwater.
- Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain.

## **3.20 BMPs for Parking and Storage of Vehicles and Equipment**

### **Description of Pollutant Sources**

Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways, can be sources of toxic hydrocarbons and other organic compounds, oils and greases, metals, and suspended solids caused by the parked vehicles.

### **Source-control BMPs**

- If washing of a parking lot is conducted, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority, or other approved wastewater treatment system, or collect the washwater for off-site disposal.
- Do not hose down the area to a storm drain or to a receiving water. Vacuum sweep parking lots, storage areas, and driveways, regularly to collect dirt, waste, and debris.

### **Applicable Treatment BMPs**

An oil removal system such as an API or CP oil and water separator, catch basin filter, or equivalent BMP, approved by the local jurisdiction, is applicable for parking lots meeting the threshold vehicle traffic intensity level of a *high-use site*.

### **Vehicle High-Use Sites**

Establishments subject to a vehicle high-use intensity have been determined to be significant sources of oil contamination of stormwater. Examples of potential high use areas include customer parking lots at fast food stores, grocery stores, taverns, restaurants, large shopping malls, discount warehouse stores, quick-lube shops, and banks. If the PGIS for a high-use site exceeds 5,000 square feet in a threshold discharge area, and oil control BMP from the Oil Control Menu is necessary. A high-use site at a commercial or industrial establishment has one of the following characteristics:

- Is subject to an expected average daily vehicle traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area: or
- Is subject to storage of a fleet of 25 or more diesel vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.).

### **3.21 BMPs for Railroad Yards**

#### **Description of Pollutant Sources**

Pollutant sources can include drips/leaks of vehicle fluids onto the railroad bed, human waste disposal, litter, locomotive/railcar/equipment cleaning areas, fueling areas, outside material storage areas, the erosion and loss of soil particles from the railroad bed, maintenance and repair activities at railroad terminals, switching yards, and maintenance yards, and herbicides used for vegetation management. Waste materials can include waste oil, solvents, degreasers, antifreeze solutions, radiator flush, acids, brake fluids, soiled rags, oil filters, sulfuric acid and battery sludges, and machine chips with residual machining oil and toxic fluids/solids lost during transit. Potential pollutants include oil and grease, TSS, BOD, organics, pesticides, and metals.

#### **Source Control BMPs**

- Do not allow discharge to outside areas from toilets while a train is in transit. Pumpout facilities should be used to service these units.
- Use drip pans at hose/pipe connections during liquid transfer and other leak-prone areas.
- During maintenance do not discard debris or waste liquids along the tracks or in railroad yards.

#### **Applicable Treatment BMPs**

In areas subjected to leaks/spills of oils or other chemicals convey the contaminated stormwater to appropriate treatment such as a sanitary sewer, if approved by the appropriate sewer authority, or, to a CP or API oil/water separator for floating oils, or other treatment, as approved by the local jurisdiction.

## **3.22 BMPs for Recyclers and Scrap Yards**

### **Description of Pollutant Sources**

Includes businesses that reclaim various materials for resale or for scrap, such as vehicles and vehicle/ equipment parts, construction materials, metals, beverage containers, and papers. Potential sources of pollutants include paper, plastic, metal scrap debris, engines, transmissions, radiators, batteries, and other materials that contain fluids or are contaminated with fluids. Other pollutant sources include leachate from metal components, contaminated soil, and the erosion of soil. Activities that can generate pollutants include the transfer, dismantling, and crushing of vehicles and scrap metal; the transfer and removal of fluids; maintenance and cleaning of vehicles, parts, and equipment; and storage of fluids, parts for resale, solid wastes, scrap parts, and materials, equipment and vehicles that contain fluids; generally in uncovered areas. Potential pollutants typically found at vehicle recycle and scrap yards include oil and grease, ethylene and propylene glycol, total suspended solids, BOD, heavy metals, and acidic pH.

### **Source-control BMPs**

For facilities subject to Ecology's Industrial Stormwater General Permit refer to BMP Guidance Document #94-146, "Best Management Practices to Prevent Stormwater Pollution at Vehicle Recycler Facilities," Washington Department of Ecology, September 1994 for selection of BMPs. The BMPs in that guidance document can also be applied to scrap material recycling facilities depending on the pollutant sources existing at those facilities and to non-permitted facilities. Implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit is adequate to comply with Snohomish County Code 7.53 unless these BMPs do not prevent prohibited discharges.

NOTE: A revised guidance document for Vehicle Recycler Facilities was completed in 2006. The document is posted at the Department of Ecology's stormwater web page: <http://www.ecy.wa.gov/programs/wq/stormwater/index.html>

### **3.23 BMPs for Roof/ Building Drains at Manufacturing and Commercial Buildings**

#### **Description of Pollutant Sources**

Stormwater runoff from roofs and sides of manufacturing and commercial buildings can be sources of pollutants caused by leaching of roofing materials, building vents, and other air emission sources. Vapors and entrained liquid and solid droplets/particles have been identified as potential pollutants in roof/building runoff. Metals, solvents, acidic/alkaline pH, BOD, and organics, are some of the pollutant constituents identified.

#### **~~Source-control BMP~~ Source Control BMPs**

- If a roof/building stormwater pollutant source is identified, implement appropriate source control measures such as air pollution control equipment, selection of materials, operational changes, material recycle, process changes, etc.
- Sweep the area routinely to remove particulate material that may contain pollutants.

### **3.24 BMPs for Soil Erosion and Sediment Control at Industrial Sites**

#### **Description of Pollutant Sources**

Industrial activities on soil areas; exposed and disturbed soils; steep grading; etc. can be sources of sediments that can contaminate stormwater runoff.

#### **~~Source control BMPs~~ Source Control BMPs**

Implement BMPs from Volume II of this Manual to prevent erosion of exposed or disturbed soil.

Implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit is adequate to comply with Chapter 7.53 SCC unless these BMPs do not prevent prohibited discharges.

### **3.25 BMPs for Spills of Oil and Hazardous Substances**

#### **Description of Pollutant Sources**

Owners or operators of facilities engaged in drilling, producing, gathering, storing, processing, transferring, distributing, refining or consuming oil and/or oil products are required by Federal Law to have a Spill Prevention and Control Plan if the storage capacity of the facility, which is not buried, is 1,320 gallons or more of oil, or any single container with a capacity in excess of 660 gallons and which, due to their location, could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines {40 CFR 112.1 (b)}. Onshore and offshore facilities, which, due to their location, could not reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines are exempt from these regulations {40 CFR 112.1(1)(i)}. Owners of businesses that produce Dangerous Wastes are also required by State Law to have a spill control plan. The federal definition of oil is oil of any kind or any form, including, but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

#### **Source-control BMPs Source Control BMPs**

Businesses and public agencies located at nonresidential properties are required to prepare and implement an Emergency Spill Cleanup Plan shall implement the following:

- Prepare an Emergency Spill Control Plan (SCP), which includes:
  - A description of the facility including the owner's name and address;
  - The nature of the activity at the facility;
  - The general types of chemicals used or stored at the facility;
  - A site plan showing the location of storage areas for chemicals, the locations of storm drains, the areas draining to them, and the location and description of any devices to stop spills from leaving the site such as positive control valves;
  - Cleanup procedures;
  - Notification procedures to be used in the event of a spill, such as notifying key personnel. Agencies such as Ecology, local fire department, Washington State Patrol, and the local Sewer Authority, shall be notified;
  - The name of the designated person with overall spill cleanup and notification responsibility
- Train key personnel in the implementation of the Emergency SCP.
- Prepare a summary of the plan and post it at appropriate points in the building, identifying the spill cleanup coordinators, location of cleanup kits, and phone numbers of regulatory agencies to be contacted in the event of a spill;
- Update the SCP regularly;

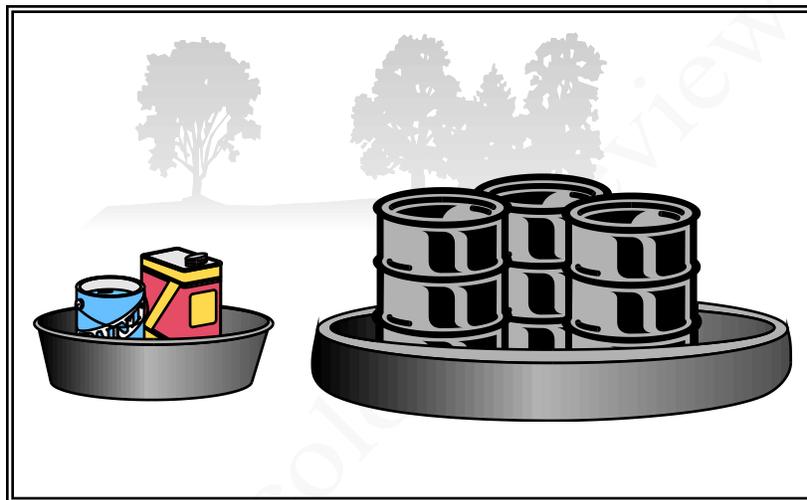
- Immediately notify Ecology and the local Sewer Authority if a spill may reach sanitary or storm sewers, ground water, or surface water, in accordance with federal and Ecology spill reporting requirements;
- Immediately clean up spills. Do not use emulsifiers for cleanup unless an appropriate disposal method for the resulting oily wastewater is implemented. Absorbent material shall not be washed down a floor drain or storm sewer; and,
- Locate emergency spill containment and cleanup kit(s) in high potential spill areas. The contents of the kit shall be appropriate for the type and quantities of chemical liquids stored at the facility.

Spill kits should include appropriately lined drums, absorbent pads, and granular or powdered materials for neutralizing acids or alkaline liquids where applicable. In fueling areas: absorbent should be packaged in small bags for easy use and small drums should be available for storage of absorbent and/or used absorbent. Spill kits should be deployed in a manner that allows rapid access and use by employees.

### **3.26 BMPs for Storage of Liquid Waste, Food Waste, or Dangerous Waste Containers**

#### **Description of Pollutant Sources**

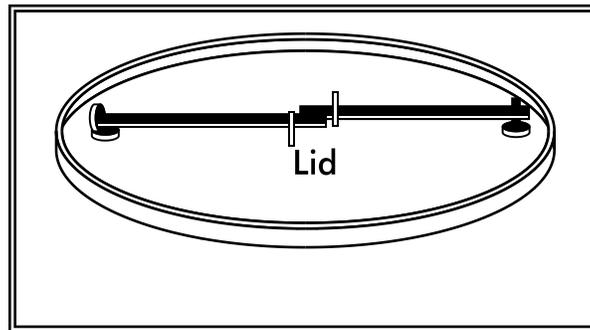
Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building used for temporary storage of accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock or cleaning chemical, or Dangerous Wastes (liquid or solid) unless the business is permitted by Ecology to store the wastes. Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid/alkali pH, BOD, COD are potential pollutant constituents.



**Figure 4.3 – Secondary Containment System**

#### **Source-control BMPs**

- Place tight-fitting lids on all containers.
- Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers. See Figure 4.3.
- Inspect container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems. Check containers daily for leaks/spills. Replace containers, and replace and tighten bungs in drums as needed.
- Businesses accumulating Dangerous Wastes that do not contain free liquids need only to store these wastes in a sloped designated area with the containers elevated or otherwise protected from storm water run-on.
- Drums stored in an area where unauthorized persons may gain access must be secured in a manner that prevents accidental spillage, pilferage, or any unauthorized use (see Figure 4.4).



**Figure 4.4 – Locking System for Drum Lid**

- If the material is a Dangerous Waste, the business owner must comply with any additional Ecology requirements.
- Storage of reactive, ignitable, or flammable liquids must comply with the International Fire Code.
- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters.
- Drain dumpsters and/or dumpster pads to sanitary sewer. Keep dumpster lids closed. Install waterproof liners.

### **3.27 BMPs for Storage of Liquids in Permanent Above-Ground Tanks**

#### **Description of Pollutant Sources**

Above-ground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. They may be heated with steam heat exchangers equipped with steam traps. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

#### **Source Control BMPs**

- Inspect the tank containment areas regularly for leaks, spills, cracks, corrosion, etc. to identify problem components such as fittings, pipe connections, and valves, for leaks/spills, cracks, corrosion, etc.
- Place adequately sized drip pans beneath all mounted taps and drip/spill locations during filling/unloading of tanks. Valved drain tubing may be needed in mounted drip pans.
- Vacuum sweep and clean the tank storage area regularly, if paved.
- Replace or repair tanks that are leaking, corroded, or otherwise deteriorating.
- Provide signage clearly designating storage area and listing the maximum container volume to be stored in the area (based on diked area containment volume).
- Secondary containment is required to the extent that it does not trigger the need for a development permit from Snohomish County.

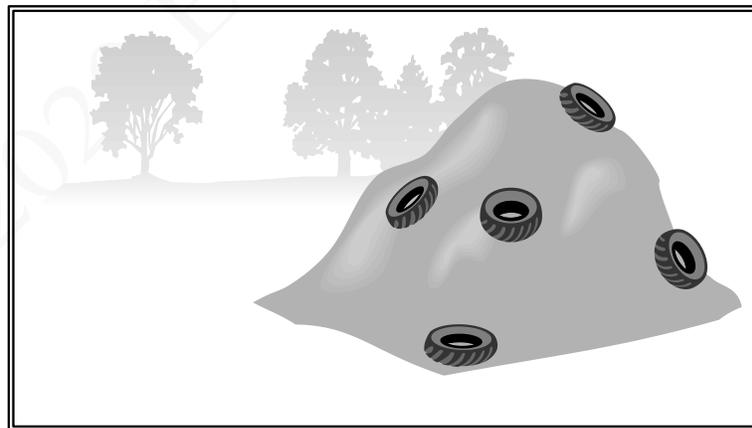
### **3.28 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products**

#### **Description of Pollutant Sources**

Solid raw materials, by-products, or products such as gravel, sand, salts, topsoil, compost, logs, sawdust, wood chips, lumber and other building materials, concrete, and metal products sometimes are typically stored outside in large piles, stacks, etc. at commercial or industrial establishments. Contact of outside bulk materials with stormwater can cause leachate, and erosion of the stored materials. Contaminants include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc.).

#### **Source Control BMPs**

- Do not hose down the contained stockpile area to a storm drain or a conveyance to a storm drain or to a receiving water.
- Areas should be sloped to drain stormwater to the perimeter where it can be collected, or to internal drainage “alleyways” where material is not stockpiled.
- Sweep paved storage areas regularly for collection and disposal of loose solid materials.
- Stock cleanup materials, such as brooms, dustpans, and vacuum sweepers near the storage area.
- Place temporary plastic sheeting (polyethylene, polypropylene, hypalon, or equivalent) over the material. See Figure 4.5
- Provide signage clearly designating storage area and listing the maximum container volume to be stored in the area (based on diked area containment volume).



**Figure 4.5 – Material Covered with Plastic Sheetting**

### **3.29 BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures**

**NOTE:** Discharge of wash water or other wastewater to the storm sewer system is prohibited by federal law and Snohomish County code. See Chapter 5 for source control BMPs required for new development or redevelopment of facilities that will conduct washing practices outside.

#### **Description of Pollutant Sources**

Commercial cleaning of vehicles, aircraft, vessels, and transportation, restaurant cooking, carpet cleaning, and industrial equipment, and large buildings with low or high pressure water or steam. This includes frequent “charity” car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

#### **Source-control BMPs**

For infrequent non-standard activities such as charity car washes, a temporary wastewater collection and pumping system may be employed, such as a pump placed in a catch basin insert that pumps the wastewater to a sanitary sewer manhole. ~~Such kits are available for loan from Snohomish County Surface Water Management.~~ This type of wastewater collection system is not to be used for washing operations that are part of standard operations at a facility.

### **3.30 BMPs for Wood Treatment Facilities**

**NOTE:** A wood treatment facility is required to operate under an individual NPDES stormwater permit. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit shall constitute compliance with that code chapter.

#### **Description of Pollutant Sources**

Wood treatment includes both antistaining and wood preserving using pressure processes or by dipping or spraying. Wood preservatives include creosote, creosote/coal tar, pentachlorophenol, copper naphthenate, arsenic trioxide, malathion, or inorganic arsenicals such as chromated copper arsenate, acid copper chromate, chromate zinc chloride, and fluor-chrome-arsenate-phenol. Anti-staining chemical additives include iodo-propenyl-butyl carbamate, dimethyl sulfoxide, didecyl dimethyl ammonium chloride, sodium azide, 8-quinolinol; copper (II) chelate, sodium ortho-phenylphenate, 2-(thiocyanomethylthio)-benzothiazole (TCMTB) and methylene bis-(thiocyanate), and zinc naphthenate. Pollutant sources include drips of condensate or preservative after pressurized treatment; product washwater (in the treatment or storage areas), spills and leaks from process equipment and preservative tanks, fugitive emissions from vapors in the process, blowouts and emergency pressure releases, and kick-back from lumber (phenomenon where preservative leaks as it returns to normal pressure). Potential pollutants typically include the wood treating chemicals, BOD, suspended solids, oil and grease, benzene, toluene, ethylbenzene, phenol, chlorophenols, nitrophenols, heavy metals, and PAH depending on the chemical additive used.

#### **~~Source control BMPs~~ Source Control BMPs**

- All source control BMPs set forth in the individual NPDES stormwater permit must be implemented.
- Cover and/or enclose wood treatment areas, and perform ~~treatments~~ on an impervious surface with appropriate berming or other means to prevent stormwater runoff and run-on.
- Cover storage areas for freshly treated wood to prevent contact of treated wood products with stormwater. Segregate clean stormwater from process water. Ensure that all process water is conveyed to an approved treatment system.
- Elevate stored, treated wood products to prevent contact with stormwater run-on and runoff.

### **3.31 BMPs for Swimming Pool and Spa Maintenance**

#### **Description of Pollutant Sources**

The primary pollutants of concern in water found in swimming pools and spas are chlorine and bromine compounds, which are used as disinfectants and algicides. Algicides may also contain copper. Snohomish County Code Chapter 7.53 allows the discharge of water from swimming pools and spas, other than swimming pool cleaning wastewater and filter backwash, provided that the discharge:

- contains less than 0.1 milligram per liter of chlorine;
- does not contain algicides other than chlorine or bromine;
- does not contain other contaminants, including but not limited to algae, solids, excessively high or low pH, and hypoxic water; and;
- is thermally controlled as necessary to prevent an increase in temperature of the receiving water.

In addition, the discharge rate must be controlled in order to avoid resuspension and transport of sediment in downstream drainage systems.

#### **Source-control BMP Source Control BMPs:**

- Discharge water to a sanitary sewer or infiltrate on site, if possible.
- If discharge to sanitary sewer or on-site infiltration is not possible:
  - Test pH and chlorine or bromine levels with a standard pool test kit. Adjust pH to between 6.5 and 8.5, and dechlorinate with sodium thiosulfate or similar dechlorination compound to less than 0.1 milligrams per liter of chlorine prior to discharge.
  - Filter water until clear to remove algae and solids before discharge. As an alternative to filtration using the pool filter, pump water through a nonwoven geotextile erosion control filter. This should adequately remove algae and solids and allow reoxygenation of water.
  - Limit discharge rate to 20 gpm unless otherwise authorized by Snohomish County staff.

### **3.32 BMPs for Dock Washing**

#### **Description of Pollutant Sources**

Washing docks (or wharves, piers, floats, and boat ramps) can result in the discharge dirt, bird feces, soaps, and detergents that can be toxic to aquatic life, especially after they take on contaminants while cleaning. The BMPs in this section do not address dry docks, graving docks, or marine railway cleaning operations.

#### **Pollutant Control Approach:**

Use dry methods and equipment (scraping, sweeping, vacuuming) to remove debris and contaminants prior to cleaning with water to prevent these substances from entering surface water.

#### **Source-control BMP**

##### Surface Preparation and Spot Cleaning

- Scoop and collect debris and bird feces.
- Sweep, capture, and dispose of debris from the dock as solid waste. Sweep or vacuum docks to minimize the need for chemical cleaners.
- During cleaning activities, if debris, substances, or wash water could enter surface waters through drains, temporarily block the drains and collect the water for proper disposal.
- Hose down the area if necessary and collect water as feasible.
- Spot clean with water and a coarse cloth before using soaps or detergents.
- If a cleaner is needed for spot cleaning:
  - Mix it in a bucket and use it to scrub down only the areas that need extra attention.
  - Start with vinegar and baking soda and move to other options as needed. Spot clean using a rag if harsher cleaning products are needed.
  - Avoid or minimize the use of petroleum distillates, chlorinated solvents, and ammoniated cleaning agents.
  - Use degreasers or absorbent material to remove residual grease by hand and do not allow this material to enter surface water.
  - Keep cleaners in sealed containers. Keep cleaner containers closed securely when transporting between the shore and docks.
  - Properly dispose of the dirty bucket water.
- Minimize the scour impact of wash water to any exposed soil at the landward end(s) of the dock or below the dock. Place a tarp over exposed soil, plant vegetation, or put berms to contain eroded soil.

**Dock Washing and Disposal**

- To the extent practicable, collect any wash water generated from hosing down, pressure washing, or cleaning dock areas, and dispose of it properly.
- To the extent practicable, use light pressure when pressure washing. This uses less water and decreases the need for soap and scrubbing when washing the dock. Excessive pressure may damage the dock or send flakes of paint and other material into the water.
- Do not place any debris and substances resulting from cleaning activities in shoreline areas, riparian areas, or on adjacent land where these substances may erode into waters of the state.
- Where treated wood associated with the structure being washed are present, use non-abrasive methods and tools that, to the maximum extent practicable, minimize removal of the creosote or treated wood fibers when it removes marine growth from creosote or any other treated wood.
- Do not discharge removed marine growth to waters of the state where such marine growth would accumulate on the sea-bed.
- Do not discharge emulsifiers, dispersants, solvents, or other toxic deleterious materials to waters of the state.

### **3.33 BMPs for Potable Water Line Flushing, Water Tank Maintenance, and Hydrant Testing**

#### **Description of Pollutant Sources**

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in systems. Flushing done improperly can result in the discharge of solids to receiving waters. Hydrant testing may result in the discharge of rust particles.

Chemicals used in line flushing and tank maintenance are highly toxic to aquatic organisms and can degrade receiving waters.

#### **Pollutant Control Approach:**

Dechlorinate and pH adjust water used for flushing, tank maintenance, or hydrant testing. Dispose of the water to the sanitary sewer if possible.

#### **Source Control BMPs**

- Remove solids from associated curbs and gutters before flushing water. Use erosion and sediment control BMPs such as BMP C235: Wattles, BMP C220: Inlet Protection, etc. to collect any solids resulting from flushing activities.
- If using super chlorination or chemical treatment as part of flushing, discharge water to the sanitary sewer. If sanitary sewer is not available, the water may be infiltrated to the ground as long as if all of the following are met:
  - The water is dechlorinated to a total residual chlorine of 0.1 ppm or less.
  - Water quality standards are met.
  - A diffuser is used to prevent erosion.
  - The water does not cross property lines.
- Discharging water to Potable water discharges, including water line flushing, fire hydrant system flushing, and pipeline hydrostatic testing are allowed by 7.53.095(1) SCC if the

discharge contains less than 0.1 milligram per liter of total residual chlorine, has a pH between 6.5 and 8.5, and does not cause resuspension of sediment in the public drainage system. a drainage system requires approval from the local jurisdiction. Check with the local jurisdiction to determine their requirements for approval. Most jurisdictions will require the water to be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less and pH adjusted if necessary. Water must be volumetrically and velocity controlled to prevent resuspension of sediments or pollutants in the Municipal Separate Storm Sewer System (MS4).

- Do not over apply dechlorination agents. This can deplete the dissolved oxygen concentration and reduce the pH in discharge / receiving waters.

### **3.34 BMPs for Pesticides and an Integrated Pest Management Program**

#### **Description of Pollutant Sources**

Pesticides include herbicides, rodenticides, insecticides, fungicides, etc. Examples of pesticide uses include:

- Weed control on golf course lawns, access roads, utility corridors and landscaping.
- Sap stain and insect control on lumber and logs.
- Rooftop moss removal.
- Killing nuisance rodents.
- Fungicide application to patio decks.

It is possible to release toxic pesticides such as pentachlorophenol, carbamates, and organometallics to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of pesticides can cause appreciable stormwater contamination and unintended impacts to non-targeted organisms.

#### **Pollutant Control Approach:**

Control of pesticide applications to prevent contamination of stormwater. Consider developing and implementing an Integrated Pest Management (IPM) Plan. Carefully apply pesticides, in accordance with label requirements.

#### **Source Control BMPs**

- Train employees on proper application of pesticides and disposal practices.
- Follow manufacturers' application guidelines and label requirements.
- Do not apply pesticides in quantities that exceed the limits on the product the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label. Avoid excessive application of chemical.
- Conduct spray applications during weather conditions as specified in the label requirements and applicable local and state regulations. Do not apply during rain or immediately before expected rain.
- Clean up any spilled pesticides immediately. Do not hose down to a storm drain, conveyance ditch, or water body.
- Remove weeds/vegetation in conveyance ditches, stormwater facilities, and drainage systems by hand or other mechanical means-. Only use pesticides as a last resort.
- Flag all sensitive areas including wells, creeks, and wetlands prior to spraying.
- Post notices and delineate the spray area prior to the application, as required by the local jurisdiction, or by Ecology.

- Refer to BMPs 3.10 and 4.10 in Volume IV of this manual (collectively, BMPs for Landscaping and Lawn / Vegetation Management) and use pesticides only as a last resort.
- Conduct any pest control activity at the life stage when the pest is most vulnerable. For example, if it is necessary to use an insecticide application, such as *Bacillus thuringiensis* application to control tent caterpillars, apply it to the material before the caterpillars cocoon or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.
- Mix pesticides and clean the application equipment under cover in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.
- Implement pest management with a pesticide-use plan and include at a minimum:
  - A list of selected pesticides and their specific uses.
  - 
  - Brands and formulations of the pesticides.
  - 
  - Application methods and quantities to be used.
  - 
  - Equipment use and maintenance procedures.
  - 
  - Safety, storage, and disposal methods.
  - 
  - Monitoring, record keeping, and public notice procedures. All procedures shall conform to the requirements of Chapter 17.21 RCW and Chapter 16-228 WAC.

### **3.35 BMPs for the Storage of Dry Pesticides and Fertilizers**

#### **Description of Pollutant Sources**

Pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment as a result of container leaks and outside storage of pesticide-contaminated materials and equipment. Inappropriate management of pesticides or fertilizers can result in stormwater contamination. Runoff contaminated by pesticides and fertilizers can severely degrade streams and lakes and adversely affect fish and other aquatic life.

#### **Pollutant Control Approach:**

Store fertilizer and pesticide properly to prevent stormwater contamination.

#### **Source Control BMPs**

- Containers and bags must be covered, intact, and off the ground.
- Store all material so that it cannot come into contact with water.
- Immediately clean up any spilled fertilizer or pesticides.
- Keep pesticide and fertilizer contaminated waste materials in designated covered and contained areas, and dispose of properly.
- Store and maintain spill cleanup materials near the storage area.
- Sweep paved storage areas as needed. Collect and dispose of spilled materials. Do not hose down the area.
- Do not discharge pesticide contaminated stormwater or spills/leaks of pesticides to storm sewers or to the sanitary sewer. Contaminated stormwater must be collected and disposed of properly. Unused or spilled/leaked pesticides must be disposed of according to the label.
- Comply with WAC 16-228-1220 and Chapter 16-229 WAC.

### **3.36 BMPs for Nurseries and Greenhouses**

#### **Description of Pollutant Sources**

These BMPs are for use by commercial container plant, greenhouse grown, and cut foliage production operations. Common practices at nurseries and greenhouses can cause elevated levels of phosphorus, nitrogen, sediment, bacteria, and organic material which can contribute to the degradation of water quality.

#### **Pollutant Control Approach:**

Minimize the pollutants that leave the site by controlling the placement of materials, stabilizing the site, and managing irrigation water.

#### **Source-control BMPs**

- Establish nursery composting areas, soil storage, and mixing areas at least 100 feet away from any stream or other surface water body and as far away as possible from drainage systems.
- Do not dispose of collected vegetation into waterways, conveyance ditches, or stormwater systems.
- Do not blow, sweep, or otherwise allow vegetation or other debris into the drainage system.
- Regularly clean up spilled potting soil to prevent its movement, especially if fertilizers and pesticides are incorporated. (Haver, 2014)
- Use soil mixing and layering techniques with composted organic material to reduce herbicide use and watering.
- Utilize soil incorporated with fertilizers and / or pesticides immediately; do not store for extended periods. (Haver, 2014)
- Cover soil storage and compost storage piles. Refer to BMPs 3.28, 4.28 and 5.16 in Volume IV of this manual (collectively, BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products).
- Dispose of pathogen-laced potting substrate and diseased plants appropriately.
- Place plants on gravel, geotextile, or weed cloth to allow infiltration and minimize erosion, including inside greenhouse structures. (Haver, 2014)
- Properly reuse, recycle, or dispose of used polyfilm, containers, and other plastic-based products so that they do not collect stormwater. (FDACS, 2014)

- Evaluate and manage irrigation to reduce runoff, sediment transport, and erosion.
  - Place irrigation inputs to keep moisture primarily in the plant's root zone. This will significantly reduce nutrient related impacts from fertilizers. (FDACS, 2014)
  - Avoid over-irrigating. This may exceed the soil's water-holding capacity and lead to runoff or leaching. (FDACS, 2014)
  - Consider and adjust as needed the uniformity of application, the amount of water retained within the potting substrate, and the amount of water that enters containers compared to that which exits the containers and / or falls between containers. (FDACS, 2014)
  - Consolidate containers and turn off irrigation in areas not in production. This may require individual on / off valves at each sprinkler head. (Haver, 2014)
  - Based on the stage of plant growth, space containers and flats as close as possible to minimize the amount of irrigation water that falls between containers. (FDACS, 2014)
  - Group plants of similar irrigation needs together. (FDACS, 2014)
  - Consider minimizing water losses by using cyclic irrigation (multiple applications of small amounts). (FDACS, 2014)
  - Consider using sub-irrigation systems (e.g. capillary mat, ebb-and-flow benches, and trays or benches with liners); these systems can conserve water and reduce nutrient loss, particularly when nutrients are supplied in irrigation water that is reused. (FDACS, 2014)
  - Refer to BMPs 3.37 and 4.37 in Volume IV of this manual (collectively, BMPs for Irrigation) for additional BMP considerations.
- Refer to BMPs 3.44 and 4.44 (collectively, BMPs for Fertilizer Application) and BMPs 3.34 and 4.34 (collectively, BMPs for Pesticides and an Integrated Pest Management Program).

### **3.37 BMPs for Irrigation**

#### **Description of Pollutant Sources**

Irrigation consists of discharges from irrigation water lines, landscape irrigation, and lawn or garden watering. Excessive watering can lead to discharges of chlorinated potable water runoff into drainage systems; it can also cause erosion; and negatively affect plant health. Improper irrigation can encourage pest problems, leach nutrients, and make a lawn completely dependent on artificial watering. Mosquito breeding habitats may form through excessive watering.

#### **Pollutant Control Approach:**

Limit the amount and location of watering to prevent runoff and discharges to drainage systems.

#### **Source Control BMPs**

- Irrigate with the minimum amount of water needed. Never water at rates that exceed the infiltration rate of the soil.
- Maintain all irrigation systems so that irrigation water is applied evenly and where it is needed.
- Ensure sprinkler systems do not overspray vegetated areas resulting in excess water discharging into the drainage system.
- Inspect irrigated areas for excess watering. Adjust watering times and schedules to ensure that the appropriate amount of water is being used to minimize runoff. Consider factors such as soil structure, grade, time of year, and type of plant material in determining the proper amounts of water for a specific area.
- Inspect irrigated areas regularly for signs of erosion and / or discharge.
- Place sprinkler systems appropriately so that water is not being sprayed on impervious surfaces instead of vegetation.
- Repair broken or leaking sprinkler nozzles as soon as possible.
- Appropriately irrigate lawns based on the species planted, the available water holding capacity of the soil, and the efficiency of the irrigation system.
  - The depth from which a plant normally extracts water depends on the rooting depth of the plant. Appropriately irrigated lawn grasses normally root in the top 6 to 12 inches of soil; lawns irrigated on a daily basis often root only in the top 1 inch of soil.

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- Do not irrigate plants during or immediately after fertilizer application. The longer the period between fertilizer application and irrigation, the less fertilizer runoff occurs.
- Do not irrigate plants during or immediately after pesticide application (unless the pesticide label directs such timing).
- Reduce frequency and / or intensity of watering as appropriate for the wet season (October 1 to April 30).
- Place irrigation systems to ensure that plants receive water where they need it. For example, do not place irrigation systems downgradient of plant's root zones on hillsides.

### **3.38 BMPs for Temporary Fruit Storage**

#### **Description of Pollutant Sources**

This activity applies to businesses that temporarily store fruits and vegetables outdoors prior to or after packing, processing, or sale, or that crush, cut, or shred fruits or vegetables for wines, frozen juices, and other food and beverage products.

Activities involving the storage or processing of fruits, vegetables, and grains can potentially result in the delivery of pollutants to stormwater. Potential pollutants of concern from all fruit and vegetable storage and processing activities include nutrients, suspended solids, substances that increase biological oxygen demand (BOD), and color. These pollutants must not be discharged to the drainage system or directly into receiving waters.

#### **Pollutant Control Approach:**

Store and process fruits and vegetables indoors or under cover whenever possible. Educate employees about proper procedures. Cover and contain operations and apply good housekeeping and preventive maintenance practices to prevent the contamination of stormwater

#### **Source Control BMPs**

- Educate employees on the benefits of keeping a clean storage area.
- Keep fruits, vegetables, and grains stored outside for longer than a day in plastic bins or in bins lined with plastic. The edge of the plastic liner should be higher than the amount of fruit stored or should drape over the side of the bin.
- Dispose of rotten fruit, vegetables, and grains in a timely manner (typically, within a week).
- Make sure all outside materials that have the potential to leach or spill to the drainage system are covered, contained, or moved to an indoor location. For fruits, vegetables, and grains stored outside for a week or more, cover with a tarp or other waterproof material. Make sure coverings are secured from wind.
- Minimize the use of water when cleaning produce to avoid excess runoff.
- Sweep or shovel storage and processing areas daily to collect dirt and fruit and vegetable fragments for proper disposal. Keep hosing to a minimum.
- Keep cleanup materials, such as brooms and dustpans, near the storage area.

- If a holding tank is used for the storage of wastewater, pump out the contents before the tank is full and dispose of wastewater to a sanitary sewer or approved wastewater treatment system.

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### **3.39 BMPs for In-Water and Over-Water Fueling**

#### **Description of Pollutant Sources**

BMPs in this section apply to businesses and public agencies that operate a facility used for the transfer of fuels from a stationary pumping station to vehicles or equipment in water. This type of fueling station includes aboveground or underground fuel storage facilities, which may be permanent or temporary. Fueling stations include facilities such as, but not limited to, commercial gasoline stations, port facilities, marinas, private fleet fueling stations, and boatyards.

Typically, stormwater contamination at fueling stations is caused by leaks or spills of fuels, lubrication oils, and fuel additives. These materials contain organic compounds, oil and greases, and metals that can be harmful to humans and aquatic life.

Most fuel dock spills are small and result from overfilling boat fuel tanks, burps from air vent lines, and drips from the pump nozzle as it is being returned to the pump.

#### **Pollutant Control Approach**

Provide employees with proper training and use spill control devices to prevent the discharge of pollutants in the receiving water or the drainage system.

#### **Source Control BMPs for Fuel Docks**

##### General

- Facilities and procedures for the loading or unloading of petroleum products must comply with U.S. Coast Guard requirements. Refer to specifications in Coast Guard Requirements for Marine Transfer of Petroleum Products.

##### Training and Fueling Dock Supervision

- Train staff on proper fueling procedures. Document training and maintain records.
- Have a trained employee supervise the fuel dock during fueling activities.
- Do not allow self-service on a marina dock without some means of controlling the dock activity. According to NFPA 30A: Code for Motor Fuel Dispensing Facilities and Repair Garages, each facility must have an attendant on duty to supervise, observe, and “control” the operation when open for business. This can be done via camera, intercom, and shutoff abilities in the office. However, this can lead to complacency and nothing can replace having an attendant on the dock to attend to emergencies when they occur. (NFPA, 2012)

##### Fueling Dock Setup, Maintenance, and Inspection

- Install a tank and leak detection monitoring system that shuts off the pump and fuel line when a leak is sensed.

- Install personal watercraft floats at fuel docks to stabilize personal watercraft/jet skis while refueling.
- Provide a spill containment equipment storage area where materials are easily accessible and clearly marked.
- Use automatic shut-off nozzles and promote the use of “whistles” and fuel/air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into receiving waters during fueling of boats.
- Post readable refueling directions, BMPs, and emergency protocols.
- Always have a “Spills Aren’t Slick” sign with emergency spill reporting numbers clearly visible. Marinas on land leased from the Washington Department of Natural Resources (DNR) are required to post these signs.
- Display “No Smoking” signs on fuel docks.
- Create a regular inspection, maintenance, and replacement schedule for fuel hoses, pipes, and tanks. Have staff walk the dock fuel lines from dispenser to tank to look for signs of leakage at joints and determine hose condition from end to end.

#### Fueling Practices

- Discourage operators from “topping off” (no more than 90% capacity). Fuel expands and can slosh out of the vent when temperatures rise or waters become choppy.
- When handing over the nozzle, wrap an absorbent pad around the nozzle end or plug inside the nozzle end to prevent fuel in the nozzle from spilling.
- Have the boat operator place an absorbent pad or suction cup bottle under the vent(s) to capture fuel spurts from the vent.
- Never block open the fuel nozzle trigger and always disable hands-free clips to ensure the boater remains with the nozzle to prevent overfilling. Hands-free clips are not allowed in Washington, per WAC 296-24-33015.
- Always keep the nozzle tip pointing up and hang the nozzle vertically when not in use.
- During fueling operations, visually monitor the liquid level indicator to prevent the tank from being overfilled.
- The maximum amount of product received must not exceed 95 percent capacity of the receiving tank.

#### Spill cleanup

- See BMPs 3.25 and 4.25 (collectively, BMPs for Spills of Oil and Hazardous Substances).
- Manage petroleum-contaminated booms, pads, and absorbents in a designated collection container and properly dispose of these materials (see BMPs 3.26, 4.26, and 5.14 (collectively, BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers)).
- Ensure customers do not use soaps in the event of a spill. Use oil absorbent booms or pads instead.

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**Source Control BMPs for Fueling by Portable Container**

- Have boats fuel on shore or at a fuel dock rather than transport fuel from an upland facility to the boats. Only use hand-held fueling containers or “jerry cans” when necessary or when on shore or at dock fueling is not practical.
- Always refill portable fuel containers on the pavement or dock to ensure a good electrical ground. While the deck of the boat may seem stable, static electricity can build up and cause a spark.
- On the dock, put an absorbent pad under the container and wrap an absorbent pad around the fuel fill — this can easily be done by putting a hole in the pad.
- Ensure the nozzle stays in contact with the tank opening.
- When transferring fuel from a portable can, use a fuel siphon with a shut-off feature. If a siphon is not available, a nozzle/spout with a shut off is a good alternative.
- Since fueling boats with a portable container can take time, make sure the container is comfortable to carry, hold, and balance.
- Use a high flow funnel. Funnels can help prevent spills by making a larger opening for fueling.
- Place a plug of absorbent pad or paper towel in the nozzle when not in use to capture any extra drops that accumulate.
- Fuel slowly and pour deliberately, and watch the container (especially the nozzle mechanism) for signs of wear.
- Store portable fuel tanks out of direct sunlight and keep in a cool, dry place to minimize condensation.

### **3.40 BMPs for Color Events**

#### **Description of Pollutant Sources**

Color events are charity, religious, or commercial events that involve the use of powdered (typically cornstarch based) and/or liquid dyes. Because they typically occur outside, there is a high likelihood of the color material entering drainage systems and surface water unless measures are taken to prevent these illicit discharges from occurring.

“Biodegradable” and “non-toxic” do NOT mean that a substance can go into storm drains or water bodies. The dye material can harm aquatic organisms by altering water quality and chemistry. State and Federal environmental laws require local jurisdictions to prohibit non-stormwater discharges to storm drains. Dye material and any wash water are prohibited discharges.

#### **Pollutant Control Approach: \_\_\_\_\_**

Plan for the event. Control the application areas for the powder or liquid dyes. Block off storm drain inlets prior to the event. Clean up the areas immediately after the event.

#### **Source Control BMPs**

##### Pre-Event

- Create a map of your event that includes the following:
  - Event route.
  - Nearby streams, lakes, and ponds.
  - Start and finish areas.
  - Color application stations / areas.
  - Storm drain inlets and open stormwater system features (e.g., ditches, swales, bioretention, rain gardens) at the color application, start and finish areas.
- Create a Pollution Control Plan that details:
  - Measures taken to ensure that NO dye material, either during or after the event, will enter the drainage system.
  - How all dye material will be removed and disposed of.
  - What will happen in the event of rain (including addressing localized flooding, runoff, and collection of the stormwater).
  - Emergency numbers for the local city or county in case dye material does enter the storm drain or water body.
- Use handheld brooms to complete the initial cleanup of paved surfaces. Follow with use of a vacuum sweeper truck on roads.

- Contract with a commercial street sweeping firm to clean paved surfaces. Have a storm drain cleaning (vactor) contractor on-call for discharges to storm drains or emergency clean-up if necessary.
- Ensure that the commercial street sweeping firm has a plan in place for the proper disposal of sweepings from the event and associated air filters.
- Ensure that all clean-up will be completed prior to the next forecasted rainfall, or no later than 24-hours after the race event, and that the contractor will have enough equipment and staff on hand for the clean-up.
- Request a copy of the dye product's MSDS (Material Safety Data Sheet) from the manufacturer or supplier. Review the MSDS for potential safety and environmental hazards.
- Comply with local jurisdiction event permit requirements that contain stormwater pollution prevention BMPs. If no local event permit is required, provide to the local jurisdiction in charge of stormwater drainage and/or surface water management, in plenty of time (two weeks or more) prior to the event:
  - Copies of the map
  - Pollution prevention plan
  - Commercial cleaning contract
  - Dye MSDSs
  - Names and contact information of the event officials for both during and after the event.

#### Preventing Runoff from Entering Drainage Systems and Water Bodies

- Protect storm drains by using berms, covering the drains, and using catch basin covers.
- Use care when removing berms, covers, and tarps to ensure no dye enters the storm drains.
- Prohibit participants from throwing dye within 100 feet of any stream or other surface waterbody.
- Prohibit participants from throwing dye within 100 feet of any open stormwater feature (e.g., ditch, swale, storm drain, bioretention, rain garden, detention pond)
- Set up color stations at least 100 feet away from any surface water or open stormwater feature.
- The route, start, finish, and color application stations must be at least 100' away from any permeable pavement or the permeable pavement must be completely covered
- If the event will be held on a small, contained area, cordon off the area and place enough covers on the ground to cover the entire site. If possible, contain the color application to grassy areas where ground covers are unnecessary.

#### Event Clean-Up

- Dry off tarps and stained wet pavement with towels or absorbent pads.
- Use brooms or street sweepers to clean up paved areas. The fineness of the material may require sweepers with dust control systems.

- Do not use blowers to move dye material.

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### **3.41 BMPs for Construction Demolition**

#### **Description of Pollutant Sources**

This activity applies to removal of existing buildings and other structures by controlled explosions, wrecking balls, or manual methods, and subsequent clearing of the rubble. The loose debris may contaminate stormwater.

Pollutants of concern include toxic organic compounds, hazardous wastes, high pH, heavy metals, and suspended solids.

#### **Pollutant Control Approach**

Do not expose hazardous materials to stormwater. Regularly clean up debris that can contaminate stormwater. Protect the drainage system from dirty runoff and loose particles. Sweep paved surfaces daily. Educate employees about the need to control site activities.

#### **Source Control BMPs**

- Identify, remove, and properly dispose of hazardous substances from the building before beginning construction demolition activities that could expose them to stormwater. Such substances could include PCBs, asbestos, lead paint, mercury switches, and electronic waste.
- Educate employees about the need to control site activities to prevent stormwater pollution, and also train them in spill cleanup procedures.
- Keep debris containers, dumpsters, and debris piles covered.
- Place storm drain covers, or a similarly effective containment device, on all nearby drains to prevent dirty runoff and loose particles from entering the drainage system.
  - Place the covers (or devices) at the beginning of the workday.
  - Collect and properly dispose of the accumulated materials before removing the covers (or devices) at the end of the workday.
  - Use dikes, berms, or other methods to protect overland discharge paths from runoff if stormwater drains are not present.
- Sweep street gutters, sidewalks, driveways, and other paved surfaces in the immediate area of the demolition at the end of each workday. Collect and properly dispose of loose debris and garbage.
- Lightly spray water (such as from a hydrant or water truck) throughout the site to help control windblown fine materials such as soil, concrete dust, and paint chips. Control the amount of dust control water so that runoff from the site does not occur, yet dust control is achieved. Do not use oils for dust control.

### **3.42 BMPs for Pet Waste**

#### **Description of Pollutant Sources:**

Pets and pet-care can generate pollutants from waste, animal washing, and cage or kennel cleaning. Pet waste that washes into lakes, streams or Puget Sound begins to decay, using up oxygen and releasing ammonia. Low oxygen levels and ammonia combined with warm water can kill fish. Pet waste also contains nutrients that encourage weed and algae growth, and contribute to low oxygen and high pH in waters we use for swimming, boating and fishing. Most importantly, pet waste can carry viruses and bacteria that could cause disease and lead to beach or shellfish harvesting closures.

#### **Pollutant Control Approach:**

Use a plastic bag or pooper scooper to clean up after pets. Properly dispose of pet waste.

#### **Source Control BMPs**

Specific Source Controls BMPs are not required; however, refer to recommended source control BMPs in Section 4.42.

##### **Source Control BMPs for Pet Owners**

Regularly pick up and dispose of pet waste deposited on walks and at home.

Put pet waste in a securely closed bag and deposit it in the trash. Do not place pet waste in yard waste containers because pet waste may carry diseases, and composting may not kill disease-causing organisms.

Do not compost or use pet waste as fertilizer. Harmful bacteria, worms, and parasites that can transmit disease can live in the soil for years even after the solid portion of the pet waste has dissolved.

Do not dispose of unused pet pharmaceuticals in a storm drain, in a toilet, or down a sink. Check with your local refuse collector for proper disposal locations of pet medications.

When cleaning out cages and kennels, dispose of wash water down the toilet or a mop sink. Otherwise, wash directly over lawn areas or make sure the wash water drains to a vegetated area.

Bathe pets indoors or in a manner that wash water won't be discharged to storm drains, ditches, or waterbodies.

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### **3.43 BMPs for Labeling Storm Drain Inlets on Your Property**

#### **Description of Pollutant Sources:**

Waste materials dumped into storm drain inlets can have severe impacts on receiving waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

#### **Pollutant Control**

#### **Pollutant Control Approach:**

The stencil, affixed sign, or metal grate contains a brief statement that prohibits dumping of improper materials into the stormwater system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

#### **Source Control BMPs:**

- Label storm drain inlets in residential, commercial, industrial areas, and any other areas where contributions or dumping to storm drains is likely.
- Stencil or apply storm drain markers adjacent to storm drain inlets to help prevent the improper disposal of pollutants. Or, use a storm drain grate stamped with warnings against polluting.
- Place the marker in clear sight facing toward anyone approaching the inlet from either side.
- Use a brief statement and / or graphical icons to discourage illegal dumping. Examples include:
  - “No Dumping – Drains to Stream”
  - “No Pollutants – Drains to Puget Sound”
  - “Dump No Waste – Drains to Lake”
  - “No Dumping – Puget Sound Starts Here”
- Check with your local government agency to find out if they have approved specific signage and / or storm drain message placards for use. Consult the local agency stormwater staff to determine specific requirements for placard types and methods of application.
- Maintain the legibility of markers and signs. Signage on top of curbs tends to weather and fade. Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.
- When painting stencils or installing markers, temporarily block the storm drain inlet so that no pollutants are discharged from the labeling activities.

### **3.44 BMPs for Fertilizer Application**

#### **Description of Pollutant Sources**

Poor application of fertilizers can cause appreciable stormwater contamination. Fertilizers can leach phosphorous, nitrogen, and coliform bacteria. Fertilizers can contribute to algae blooms, increase nutrient concentrations, and deplete oxygen in receiving waters.

#### **Pollutant Control Approach:**

Minimize the amount of fertilizer necessary to maintain vegetation. Control the application of fertilizer to prevent the discharge of stormwater pollution.

#### **Source Control BMPs**

- Apply the minimum amount of slow-release fertilizer necessary to achieve successful plant establishment.
- Do not fertilize when the soil is dry or during a drought.
- Never apply fertilizers if it is raining or about to rain.
- Do not apply fertilizers within three days prior to predicted rainfall. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs.
- Determine the proper fertilizer application for the types of soil and vegetation involved.
- Follow manufacturers' recommendations and label directions.
- Train employees on the proper use and application of fertilizers.
- Keep fertilizer granules off impervious surfaces. Clean up any spills immediately. Do not hose down to a storm drain, conveyance ditch, or water body.
- If possible, do not fertilize areas within 100 feet of water bodies including wetlands, ponds, and streams.
- Avoid fertilizer applications in stormwater ditches, stormwater facilities, and drainage systems.
- In areas that drain to sensitive water bodies, apply no fertilizer at commercial and industrial facilities, to grass swales, filter strips, or buffer areas unless approved by the local jurisdiction.

- Use slow release fertilizers such as methylene urea, isobutylidene, or resin coated fertilizers when appropriate, generally in the spring. Use of slow release fertilizers is especially important in areas with sandy or gravelly soils.
- Apply fertilizers in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters.
- Time the fertilizer application to periods of maximum plant uptake. Ecology generally recommends application in the fall and spring, although Washington State University turf specialists recommend four fertilizer applications per year.
- Do not use turf fertilizers containing phosphorous unless a soil sample analysis taken within the past 36 months indicates the soil of the established lawn is deficient in phosphorus. For more information about restrictions on turf fertilizers containing phosphorus, see the following website:
- <https://agr.wa.gov/departments/pesticides-and-fertilizers/fertilizers/fertilizers-containing-phosphorus>

### **3.45 BMPs for Well, Utility, Directional and Geotechnical Drilling**

#### **Description of Pollutant Sources**

This activity applies to drilling water wells and utilities, environmental protection and monitoring wells, and geotechnical borings that use machinery in the drilling. It does not apply to the use of devices such as hand augers, or for large structural drilling such as drilled shafts.

Drilling activities can expose soil and contaminated soil. These activities may cause the discharge of stormwater contaminated with sediments and other contaminants. This risk increases when drilling in areas with contaminated soils.

#### **Pollutant Control Approach:**

Reduce sediment runoff from drilling operations.

#### **Source-control BMP Source Control BMPs:**

- When drilling in areas of known or suspected soil contamination, test and characterize soil cuttings and accumulated sediment to determine proper management and disposal methods. If applicable, generator knowledge may be used to characterize the soil cuttings and accumulated sediment.
- Obtain permits for drilling activities, and for clearing and grading the access routes and the work site.
- Protect environmentally sensitive areas (streams, wetlands, floodplains, floodways, erosion hazards, and landslide hazards) within the area of influence of the work site.
- Mitigate potential impacts to surrounding areas and/or the drainage system.
- For horizontal directional drilling, take measures to capture and contain drilling fluids and slurry.
- Equip the driller to quickly respond to unusual conditions that may arise.
- Locate and prepare access roadways to minimize the amount of excavation and the potential for erosion.
- Contain accumulated uncontaminated water and sediment on site and pump into a storage tank or direct through a geotextile filtration system (or equivalent system) before discharging to the surrounding ground surface. Contaminants may include, but are not limited to, hydraulic fluids, contaminants in the soil and/or groundwater, polymers, and other drilling fluid additives.
- Keep all sediment-laden water out of storm drains and surface waters. If sediment-laden water does escape from the immediate drilling location, block flow to any nearby waterways

or catch basins using fabric, inlet protections, sand bags, erosion fences, or other similar methods. Immediately notify Ecology and the local jurisdiction if sediment-laden water impacts the stormwater system or surface water bodies.

- Divert any concentrated flows of water into the site using sandbags or check dams up-slope from the site.
- Dispose of soil cuttings and accumulated sediment appropriately. If cuttings or other soils disturbed in the drilling process are to be temporarily stockpiled on site, they must be covered and surrounded by a berm or filter device. See BMPs 3.28, 4.28 and 5.1.6 (collectively, BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products).
- Stabilize exposed soils at the end of the job, using mulch or other erosion control measures. See BMPs 3.24 and 4.24 (collectively), BMPs for Soil Erosion and Sediment Control at Industrial Sites).
- Contain spent drilling slurry on site and allow it to dewater, or haul to an appropriate, approved disposal site.
- Restore disturbed areas with mulch (see BMP C121: Mulching) and seeding or hydroseeding (see BMP C120: Temporary and Permanent Seeding).

### **3.46 BMPs for Roof Vents**

#### **Description of Pollutant Sources**

This activity applies to processes that vent emissions to the roof and/or the accumulation of pollutants on roofs. Processes of special concern are stone cutting, metal grinding, spray painting, paint stripping, galvanizing and electroplating. Pollutants from these processes may build up on roofs and may pollute stormwater roof runoff.

#### **Pollutant Control Approach:**

Evaluate the potential sources of stormwater pollutants and apply source control BMPs where feasible.

#### **Source-control BMPs**

- Identify processes that are vented and may contribute pollutants to the roof. Pollutants of concern include and are not limited to:
  - Metal dust
  - Grease from food preparation
  - Solvents
  - Hydrocarbons
  - Fines
  - Stone dust
- Look for chemical deposition around vents, pipes, and other surfaces.
- Install and maintain appropriate source control measures such as air pollution control equipment (filters, scrubbers, and other treatment). (City of San José Environmental Services, 2004)
  - Check that your scrubber solution is appropriate for the chemistry of the fumes.
  - Install vent covers and drip pans where there are none.
  - Prevent leaks in pipefittings and containment vessels with routine maintenance.
- Consider instituting operational or process changes to reduce pollution.
- If proper installation and maintenance of air pollution control equipment does not prevent pollutant fallout on your roof, additional treatment of the roof runoff may be necessary.

- Install/provide appropriate devices for roof runoff before it is discharged off site. This may include approved water quality treatment BMPs or structural stormwater treatment systems.
- Maintain air filters and pollution control equipment on a regular basis to ensure they are working properly. (The smell of odors from outside the building indicates that the pollution control equipment may need maintenance or evaluation.)
- When cleaning accumulated emissions from roof tops, collect the washwater and loose materials using a sump pump, wet vacuum or similar device. Discharge the collected runoff to the sanitary sewer after approval by the local sewer authority, or have a waste disposal company remove it.

### **3.47 BMPs for Building, Repair, Remodeling, Painting, and Construction**

#### **Description of Pollutant Sources**

This activity refers to:

- The construction of buildings and other structures.
- Remodeling of existing buildings and houses.
- General exterior building repair work.

Pollutants of concern include toxic hydrocarbons, hazardous wastes, toxic organics, suspended solids, heavy metals, pH, oils, and greases.

#### **Pollutant Control Approach:**

Educate employees about the need to control site activities. Control leaks, spills, and loose material. Utilize good housekeeping practices. Regularly clean up debris that can contaminate stormwater. Protect the drainage system from dirty runoff and loose particles.

#### **Source Control BMPs:**

- Identify, remove, and properly dispose of hazardous substances from the building before beginning repairing or remodeling activities that could expose them to stormwater. Such substances could include PCBs, asbestos, lead paint, mercury switches, and electronic waste.
- Educate employees about the need to control site activities to prevent stormwater pollution, and also train them in spill cleanup procedures.
- At all times, have available at the work site spill cleanup materials appropriate to the chemicals used on site.
- Clean up the work site at the end of each work day. Put away materials (such as solvents) indoors or cover and secure them, so that unauthorized personnel will not have access to them.
- Sweep the area daily to collect loose litter, paint chips, grit, and dirt.
- Do not dump any substance on pavement, on the ground, in the storm drain, or toward the storm drain, regardless of its content, unless it is clean water only.
- Place a drop cloth, where space and access permits, before beginning wood treating activities. Use drip pans in areas where drips are likely to occur if the area cannot be protected with a drop cloth.
- Use ground or drop cloths underneath scraping and sandblasting work. Use ground cloths, buckets, or tubs anywhere that work materials are laid down.

- Clean paint brushes and other tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can subsequently be dumped into a sanitary sewer drain.
- Clean brushes and tools covered with non-water-based finishes or other materials in a manner that enables collection of used solvents for recycling or proper disposal. Do not discharge non-water-based finishes or paints or used solvents into the sanitary sewer, or any other drain.
- Use storm drain covers, or similarly effective devices, to prevent dust, grit, washwater, or other pollutants from escaping the work area. Place the cover or containment device over the storm drain at the beginning of the work day. Collect and properly dispose of accumulated dirty runoff and solids before removing the cover or device at the end of each work day.
- Refer to BMPs 3.29, 4.29 and 5.1.7 (collectively, BMPs for Washing and Steam Cleaning Vehicles / Equipment / Building Structures) for best management practices associated with power washing buildings.

### **3.48 BMPs for Goose Waste**

#### **Description of Pollutant Sources**

Goose waste deposited near water or in water can contribute nutrients and algae growth. Goose feces may contain pathogens and contribute to the spread of diseases. Swimmers itch (schistosome or cercarial dermatitis) is caused by a parasite that can be spread by goose droppings, but does not mature or reproduce in humans.

#### **Pollutant Control Approach:**

To help decrease geese pollution to water sources, remove waste periodically and use deterrent management practices.

#### **Source Control BMPs:**

This BMP is for areas of chronic accumulation of goose waste that impact stormwater systems.

- If possible, pick up goose waste using shovels, brooms, rakes, power sweepers, and trash cans. Properly dispose of goose waste in the garbage.
- Do not blow, sweep, or wash goose waste into waterways or stormwater systems.
- Regularly clean goose waste from areas of chronic deposition where deterrence measures are impractical.
- Do not feed wild geese or any other wild animals.
- In recreational areas post signs discouraging the feeding of geese and other wild animals.

## Chapter 4 - Additional Recommended Source Control BMPs ~~f~~For Specific Activities ~~o~~Or Land Uses

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Chapter 4 contains additional pollution source control recommendations and information for specific activities or types of sites, using the same indexing system for specific activities and land uses as in Chapter 3, which contains required BMPs. The recommendations and information in Chapter 4 are not directly required by Chapter 7.53 SCC, but may be required through enforcement of that code, if polluted discharges occur.

### 4.1 BMPs for the Building, Repair, and Maintenance of Boats and Ships

**NOTE:** All boatyards in Washington State with haul out facilities are required to be covered under the NPDES General Permit for Boatyard Activities. All shipyards in Washington State with haul out facilities such as drydocks, graving docks, marine railways or synchrolifts are required to be covered under an individual NPDES Permit. Any facility conducting boatyard or shipyard activities strictly from dockside, with no vessel haul out, must be covered by the NPDES Industrial Stormwater General ~~Stormwater~~ Permit for Industrial Activities. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit shall constitute compliance with that code chapter.

#### Description of Pollutant Sources

Sources of pollutants at boat and shipbuilding, repair, and maintenance at boatyards, shipyards, ports, and marinas include pressure washing, surface preparation, paint removal, sanding, painting, engine maintenance and repairs, and material handling and storage, if conducted outdoors. Potential pollutants 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 TSS, oil and grease, organics, copper, lead, tin, and zinc.

#### Recommended Source Control BMPs

All source control BMPs for this activity/land use are required and found in section 3.1.

## **4.2 BMPs for Commercial Animal Handling Areas**

### **Description of Pollutant Sources**

Animals at racetracks, kennels, fenced pens, veterinarians, and businesses that provide boarding services for horses, dogs, cats, etc., can generate pollutants from the following activities: manure deposits, animal washing, grazing and any other animal handling activity that could contaminate stormwater. Pollutants can include coliform bacteria, nutrients, and total suspended solids.

### **Recommended Source Control BMPs**

Prevent stormwater run-on and contact with manure or soils from facility roofs by infiltrating roof drains or using low impact development techniques as identified in the Puget Sound Partnership Technical Guidance Manual available at [http://www.psp.wa.gov/our\\_work/stormwater/lid/lid\\_manual.htm](http://www.psp.wa.gov/our_work/stormwater/lid/lid_manual.htm), or the Natural Resource Soil and Conservation Technical guidance manual available by calling the Snohomish Conservation District at 425-335-5634. Be aware that implementing measures in these guidance manuals may require obtaining building permits subject to land use code review. To determine if permits are required, or land use codes apply, call Snohomish County Planning and Development Services at 425-388-3311.

## **4.3 BMPs for Commercial Composting**

### **Description of Pollutant Sources**

Commercial compost facilities, operating outside without cover, require large areas to decompose wastes and other feedstocks. These facilities should be designed to separate stormwater from leachate (i.e., industrial wastewater) to the greatest extent possible. When stormwater is allowed to contact any active composting areas, including waste receiving and processing areas, it becomes leachate. Pollutants in leachate include nutrients, biochemical oxygen demand (BOD), organics, coliform bacteria, acidic pH, color, and suspended solids. Stormwater at a compost facility consists of runoff from areas at the facility that are not associated with active processing and curing, such as product storage areas, vehicle maintenance areas, and access roads.

### **Recommended Source Control BMPs:**

- All source control BMPs for this activity/land use are required and found in section 3.3.

## **4.4 BMPs for Commercial Printing Operations**

### **Description of Pollutant Sources**

Materials used in the printing process include inorganic and organic acids, resins, solvents, polyester film, developers, alcohol, vinyl lacquer, dyes, acetates, and polymers. Waste products may include waste inks and ink sludge, resins, photographic chemicals, solvents, acid and alkaline solutions, chlorides, chromium, zinc, lead, spent formaldehyde, silver, plasticizers, and used lubricating oils. As the printing operations are conducted indoors, the only likely points of potential contact with stormwater are the outside temporary storage of waste materials and offloading of chemicals at external unloading bays. Pollutants can include TSS, pH, heavy metals, oil and grease, and COD.

### **Recommended Source Control BMPs**

- Try to use press washes without listed solvents, and with the lowest VOC content possible. Don't evaporate ink cleanup trays to the outside atmosphere.

For additional information on pollution prevention, the following Washington Department of Ecology publications are recommended: A Guide for Screen Printers, Publication #94-137 and A Guide for Lithographic Printers, Publication #94-139.

## 4.5 BMPs for Deicing and Anti-Icing Operations - Airports and Aircraft

### Description of Pollutant Sources

Deicing and/or anti-icing compounds are used on airport runways and aircraft to control ice and snow. Typically ethylene glycol and propylene glycol are deicers used on aircraft. The deicing and anti-icing compounds become pollutants when they are conveyed to storm drains or to surface water after application. Leaks and spills of these chemicals can also occur during their handling and storage.

### Pollutant Control Approach for Aircraft

Spent glycol discharges in aircraft application areas are process wastewaters that are regulated under Ecology's industrial stormwater general permit. (Contact the Ecology Regional Office for details.) BMPs for aircraft de/anti-icers must be consistent with aviation safety and the operational needs of the aircraft operator.

### Recommended ~~Source-control-BMP~~ Source Control BMPs for aircraft

Establish a centralized aircraft de/anti-icing facility, if feasible and practicable, or in designated areas of the tarmac equipped with separate collection drains for the spent deicer liquids. Consider installing an aircraft de/anti-icing chemical recovery system, or contract with a chemical recycler, if practicable.

### Recommended ~~Source-control-BMP~~ Source Control BMPs for airport runways/taxiways:

- Include limits on toxic materials and phosphorous in the specifications for de/anti-icers, where applicable.
- Consider using anti-icing materials rather than deicers if it will result in less adverse environmental impact.
- Select cost-effective de/anti-icers that cause the least adverse environmental impact.

## **4.6 BMPs for Deicing and Anti-Icing Operations – Commercial Parking Lots and Paved Areas**

### **Description of Pollutant Sources**

Deicing and/or anti-icing compounds are used on paved surfaces to control ice and snow. Common pavement deicers include calcium magnesium acetate (CMA), calcium chloride, magnesium chloride, sodium chloride, urea, and potassium acetate. The deicing and anti-icing compounds become pollutants when they are conveyed to storm drains or to surface water after application. Leaks and spills of these chemicals can also occur during their handling and storage.

### **Recommended Source Control BMPs**

- Intensify pavement cleaning in early spring to help remove particulates from paved surfaces.
- Include limits on toxic metals in the specifications for de/anti-icers.

## **4.7 BMPs for Dust Control at Unpaved Commercial or Industrial Sites**

### **Description of Pollutant Sources**

Dust can cause air and water pollution problems particularly at demolition sites and in arid areas where reduced rainfall exposes soil particles to transport by air.

### **Recommended Source Control BMPs**

- Consider paving unpaved permanent roads and other trafficked areas at commercial and industrial areas.
- Consider paving or stabilizing shoulders of paved roads with gravel, vegetation.
- Encourage use of alternate paved routes, if available.
- Vacuum or wet sweep fine dirt and skid control materials from paved roads soon after winter weather ends or when needed.
- Consider using traction sand that is pre-washed to reduce dust emissions.
- Stabilize dust-generating soil by growing and maintaining vegetation, mulching, topsoiling, and/or applying stone, sand, or gravel.
- Apply windbreaks in the soil such as trees, board fences, tarp curtains, bales of hay, etc.
- Cover dust-generating piles with wind-impervious fabric, or equivalent material as much as feasible.
- Prepare a dust control plan. Helpful references include: Control of Open Fugitive Dust Sources (EPA-450/3-88-088), and Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures (EPA-450/2-92-004)

## **4.8 BMPs for Dust Control at Manufacturing Areas**

### **Description of Pollutant Sources**

Industrial material handling activities can generate considerable amounts of dust that is typically removed using exhaust systems. This can generate air emissions that can contaminate stormwater. Dusts can be generated at cement and concrete products mixing, and wherever powdered materials are handled. Particulate materials that are of concern to air pollution control agencies include grain dust, sawdust, coal, gravel, crushed rock, cement, and boiler fly ash. The objective of this BMP is to reduce the stormwater pollutants caused by dust generation and control.

### **Recommended Source Control BMPs**

- Clean, as needed, powder material handling equipment and vehicles that can be sources of stormwater pollutants, to remove accumulated dust and residue.
- Use dust filtration/collection systems such as bag house filters, cyclone separators, etc. to control vented dust emissions that could contaminate stormwater. Control of zinc dusts in rubber production is one example.
- Use water spray to flush dust accumulations to sanitary sewers where allowed by the local sewer authority or to other appropriate treatment system.
- Use approved dust suppressants such as those listed in Ecology Publication “Techniques for Dust Prevention and Suppression,” #96-433. (Ecology, 1996). Application of some products may not be appropriate in close proximity to receiving waters or conveyances close to receiving waters. For more information check with the Ecology Regional Office.

## **4.9 BMPs for Fueling aAt Dedicated Stations**

### **Description of Pollutant Sources**

A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes above or under-ground fuel storage facilities. In addition to general service gas stations, fueling may also occur at 24-hour convenience stores, construction sites, warehouses, car washes, manufacturing establishments, port facilities, and businesses with fleet vehicles. Typically, stormwater contamination at fueling stations is caused by leaks/spills of fuels, lube oils, radiator coolants, and vehicle washwater.

### **Recommended Source Control BMPs**

- All source control BMPs for this activity/land use are required and found in section 3.9.

## **4.10 BMPs for Landscaping and Lawn/Vegetation Management at Commercial Sites or Performed Commercially at Other Sites**

### **Description of Pollutant Sources**

Landscaping can include grading, soil transfer, vegetation removal, pesticide and fertilizer applications, and watering. Stormwater contaminants include toxic organic compounds, heavy metals, oils, total suspended solids, coliform bacteria, fertilizers, and pesticides.

Lawn and vegetation management can include control of objectionable weeds, insects, mold, bacteria and other pests with chemical pesticides and is conducted commercially at commercial, industrial, and residential sites. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; sap stain and insect control on lumber and logs; rooftop moss removal; killing nuisance rodents; fungicide application to patio decks, and residential lawn/plant care. Toxic pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of the vegetation and poor application of pesticides or fertilizers can cause appreciable stormwater contamination.

Pesticide and herbicide pollution can be minimized by developing and implementing an Integrated Pest Management (IPM) Plan. If pesticides/herbicides are used they must be carefully applied in accordance with label instructions on U.S. Environmental Protection Agency (EPA) registered materials. Maintain appropriate vegetation, with proper fertilizer application where practicable, to control erosion and the discharge of stormwater pollutants. Where practicable grow plant species appropriate for the site, or adjust the soil properties of the subject site to grow desired plant species.

### **Recommended Source Control BMPs for Landscaping**

- Conduct mulch-mowing whenever practicable
- Dispose of grass clippings, leaves, sticks, or other collected vegetation, by composting, if feasible.
- Use mulch or other erosion control measures when soils are exposed for more than one week during the dry season or two days during the rainy season.
- If feasible, till fertilizers into the soil rather than dumping or broadcasting onto the surface. Determine the proper fertilizer application for the types of soil and vegetation encountered.
- Consider tilling a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.
- Consider using manual and/or mechanical methods of vegetation removal rather than applying herbicides, where practical.

## **Recommended Source Control BMPs for the Use of Pesticides**

- Consider developing and implementing an Integrated Pest Management (IPM) Plan (See [BMP 4.34 section on IPM at end of BMP](#)) and use pesticides only as a last resort.
- ~~Implement a pesticide use plan and include at a minimum: a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods; and monitoring, record keeping, and public notice procedures. Refer to Chapter 17.21 RCW and Chapter 16-228 WAC.~~
- ~~Consider choosing the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. Any method used should be site specific and not used wholesale over a wide area.~~
- ~~Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.~~
- ~~Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic nematodes. The following are three possible mechanisms for disease control by compost addition (USEPA Publication 530-F-9-044):~~
  1. ~~Successful competition for nutrients by antibiotic production;~~
  2. ~~Successful predation against pathogens by beneficial microorganism; and~~
  3. ~~Activation of disease resistant genes in plants by composts.~~
- ~~Installing an amended soil/landscape system can preserve both the plant system and the soil system more effectively. This type of approach provides a soil/landscape system with adequate depth, permeability, and organic matter to sustain itself and continue working as an effective stormwater infiltration system and a sustainable nutrient cycle.~~
- ~~Once a pesticide is applied, its effectiveness should be evaluated for possible improvement. Records should be kept showing the applicability and inapplicability of the pesticides considered.~~
- ~~An annual evaluation procedure should be developed including a review of the effectiveness of pesticide applications, impact on buffers and sensitive areas (including potable wells), public concerns, and recent toxicological information on pesticides used/proposed for use. If individual or public potable wells are located in the proximity of commercial pesticide applications contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.~~

For more information, contact the WSU Extension Home Assist Program, (253) 445-4556, or Bio-Integral Resource Center (BIRC), P.O. Box 7414, Berkeley, CA.94707, or the Washington Department of Ecology to obtain “Hazardous Waste Pesticides” (Publication #89-41); and/or

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~~EPA to obtain a publication entitled “Suspended, Canceled and Restricted Pesticides” which lists all restricted pesticides and the specific uses that are allowed. Valuable information from these sources may also be available on the internet.~~

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## **Recommended Source Control BMPs for Vegetation Management**

- Consider using at least an eight-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can substantially improve the permeability of the soil, the disease and drought resistance of the vegetation, and reduce fertilizer demand. This reduces the demand for fertilizers, herbicides, and pesticides. Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. If natural plant debris and mulch are returned to the soil, this system can continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for your climate and soil type. Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects. They do not, however, repel root-feeding lawn pests such as Crane Fly larvae, and are toxic to ruminants such as cattle and sheep. The fungus causes no known adverse effects to the host plant or to humans. Endophytic grasses are commercially available and can be used in areas such as parks or golf courses where grazing does not occur. The WSU Cooperative Extension office can offer advice on which types of grass are best suited to the area and soil type.
- Use the following seeding and planting BMPs, or equivalent BMPs to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates: Temporary Seeding, Mulching and Matting, Clear Plastic Covering, Permanent Seeding and Planting, and Sodding as described in Volume II).
- Selection of desired plant species can be made by adjusting the soil properties of the subject site. For example, a constructed wetland can be designed to resist the invasion of reed canary grass by layering specific strata of organic matters (e.g., compost forest product residuals) and creating a mildly acidic pH and carbon-rich soil medium. Consult a soil restoration specialist for site-specific conditions.
- Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Aeration should be conducted while the grasses in the lawn are growing most vigorously. Remove layers of thatch greater than ¾-inch deep.
- Mowing is a stress-creating activity for turfgrass. When grass is mowed too short its productivity is decreased and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone and more reliant on outside means such as pesticides, fertilizers and irrigation to remain healthy. Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only 1/3 of the grass blade height will prevent stressing the turf.

### Irrigation

- The depth from which a plant normally extracts water depends on the rooting depth of the plant. Appropriately irrigated lawn grasses normally root in the top 6 to 12 inches of soil; lawns irrigated on a daily basis often root only in the top 1 inch of soil. Improper irrigation can encourage pest problems, leach nutrients, and make a lawn completely dependent on artificial watering. The amount of water applied depends on the normal rooting depth of the turfgrass species used, the available water holding capacity of the soil, and the efficiency of the irrigation system. Consult with the local water utility, Snohomish Conservation District, or Cooperative Extension office to help determine optimum irrigation practices.
- Minimize runoff from lawn and landscape irrigation by not overwatering, and by directing spray from sprinklers onto the landscaped area and away from paved areas.

### Fertilizer Management

- Turfgrass is most responsive to nitrogen fertilization, followed by potassium and phosphorus. Fertilization needs vary by site depending on plant, soil and climatic conditions. Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization. For details on soils testing, contact the Snohomish Conservation District or Cooperative Extension Service.
- Fertilizers should be applied in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters. Do not fertilize during a drought or when the soil is dry. Alternatively, do not apply fertilizers within three days prior to predicted rainfall. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs.
- Use slow release fertilizers such as methylene urea, IDBU, or resin coated fertilizers when appropriate, generally in the spring. Use of slow release fertilizers is especially important in areas with sandy or gravelly soils.
- Time the fertilizer application to periods of maximum plant uptake. ~~Generally~~Generally, fall and spring applications are recommended, although WSU turf specialists recommend four fertilizer applications per year.

### Integrated Pest Management

~~An IPM program might consist of the following steps:~~

~~Step 1: Correctly identify problem pests and understand their life cycle~~

~~Step 2: Establish tolerance thresholds for pests.~~

~~Step 3: Monitor to detect and prevent pest problems.~~

~~Step 4: Modify the maintenance program to promote healthy plants and discourage pests.~~

~~Step 5: Use cultural, physical, mechanical, or biological controls first if pests exceed the tolerance thresholds.~~

~~Step 6: Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.~~

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## **4.11 BMPs for Loading and Unloading Areas for Liquid or Solid Material**

### **Description of Pollutant Sources**

Loading/unloading of liquid and solid materials at industrial and commercial facilities are typically conducted at shipping and receiving, outside storage, fueling areas, etc. Materials transferred can include products, raw materials, intermediate products, waste materials, fuels, scrap metals, etc. Leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc. during transfer are potential causes of stormwater contamination. Spills from hydraulic line breaks are a common problem at loading docks.

### **Recommended Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.11.

## **4.12 BMPs for Log Sorting and Handling**

### **Description of Pollutant Sources**

Log yards are paved or unpaved areas where logs are transferred, sorted, debarked, cut, and stored to prepare them for shipment or for the production of dimensional lumber, plywood, chips, poles, or other products. Log yards are generally maintained at sawmills, shipping ports, and pulp mills. Typical pollutants include oil and grease, BOD, settleable solids, total suspended solids (including soil), high and low pH, heavy metals, pesticides, wood-based debris, and leachate.

### **Recommended Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.12.

## **4.13 BMPs for Maintenance and Repair of Vehicles and Equipment**

### **Description of Pollutant Sources**

Pollutant sources include parts/vehicle cleaning, spills/leaks of fuel and other liquids, replacement of liquids, outdoor storage of batteries/liquids/parts, and vehicle parking.

### **Recommended Source Control BMPs**

- Consider storing damaged vehicles inside a building or other covered containment, until all liquids are removed. Remove liquids from vehicles retired for scrap.
- Clean parts with aqueous detergent based solutions or non-chlorinated solvents such as kerosene or high flash mineral spirits, and/or use wire brushing or sand blasting whenever practicable. Avoid using toxic liquid cleaners such as methylene chloride, 1,1,1-trichloroethane, trichloroethylene or similar chlorinated solvents. Choose cleaning agents that can be recycled.
- Avoid hosing down work areas. Use dry methods for cleaning leaked fluids.
- Recycle greases, used oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic fluids, transmission fluids, and engine oils.
- Do not mix dissimilar or incompatible waste liquids stored for recycling.
- For additional recommended source control BMPs refer to the following BMPs:
  - Fueling at Dedicated Stations
  - Washing and Steam Cleaning
  - Vehicle/Equipment/Building Structures
  - Loading and Unloading Areas for Liquid or Solid Material
  - Storage of Liquids in Permanent Above-Ground Tanks
  - Storage of Liquid, Food Waste, or Dangerous Waste Containers
  - Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products
  - Spills of Oil and Hazardous Substances
  - Illicit Connections to Storm Drains

#### **4.14 BMPs for Maintenance of Public and Private Utility Corridors and Facilities (applicable to utilities operating infrastructure for the distribution of petroleum, natural gas, water, and electricity)**

##### **Description of Pollutant Sources**

Passageways and equipment at petroleum product, natural gas, and water pipelines, and electrical power transmission corridors and rights-of-way can be sources of pollutants such as herbicides used for vegetation management, and eroded soil particles from unpaved access roads. At pump stations waste materials generated during maintenance activities may be temporarily stored outside. Additional potential pollutant sources include the leaching of preservatives from wood utility poles, PCBs in older transformers, water that is removed from underground transformer vaults, and leaks/spills from petroleum pipelines. The following are potential pollutants: oil and grease, TSS, BOD, organics, PCB, pesticides, and heavy metals.

##### **Recommended ~~Source control BMP~~ Source Control BMPs**

- Within utility corridors, consider preparing maintenance procedures and an implementation schedule that provides for a vegetative, gravel, or equivalent cover that minimizes bare or thinly vegetated ground surfaces within the corridor, to prevent the erosion of soil.
- Provide maintenance practices to prevent stormwater from accumulating and draining across and/or onto roadways. Stormwater should be conveyed through roadside ditches and culverts. The road should be crowned, outsloped, water barred or otherwise left in a condition not conducive to erosion. Appropriately maintaining grassy roadside ditches discharging to surface waters is an effective way of removing some pollutants associated with sediments carried by stormwater.
- When selecting utility poles for a specific location, consideration should be given to the potential environmental effects of the pole or poles during storage, handling, and end-use, as well as its cost, safety, efficacy and expected life. If a wood product treated with chemical preservatives is used, it should be made in accordance with generally accepted industry standards such as the American Wood Preservers Association Standards. If the pole or poles will be placed in or near an environmentally sensitive area, such as a wetland or a drinking water well, alternative materials or technologies should be considered. These include poles constructed with material(s) other than wood such as fiberglass composites, metal, or concrete. Other technologies and materials, such as sleeves or caissons for wood poles, may also be considered when they are determined to be practicable and available.
- As soon as practicable remove all litter from wire cutting/replacing operations, etc.

## **4.15 BMPs for Maintenance of Roadside Ditches**

### **Description of Pollutant Sources**

Common road debris including eroded soil, oils, vegetative particles, and heavy metals can be sources of stormwater pollutants.

### **Recommended Source Control BMPs**

- Conduct ditch maintenance (seeding, fertilizer application, harvesting) in late spring and/or early fall, where possible. This allows vegetative cover to be re-established by the next wet season thereby minimizing erosion of the ditch as well as making the ditch effective as a biofilter.
- In the area between the edge of the pavement and the bottom of the ditch, commonly known as the “bare earth zone,” use grass vegetation, wherever possible. Vegetation should be established from the edge of the pavement if possible, or at least from the top of the slope of the ditch.
- Roadside ditch cleanings, not contaminated by spills or other releases and not associated with a stormwater treatment system such as a bioswale, may be screened to remove litter and separated into soil and vegetative matter (leaves, grass, needles, branches, etc.). The soil fraction may be handled as ‘clean soils’ and the vegetative matter can be composted or disposed of in a municipal waste landfill.

## **4.16 BMPs for Maintenance of Stormwater Drainage and Treatment Systems**

### **Description of Pollutant Sources**

Facilities include roadside catch basins on arterials and within residential areas, conveyance systems, detention facilities such as ponds and vaults, oil and water separators, biofilters, settling basins, infiltration systems, and all other types of stormwater treatment systems presented in Volume V. Roadside catch basins can remove from 5 to 15 percent of the pollutants present in stormwater. When catch basins are about 60 percent full of sediment, they cease removing sediments. Oil and grease, hydrocarbons, debris, heavy metals, sediments and contaminated water are found in catch basins, oil and water separators, settling basins, etc.

### **Recommended ~~Source-control BMP~~ Source Control BMPs**

Maintain stormwater treatment facilities according to the O & M procedures presented in Section 4.6 of Volume V in addition to the following BMPs:

- Post warning signs; “Dump No Waste - Drains to Ground Water,” “Streams,” “Lakes,” or emboss on or adjacent to all storm drain inlets *where practical*.

Select additional BMPs from this chapter depending on the pollutant sources and activities conducted at the facility. Those BMPs include:

- BMPs for Soil Erosion and Sediment Control at Industrial Sites
- BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers
- BMPs for Spills of Oil and Hazardous Substances
- BMPs for Illicit Connections to Storm Drains
- BMPs for Urban Streets.

## 4.17 BMPs for Manufacturing Activities - Outside

### Description of Pollutant Sources

Manufacturing pollutant sources include outside process areas, stack emissions, and areas where manufacturing activity has taken place in the past and significant pollutant materials remain and are exposed to stormwater.

### Recommended ~~Source-control-BMP~~ Source Control BMPs

- Berm or slope the floor as needed to prevent drainage of pollutants to outside areas.
- Isolate and segregate pollutants as feasible. Convey the segregated pollutants to a sanitary sewer, process treatment or a dead-end sump depending on available methods and applicable permit requirements.

## **4.18 BMPs for Mobile Fueling of Vehicles and Heavy Equipment**

### **Description of Pollutant Sources**

Mobile fueling, also known as fleet fueling, wet fueling, or wet hosing, is the practice of filling fuel tanks of vehicles by tank trucks that are driven to the yards or sites where the vehicles to be fueled are located. Mobile fueling is only conducted using diesel fuel, as mobile fueling of gasoline is prohibited. Diesel fuel is considered as a Class II Combustible Liquid, whereas gasoline is considered as a Flammable Liquid. Historically mobile fueling has been conducted for off-road vehicles that are operated for extended periods of time in remote areas. This includes construction sites, logging operations, and farms. Mobile fueling of onroad vehicles is also conducted commercially in the State of Washington.

### **Recommended ~~Source control BMP~~ Source Control BMPs**

Organizations and individuals conducting mobile fueling operations must implement the following BMPs. The operating procedures for the driver/operator should be simple, clear, effective and their implementation verified by the organization that will potentially be liable for environmental and third party damage.

- Review 49 CFR 178 requirements for DOT 406 cargo tankers.

#### **4.19 BMPs for Painting/Finishing/ Coating of Vehicles/Boats/ Buildings/ Equipment**

##### **Description of Pollutant Sources**

Surface preparation and the application of paints, finishes and/or coatings to vehicles, boats, buildings, and/or equipment outdoors can be sources of pollutants. Potential pollutants include organic compounds, oils and greases, heavy metals, and suspended solids.

##### **Recommended ~~Source control BMP~~ Source Control BMPs**

- Clean brushes and tools covered with non-water-based paints, finishes, or other materials in a manner that allows collection of used solvents (e.g., paint thinner, turpentine, xylol, etc.) for recycling or proper disposal.
- Recycle paint, paint thinner, solvents, pressure washwater, and any other recyclable materials.
- Use efficient spray equipment such as electrostatic, air-atomized, high volume/low pressure, or gravity feed spray equipment.
- Purchase recycled paints, paint thinner, solvents, and other products if feasible.
- Enclose and/or contain all work while using a spray gun or conducting sand blasting. Do not conduct outside spraying, grit blasting, or sanding activities during windy conditions which render containment ineffective.

## **4.20 BMPs for Parking and Storage of Vehicles and Equipment**

### **Description of Pollutant Sources**

Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways, can be sources of toxic hydrocarbons and other organic compounds, oils and greases, metals, and suspended solids caused by the parked vehicles.

### **Recommended ~~Source-control BMP~~ Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.20.

## **4.21BMPs for Railroad Yards**

### **Description of Pollutant Sources**

Pollutant sources can include drips/leaks of vehicle fluids onto the railroad bed, human waste disposal, litter, locomotive/railcar/equipment cleaning areas, fueling areas, outside material storage areas, the erosion and loss of soil particles from the railroad bed, maintenance and repair activities at railroad terminals, switching yards, and maintenance yards, and herbicides used for vegetation management. Waste materials can include waste oil, solvents, degreasers, antifreeze solutions, radiator flush, acids, brake fluids, soiled rags, oil filters, sulfuric acid and battery sludges, and machine chips with residual machining oil and toxic fluids/solids lost during transit. Potential pollutants include oil and grease, TSS, BOD, organics, pesticides, and metals.

### **Recommended Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.21.

## **4.22 BMPs for Recyclers and Scrap Yards**

### **Description of Pollutant Sources**

Includes businesses that reclaim various materials for resale or for scrap, such as vehicles and vehicle/ equipment parts, construction materials, metals, beverage containers, and papers. Potential sources of pollutants include paper, plastic, metal scrap debris, engines, transmissions, radiators, batteries, and other materials that contain fluids or are contaminated with fluids. Other pollutant sources include leachate from metal components, contaminated soil, and the erosion of soil. Activities that can generate pollutants include the transfer, dismantling, and crushing of vehicles and scrap metal; the transfer and removal of fluids; maintenance and cleaning of vehicles, parts, and equipment; and storage of fluids, parts for resale, solid wastes, scrap parts, and materials, equipment and vehicles that contain fluids; generally in uncovered areas. Potential pollutants typically found at vehicle recycle and scrap yards include oil and grease, ethylene and propylene glycol, total suspended solids, BOD, heavy metals, and acidic pH.

### **Recommended ~~Source control BMPs~~ Source Control BMPs**

For facilities subject to Ecology's Industrial Stormwater General Permit refer to BMP Guidance Document #94-146, "Best Management Practices to Prevent Stormwater Pollution at Vehicle Recycler Facilities," Washington Department of Ecology, September 1994 for selection of BMPs. The BMPs in that guidance document can also be applied to scrap material recycling facilities depending on the pollutant sources existing at those facilities and to non-permitted facilities. NOTE: At the time of publication, an updated guidance document for Vehicle Recycler Facilities was almost completed. When completed, it will be posted at the Dept. of Ecology's stormwater web page: <http://www.ecy.wa.gov/programs/wq/stormwater/index.html>

## **4.23 BMPs for Roof/ Building Drains at Manufacturing and Commercial Buildings**

### **Description of Pollutant Sources**

Stormwater runoff from roofs and sides of manufacturing and commercial buildings can be sources of pollutants caused by leaching of roofing materials, building vents, and other air emission sources. Vapors and entrained liquid and solid droplets/particles have been identified as potential pollutants in roof/building runoff. Metals, solvents, acidic/alkaline pH, BOD, and organics, are some of the pollutant constituents identified.

### **Recommended ~~Source-control BMP~~ Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.23.

## **4.24 BMPs for Soil Erosion and Sediment Control at Industrial Sites**

### **Description of Pollutant Sources**

Industrial activities on soil areas; exposed and disturbed soils; steep grading; etc. can be sources of sediments that can contaminate stormwater runoff.

### **Recommended ~~Source-control BMP~~ Source Control BMPs**

Implement BMPs from Volume II of this Manual to prevent erosion of exposed or disturbed soil.

## **4.25 BMPs for Spills of Oil and Hazardous Substances**

### **Description of Pollutant Sources**

Owners or operators of facilities engaged in drilling, producing, gathering, storing, processing, transferring, distributing, refining or consuming oil and/or oil products are required by Federal Law to have a Spill Prevention and Control Plan if the storage capacity of the facility, which is not buried, is 1,320 gallons or more of oil, or any single container with a capacity in excess of 660 gallons and which, due to their location, could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR Part 110, into or upon the navigable waters of the United States or adjoining shorelines {40 CFR 112.1 (b)}. Onshore and offshore facilities, which, due to their location, could not reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines are exempt from these regulations {40 CFR 112.1(1)(i)}. Owners of businesses that produce Dangerous Wastes are also required by State Law to have a spill control plan. The federal definition of oil is oil of any kind or any form, including, but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

### **Source-control BMPs Source Control BMPs**

Businesses and public agencies located at nonresidential properties are required to prepare and implement an Emergency Spill Cleanup Plan shall implement the following:

- Prepare an Emergency Spill Control Plan (SCP), which includes:
  - a description of the facility including the owner's name and address;
  - the nature of the activity at the facility;
  - the general types of chemicals used or stored at the facility;
  - a site plan showing the location of storage areas for chemicals, the locations of storm drains, the areas draining to them, and the location and description of any devices to stop spills from leaving the site such as positive control valves;
  - cleanup procedures;
  - notification procedures to be used in the event of a spill, such as notifying key personnel. Agencies such as Ecology, local fire department, Washington State Patrol, and the local Sewer Authority, shall be notified; and
  - the name of the designated person with overall spill cleanup and notification responsibility.
- Train key personnel in the implementation of the Emergency SCP. Prepare a summary of the plan and post it at appropriate points in the building, identifying the spill cleanup coordinators, location of cleanup kits, and phone numbers of regulatory agencies to be contacted in the event of a spill.
- Update the SCP regularly.
- Immediately notify Ecology and the local Sewer Authority if a spill may reach sanitary or storm sewers, ground water, or surface water, in accordance with federal and Ecology spill reporting requirements.

- Immediately clean up spills. Do not use emulsifiers for cleanup unless an appropriate disposal method for the resulting oily wastewater is implemented. Absorbent material shall not be washed down a floor drain or storm sewer.
- Locate emergency spill containment and cleanup kit(s) in high potential spill areas. The contents of the kit shall be appropriate for the type and quantities of chemical liquids stored at the facility.

Spill kits should include appropriately lined drums, absorbent pads, and granular or powdered materials for neutralizing acids or alkaline liquids where applicable. In fueling areas: absorbent should be packaged in small bags for easy use and small drums should be available for storage of absorbent and/or used absorbent. Spill kits should be deployed in a manner that allows rapid access and use by employees.

## **4.26 BMPs for Storage of Liquid Waste, Food Waste, or Dangerous Waste Containers**

### **Description of Pollutant Sources**

Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building used for temporary storage of accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock or cleaning chemical, or Dangerous Wastes (liquid or solid) unless the business is permitted by Ecology to store the wastes. Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid/alkali pH, BOD, COD are potential pollutant constituents. See Figure 4.3 – Secondary Containment System (in Chapter 3).

### **Recommended ~~Source-control BMPs~~ Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.26.

## **4.27 BMPs for Storage of Liquids in Permanent Above-ground Tanks**

### **Description of Pollutant Sources**

Above-ground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. They may be heated with steam heat exchangers equipped with steam traps. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

### **Recommended Source Control BMPs**

All source control BMPs for this activity/land use are required and found in section 3.27.

## **4.28 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products**

### **Description of Pollutant Sources**

Solid raw materials, by-products, or products such as gravel, sand, salts, topsoil, compost, logs, sawdust, wood chips, lumber and other building materials, concrete, and metal products sometimes are typically stored outside in large piles, stacks, etc. at commercial or industrial establishments. Contact of outside bulk materials with stormwater can cause leachate, and erosion of the stored materials. Contaminants include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc.).

### **Recommended Source Control BMPs**

If and when feasible, collect and recycle water-soluble materials (leachates) to the stockpile.

## **4.29 BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures**

### **Description of Pollutant Sources**

**Discharge of wash water or other wastewater to the storm sewer system is prohibited by federal law and Snohomish County code.** Vehicles, aircraft, vessels, and transportation, restaurant cooking, carpet cleaning, and industrial equipment, and large buildings may be commercially cleaned with low or high pressure water or steam. This includes frequent “charity” car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

- **All source control BMPs for this land use/activity are required. See Chapter 5 for source control BMPs required for new development or redevelopment of facilities that will conduct washing practices outside.**

### **4.30 BMPs for Wood Treatment Facilities**

**NOTE:** A wood treatment facility is required to operate under an individual NPDES stormwater permit. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit shall constitute compliance with that code chapter.

#### **Description of Pollutant Sources**

Wood treatment includes both antistaining and wood preserving using pressure processes or by dipping or spraying. Wood preservatives include creosote, creosote/coal tar, pentachlorophenol, copper naphthenate, arsenic trioxide, malathion, or inorganic arsenicals such as chromated copper arsenate, acid copper chromate, chromate zinc chloride, and fluor-chrome-arsenate-phenol. Anti-staining chemical additives include iodo-propenyl-butyl carbamate, dimethyl sulfoxide, didecyl dimethyl ammonium chloride, sodium azide, 8-quinolinol; copper (II) chelate, sodium ortho-phenylphenate, 2-(thiocyanomethylthio)-benzothiazole (TCMTB) and methylene bis-(thiocyanate), and zinc naphthenate. Pollutant sources include drips of condensate or preservative after pressurized treatment; product washwater (in the treatment or storage areas), spills and leaks from process equipment and preservative tanks, fugitive emissions from vapors in the process, blowouts and emergency pressure releases, and kick-back from lumber (phenomenon where preservative leaks as it returns to normal pressure). Potential pollutants typically include the wood treating chemicals, BOD, suspended solids, oil and grease, benzene, toluene, ethylbenzene, phenol, chlorophenols, nitrophenols, heavy metals, and PAH depending on the chemical additive used.

#### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.30.

## **4.31 BMPs for Swimming Pool and Spa Maintenance**

### **Description of Pollutant Sources**

The primary pollutants of concern in water found in swimming pools and spas are chlorine and bromine compounds, which are used as disinfectants and algicides. Algicides may also contain copper. Snohomish County Code Chapter 7.53 allows the discharge of water from swimming pools and spas, other than swimming pool cleaning wastewater and filter backwash, provided that the discharge:

- contains less than 0.1 milligram per liter of chlorine;
- does not contain algicides other than chlorine or bromine;
- does not contain other contaminants, including but not limited to algae, solids, excessively high or low pH, and hypoxic water; and;
- is thermally controlled as necessary to prevent an increase in temperature of the receiving water.

In addition, the discharge rate must be controlled in order to avoid resuspension and transport of sediment in downstream drainage systems.

### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.31.

### **4.30—BMPs for Privately-Owned Roads and Streets**

#### **Description of Pollutant Sources**

The paved surface of roads and streets can be the source of vegetative debris, paper, fine dust, vehicle liquids, tire and brake wear residues, heavy metals (lead and zinc), soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products. Street surface contaminants contain significant concentrations of particle sizes less than 250 microns.

#### **Pollutant Control Approach**

Sweep streets to minimize the contamination of stormwater.

#### **Recommended BMPs**

- Sweep streets with high efficiency vacuum sweepers, regenerative air sweepers, or mechanical sweepers.
- Disposal of street sweeping solids must comply with all applicable federal, state, and local regulations for solid waste disposal.

## **4.32 BMPs for Dock Washing**

### **Description of Pollutant Sources**

Washing docks (or wharves, piers, floats, and boat ramps) can result in the discharge dirt, bird feces, soaps, and detergents that can be toxic to aquatic life, especially after they take on contaminants while cleaning. The BMPs in this section do not address dry docks, graving docks, or marine railway cleaning operations.

### **Recommended ~~Source control BMP~~ Source Control BMPs**

The following video, provided courtesy of the Port of Seattle, highlights the methods they have developed to collect wash water generated during dock washing:-

- Dock Scrubbing at Port of Seattle: <https://www.youtube.com/watch?v=7RBFdjC3K1Q>

### **4.33 BMPs for Potable Water Line Flushing, Water Tank Maintenance, and Hydrant Testing**

#### **Description of Pollutant Sources**

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in systems. Flushing done improperly can result in the discharge of solids to receiving waters. Hydrant testing may result in the discharge of rust particles.

Chemicals used in line flushing and tank maintenance are highly toxic to aquatic organisms and can degrade receiving waters.

#### **Pollutant Control Approach:**

Dechlorinate and pH adjust water used for flushing, tank maintenance, or hydrant testing. Dispose of the water to the sanitary sewer if possible

#### **AdditionalOptional Source Control BMPs**

- If possible, design flushing to convey accumulated material to strategic locations, such as to the sanitary sewer or to a treatment facility; thus, preventing re-suspension and overflow of a portion of the solids during storm events.
- If possible, conduct flushing and tank maintenance activities on non-rainy days and during the time of year that poses the least risk to aquatic biota.

#### **AdditionalOptional Treatment BMPs**

Treatment for dechlorinating can include an application of a stoichiometric quantity of:

- Ascorbic Acid, Sodium Ascorbate (Vitamin C)
- Calcium Thiosulfate
- Sodium Sulfite tablets
- Sodium Thiosulfate
- Sodium Bisulfite
- Alternate Dechlorination Solutions

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## **4.34 BMPs for Pesticides and an Integrated Pest Management Program**

### **Description of Pollutant Sources**

Pesticides include herbicides, rodenticides, insecticides, fungicides, etc. Examples of pesticide uses include:

- Weed control on golf course lawns, access roads, utility corridors and landscaping.
- Sap stain and insect control on lumber and logs.
- Rooftop moss removal.
- Killing nuisance rodents.
- Fungicide application to patio decks.

It is possible to release toxic pesticides such as pentachlorophenol, carbamates, and organometallics to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of pesticides can cause appreciable stormwater contamination and unintended impacts to non-targeted organisms.

### **Pollutant Control Approach:**

Control of pesticide applications to prevent contamination of stormwater. Consider developing and implementing an Integrated Pest Management (IPM) Plan. Carefully apply pesticides, in accordance with label requirements.

### **Recommended Pest Management BMPs**

- Consider developing and implementing an Integrated Pest Management (IPM) Plan (See IPM section below) and use pesticides only as a last resort.
- Implement a pesticide-use plan and include at a minimum: a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods; and monitoring, record keeping, and public notice procedures. Refer to Chapter 17.21 RCW and Chapter 16-228 WAC.
- Consider choosing the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. Any method used should be site-specific and not used wholesale over a wide area.
- Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.
- Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic

nematodes. The following are three possible mechanisms for disease control by compost addition (USEPA Publication 530-F-9-044):

1. Successful competition for nutrients by antibiotic production;
  2. Successful predation against pathogens by beneficial microorganism; and
  3. Activation of disease-resistant genes in plants by composts.
- Installing an amended soil/landscape system can preserve both the plant system and the soil system more effectively. This type of approach provides a soil/landscape system with adequate depth, permeability, and organic matter to sustain itself and continue working as an effective stormwater infiltration system and a sustainable nutrient cycle.
  - Once a pesticide is applied, its effectiveness should be evaluated for possible improvement. Records should be kept showing the applicability and inapplicability of the pesticides considered.
  - An annual evaluation procedure should be developed including a review of the effectiveness of pesticide applications, impact on buffers and sensitive areas (including potable wells), public concerns, and recent toxicological information on pesticides used/proposed for use. If individual or public potable wells are located in the proximity of commercial pesticide applications contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.

For more information, contact the WSU Extension Home-Assist Program, (253) 445-4556, or Bio-Integral Resource Center (BIRC), P.O. Box 7414, Berkeley, CA.94707, or the Washington Department of Ecology to obtain “Hazardous Waste Pesticides” (Publication #89-41); and/or EPA to obtain a publication entitled “Suspended, Canceled and Restricted Pesticides” which lists all restricted pesticides and the specific uses that are allowed. Valuable information from these sources may also be available on the internet.

### **Recommended Integrated Pest Management BMP**

Develop and implement an Integrated Pest Management (IPM) program if pests are present. The following steps are adapted from (Daar, 1992).

- **Step One:** Correctly identify problem pests and understand their life cycle.
  - Learn more about the pest.
  - Observe it and pay attention to any damage that may be occurring.
  - Learn about the life cycle.
  - Many pests are only a problem during certain seasons, or can only be treated effectively in certain phases of the life cycle.
- **Step Two:** Establish tolerance thresholds for pests.
  - Decide on the level of infestation that must be exceeded before treatment needs to be considered. Pest populations under this threshold should be monitored but don’t need treatment.
- **Step Three:** Monitor to detect and prevent pest problems.

- Monitor regularly to anticipate and prevent major pest outbreaks.
- Conduct a visual evaluation of the lawn or landscape's condition. Take a few minutes before mowing to walk around and look for problems.
- Keep a notebook, record when and where a problem occurs, then monitor for it at about the same time in future years.
- Specific monitoring techniques can be used in the appropriate season for some potential problem pests, such as European crane fly.
- **Step Four:** Modify the maintenance program to promote healthy plants and discourage pests.
  - Review your landscape maintenance practices to see if they can be modified to prevent or reduce the problem.
  - A healthy landscape is resistant to most pest problems. Lawn aeration and overseeding along with proper mowing height, fertilization, and irrigation will help the grass out-compete weeds.
  - Correcting drainage problems and letting soil dry out between waterings in the summer may reduce the number of crane-fly larvae that survive.
- **Step Five:** If pests exceed the tolerance thresholds:
  - Consider the most effective management options concurrent with reducing impacts to the environment. This may mean chemical pesticides are the best option in some circumstances.
  - Consider the use of physical, mechanical, or biological controls.
  - Study to determine what products are available and choose a product that is the least toxic and has the least non-target impact.
- **Step Six:** Evaluate and record the effectiveness of the control, and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.
  - -Keep records!
  - Note when, where, and what symptoms occurred, or when monitoring revealed a potential pest problem.
  - Note what controls were applied and when, and the effectiveness of the control.
  - Monitor next year for the same problems.

### **Recommended Additional Source Control BMPs**

- Choose the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. The pesticide should readily degrade in the environment and/or have properties that strongly bind it to the soil.
- Choose pesticides categorized by EPA as reduced risk. For example, the herbicide imazamox.
- When possible, apply pesticides during the dry season so that the pesticide residue is degraded prior to the next rain event.

- If possible, do not spray pesticides within 100 feet of water bodies. Spraying pesticides within 100 feet of water bodies including any drainage ditch or channel that leads to open water may have additional regulatory requirements beyond just following the pesticide product label. Additional requirements may include:
  - Obtaining a discharge permit from Ecology.
  - Obtaining a permit from the local jurisdiction.
  - Using an aquatic labeled pesticide and adjuvant.
- Use manual pest control strategies such as physically scraping moss from rooftops, high-pressure sprayers to remove moss, and rodent traps.
- Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.
- Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic nematodes.
- Once a pesticide is applied, evaluate its effectiveness for possible improvement. Records should be kept showing the effectiveness of the pesticides applied.
- Follow the FIFRA label requirements for disposal. If the FIFRA label does not have disposal requirements the rinseate from equipment cleaning and/or triple-rinsing of pesticide containers should be used as product or recycled into product.
- Develop an and adaptive management plan and annual evaluation procedure including: (adapted from (Daar, 1992))
  - A review of the effectiveness of pesticide applications.
  - Impact on buffers and sensitive areas, including potable wells. If individual or public potable wells are located in the proximity of commercial pesticide applications, contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.
  - Public concerns.
  - Recent toxicological information on pesticides used/proposed for use.

### **Additional Information**

For more information, refer to the Pesticide Information Center Online (PICOL) Databases at <https://picol.cahnrs.wsu.edu/>.

Washington pesticide law requires most businesses that commercially apply pesticides to the property of another to be licensed as a Commercial Applicator from the Washington State Department of Agriculture.

## **4.35 BMPs for the Storage of Dry Pesticides and Fertilizers**

### **Description of Pollutant Sources**

Pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment as a result of container leaks and outside storage of pesticide-contaminated materials and equipment. Inappropriate management of pesticides or fertilizers can result in stormwater contamination. Runoff contaminated by pesticides and fertilizers can severely degrade streams and lakes and adversely affect fish and other aquatic life.

### **Pollutant Control Approach:**

Store fertilizer and pesticide properly to prevent stormwater contamination.

### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.35.

## **4.36 BMPs for Nurseries and Greenhouses**

### **Description of Pollutant Sources**

These BMPs are for use by commercial container plant, greenhouse grown, and cut foliage production operations. Common practices at nurseries and greenhouses can cause elevated levels of phosphorus, nitrogen, sediment, bacteria, and organic material which can contribute to the degradation of water quality.

### **Pollutant Control Approach:**

Minimize the pollutants that leave the site by controlling the placement of materials, stabilizing the site, and managing irrigation water.

### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.36.

## **4.37 BMPs for Irrigation**

### **Description of Pollutant Sources**

Irrigation consists of discharges from irrigation water lines, landscape irrigation, and lawn or garden watering. Excessive watering can lead to discharges of chlorinated potable water runoff into drainage systems; it can also cause erosion; and negatively affect plant health. Improper irrigation can encourage pest problems, leach nutrients, and make a lawn completely dependent on artificial watering. Mosquito breeding habitats may form through excessive watering.

### **Pollutant Control Approach:**

Limit the amount and location of watering to prevent runoff and discharges to drainage systems.

### **Recommended Source Control BMPs:**

- Add a tree bag or slow-release watering device (e.g., bucket with a perforated bottom) for watering newly installed trees when irrigation system is not present.
- Water deeply, but infrequently, so that the top 6 to 12 inches of the root zone is moist.
- Use soaker hoses or spot water with a shower type wand when an irrigation system is not present.
  - Pulse water to enhance soil absorption, when feasible.
  - Pre-moisten soil to break surface tension of dry or hydrophobic soils/mulch, followed by several more passes. With this method, each pass increases soil absorption and allows more water to infiltrate prior to runoff.
- Identify trigger mechanisms for drought-stress (e.g., leaf wilt, leaf senescence, etc.) of different species and water immediately after initial signs of stress appear.
- Water during drought conditions or more often if necessary to maintain plant cover.
- Adjust irrigation frequency / intensity as appropriate after plant establishment.
- Annually inspect irrigation systems to ensure:
  - That there are no blockages of sprayer nozzles.
  - Sprayer nozzles are rotating as appropriate.
  - Sprayer systems are still aligned with the plant locations and root zones.
- Consult with the local water utility, Conservation District, or Cooperative Extension office to help determine optimum irrigation practices.

- Do not use chemigation and fertigation in irrigation systems. This will help avoid over application of pesticides and fertilizers.

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## **4.38 BMPs for Temporary Fruit Storage**

### **Description of Pollutant Sources**

This activity applies to businesses that temporarily store fruits and vegetables outdoors prior to or after packing, processing, or sale, or that crush, cut, or shred fruits or vegetables for wines, frozen juices, and other food and beverage products.

Activities involving the storage or processing of fruits, vegetables, and grains can potentially result in the delivery of pollutants to stormwater. Potential pollutants of concern from all fruit and vegetable storage and processing activities include nutrients, suspended solids, substances that increase biological oxygen demand (BOD), and color. These pollutants must not be discharged to the drainage system or directly into receiving waters.

### **Pollutant Control Approach:**

Store and process fruits and vegetables indoors or under cover whenever possible. Educate employees about proper procedures. Cover and contain operations and apply good housekeeping and preventive maintenance practices to prevent the contamination of stormwater.

### **Additional Source Control BMPs**

- Cover outdoor storage areas for fruits and vegetables.
- Use a containment curb, dike, or berm to prevent off-site runoff from storage or processing areas and to prevent stormwater run-on.

## **4.39 BMPs for In-Water and Over-Water Fueling**

### **Description of Pollutant Sources**

BMPs in this section apply to businesses and public agencies that operate a facility used for the transfer of fuels from a stationary pumping station to vehicles or equipment in water. This type of fueling station includes aboveground or underground fuel storage facilities, which may be permanent or temporary. Fueling stations include facilities such as, but not limited to, commercial gasoline stations, port facilities, marinas, private fleet fueling stations, and boatyards.

Typically, stormwater contamination at fueling stations is caused by leaks or spills of fuels, lubrication oils, and fuel additives. These materials contain organic compounds, oil and greases, and metals that can be harmful to humans and aquatic life.

Most fuel dock spills are small and result from overfilling boat fuel tanks, burps from air vent lines, and drips from the pump nozzle as it is being returned to the pump.

### **Pollutant Control Approach:**

Provide employees with proper training and use spill control devices to prevent the discharge of pollutants in the receiving water or the drainage system.

### **Recommended-Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.39.

## **4.40 BMPs for Color Events**

### **Description of Pollutant Sources**

Color events are charity, religious, or commercial events that involve the use of powdered (typically cornstarch based) and/or liquid dyes. Because they typically occur outside, there is a high likelihood of the color material entering drainage systems and surface water unless measures are taken to prevent these illicit discharges from occurring.

“Biodegradable” and “non-toxic” do NOT mean that a substance can go into storm drains or water bodies. The dye material can harm aquatic organisms by altering water quality and chemistry. State and Federal environmental laws require local jurisdictions to prohibit non-stormwater discharges to storm drains. Dye material and any wash water are prohibited discharges.

### **Pollutant Control Approach:**

Plan for the event. Control the application areas for the powder or liquid dyes. Block off storm drain inlets prior to the event. Clean up the areas immediately after the event.

### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.40

## **4.41 BMPs for Construction Demolition**

### **Description of Pollutant Sources**

This activity applies to removal of existing buildings and other structures by controlled explosions, wrecking balls, or manual methods, and subsequent clearing of the rubble. The loose debris may contaminate stormwater.

Pollutants of concern include toxic organic compounds, hazardous wastes, high pH, heavy metals, and suspended solids.

### **Pollutant Control Approach**

Do not expose hazardous materials to stormwater. Regularly clean up debris that can contaminate stormwater. Protect the drainage system from dirty runoff and loose particles. Sweep paved surfaces daily. Educate employees about the need to control site activities.

### **Suggested Source Control BMPs**

Construct a screen to prevent stray building materials and dust from escaping the area during demolition. Size and orient the screen to capture wind-blown materials and contain them onsite.

Schedule demolition to take place at a dry time of the year to prevent stormwater runoff from the demolition site.

## **4.42 BMPs for Pet Waste**

### **Description of Pollutant Sources**

Pets and pet-care can generate pollutants from waste, animal washing, and cage or kennel cleaning. Pet waste that washes into lakes, streams or Puget Sound begins to decay, using up oxygen and releasing ammonia. Low oxygen levels and ammonia combined with warm water can kill fish. Pet waste also contains nutrients that encourage weed and algae growth, and contribute to low oxygen and high pH in waters we use for swimming, boating and fishing. Most importantly, pet waste can carry viruses and bacteria that could cause disease and lead to beach or shellfish harvesting closures.

### **Pollutant Control Approach:**

Use a plastic bag or pooper scooper to clean up after pets. Properly dispose of pet waste.

### **Recommended Source Control BMPs for Pet Owners**

- Regularly pick up and dispose of pet waste deposited on walks and at home.
- Put pet waste in a securely closed bag and deposit it in the trash. Do not place pet waste in yard waste containers because pet waste may carry diseases, and composting may not kill disease-causing organisms.
- Do not compost or use pet waste as fertilizer. Harmful bacteria, worms, and parasites that can transmit disease can live in the soil for years even after the solid portion of the pet waste has dissolved.
- Do not dispose of unused pet pharmaceuticals in a storm drain, in a toilet, or down a sink. Check with your local refuse collector for proper disposal locations of pet medications.
- When cleaning out cages and kennels, dispose of wash water down the toilet or a mop sink. Otherwise, wash directly over lawn areas or make sure the wash water drains to a vegetated area.
- Bathe pets indoors or in a manner that wash water won't be discharged to storm drains, ditches, or waterbodies.

### **Recommended Source Control BMPs for Recreation Areas and Multi-Family Properties**

- Post signs at recreation areas and multi-family properties (that allow pets) reminding residents and visitors to pick up after their pets.
- Carefully consider the placement of pet waste stations at recreation sites and near multi-family properties that allow pets. Choose locations convenient for dog walkers to pick up a bag at the start of their walk and locations for them to dispose of it at mid-walk or at the end of their walk.
- Check pet waste stations on a regular basis to keep pet waste bags stocked and disposal stations empty. Consider signage to keep regular trash out of pet waste disposal stations to avoid filling them too quickly. Make sure pet waste disposal stations have a cover to keep out water.

- At multi-family properties with roof-top dog runs, ensure that stormwater from the dog run is not discharged to the stormwater system. Check with the local jurisdiction regarding roof-top dog run connections to sanitary sewer.

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**Figure 4.6 – Example of a Pet Waste Station**

**Figure IV-7.5: Example of a Pet Waste Station**



**Example of a Pet Waste Station**

Revised May 2019

#### **4.43 BMPs for Labeling Storm Drain Inlets on Your Property**

##### **Description of Pollutant Sources:**

Waste materials dumped into storm drain inlets can have severe impacts on receiving waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

##### **Pollutant Control Approach:**

The stencil, affixed sign, or metal grate contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

##### **Additional Optional Source Control BMPs:**

Use a stencil in addition to a storm drain marker or grate to increase visibility of the message.

Reference for this BMP: (CASQA, 2003)

**Figure IV-7.6: Storm Drain Inlet Labels**

**Figure 4.7 – Storm Drain Inlet Labels**

	
	
 <p>DEPARTMENT OF <b>ECOLOGY</b> State of Washington</p>	<p style="text-align: center;"><b>Storm Drain Inlet Labels</b></p> <p style="text-align: right;">Revised October 2017</p> <p>Please see <a href="http://www.ecy.wa.gov/copyright.html">http://www.ecy.wa.gov/copyright.html</a> for copyright notice including permissions, limitation of liability, and disclaimer.</p>

## **4.44 BMPs for Fertilizer Application**

### **Description of Pollutant Sources**

Poor application of fertilizers can cause appreciable stormwater contamination. Fertilizers can leach phosphorous, nitrogen, and coliform bacteria. Fertilizers can contribute to algae blooms, increase nutrient concentrations, and deplete oxygen in receiving waters.

### **Pollutant Control Approach:**

Minimize the amount of fertilizer necessary to maintain vegetation. Control the application of fertilizer to prevent the discharge of stormwater pollution.

### **Recommended ~~Source control BMP~~ Source Control BMPs:**

Test soils to determine the correct fertilizer application rates.

- Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization.
- Fertilization needs vary by site depending on plant, soil, and climatic conditions.
- Choose organic fertilizers when possible.
- For details on soils testing, contact the [Snohomish local Conservation District](#), a soils testing professional, or a Washington State University Extension office.

## **4.45 BMPs for Well, Utility, Directional and Geotechnical Drilling**

### **Description of Pollutant Sources**

This activity applies to drilling water wells and utilities, environmental protection and monitoring wells, and geotechnical borings that use machinery in the drilling. It does not apply to the use of devices such as hand augers, or for large structural drilling such as drilled shafts.

Drilling activities can expose soil and contaminated soil. These activities may cause the discharge of stormwater contaminated with sediments and other contaminants. This risk increases when drilling in areas with contaminated soils.

### **Pollutant Control Approach:**

Reduce sediment runoff from drilling operations.

### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.45.

#### **4.46 BMPs for Roof Vents**

##### **Description of Pollutant Sources**

This activity applies to processes that vent emissions to the roof and/or the accumulation of pollutants on roofs. Processes of special concern are stone cutting, metal grinding, spray painting, paint stripping, galvanizing and electroplating. Pollutants from these processes may build up on roofs and may pollute stormwater roof runoff.

##### **Pollutant Control Approach:**

Evaluate the potential sources of stormwater pollutants and apply source control BMPs where feasible.

##### **Recommended Source Control BMPs:**

All source control BMPs for this activity/land use are required and found in section 3.46.

## **4.47 BMPs for Building, Repair, Remodeling, Painting, and Construction**

### **Description of Pollutant Sources**

This activity refers to:

- The construction of buildings and other structures.
- Remodeling of existing buildings and houses.
- General exterior building repair work.

Pollutants of concern include toxic hydrocarbons, hazardous wastes, toxic organics, suspended solids, heavy metals, pH, oils, and greases.

### **Pollutant Control Approach:**

Educate employees about the need to control site activities. Control leaks, spills, and loose material. Utilize good housekeeping practices. Regularly clean up debris that can contaminate stormwater. Protect the drainage system from dirty runoff and loose particles.

### **Suggested Source Control BMPs:**

- Lightly spray water on the work site to control dust and grit that could blow away. Do not use oils for dust control. Never spray to the point of water runoff from the site.
- Clean tools over a ground cloth or within a containment device such as a tub.
- Consider using filtered vacuuming to collect waste that may be hard to sweep, such as dust on a drop cloth.
- If conducting work in wet weather conditions, consider setting up temporary cover when scraping or pressure-washing lead-based paint.

## **4.48 BMPs for Goose Waste**

### **Description of Pollutant Sources**

Goose waste deposited near water or in water can contribute nutrients and algae growth. Goose feces may contain pathogens and contribute to the spread of diseases. Swimmers itch (schistosome or cercarial dermatitis) is caused by a parasite that can be spread by goose droppings, but does not mature or reproduce in humans.

### **Pollutant Control Approach:**

To help decrease geese pollution to water sources, remove waste periodically and use deterrent management practices.

### **AdditionalOptional Source Control BMPs:**

- Change the habitat from goose friendly to goose resistant. Reduce lawn areas and increase the height of shoreline vegetation (tall grass, shrubs); as geese are reluctant to walk through tall vegetation.
- Create a natural geese barrier. 20 to 100 feet of herbaceous vegetation at least 3 feet in height to discourage geese. A narrow, winding path through the plantings will allow for beach access, while preventing geese from having a direct line of sight through the planted area.
- Make bank slopes steeper than 4:1 to discourage geese by preventing a clear view of the bank top and potential predators. Or, separate the beach from the grass with a few steep steps, which makes the ascent too difficult for most geese.
- Narrow ponds to limit takeoff and landing opportunities.
- Where space is limited use one or two rows of shrub plantings combined with a fence. Fences can be made from woven wire, poultry netting, plastic netting, plastic snow fencing, monofilament line, or electrified wire. Fences should be at least 24 inches tall (3 feet may be better), firmly constructed, and installed to prevent the geese from walking around the ends. Lower openings should be no larger than 4 inches from the ground to prevent goslings from walking under or through the fence.
- Construct a grid of wire or line above the water's surface to prevent geese from flying into a pond that they have been accustomed to using. The grid should be one to two feet above the water surface, but may be taller if humans need access to the area under the grid. There should be no more than five feet of space between grid lines. To prevent geese from walking under the grid install a perimeter fence. Regularly monitor the grid for holes, trapped wildlife, and sagging.

- Canada geese are protected under federal and state law and a hunting license and open season are required to hunt them. Where lethal control of Canada geese is necessary outside of hunting seasons, it should be carried out only after the above nonlethal control techniques have proven unsuccessful and only under permits issued by the U.S. Fish and Wildlife Service. Currently, the only agency permitted for lethal removal is the U.S. Department of Agriculture's Wildlife Services. Lethal control techniques include legal hunting, shooting out of season by permit, egg destruction by permit, and euthanasia of adults by government officials.
- Scare geese away when they are around. Geese often learn quickly to ignore scare devices that are not a real physical danger. Vary the use, timing, and location of tactics. Take advantage of geese being fearful of new objects. Examples of harassment and scare tactics:
  - **Dog patrols:** When directed by a handler, dogs are the method of choice for large open areas. Results are often immediate. After an aggressive initial use (several times a day for one or two weeks), geese get tired of being harassed and will use adjacent areas instead. A dog can be tethered to a long lead (which may require relocating the dog and tether frequently to cover more area), be allowed to chase and retrieve a decoy thrown over a large flock of geese, or be periodically released to chase the birds (if this is not against leash laws).
  - **Eyespot Balloons:** Large, helium-filled balloons with large eye-like images. Tether balloons on a 20- to 40-foot monofilament line attached to a stake or heavy object. Locate balloons where they will not tangle with trees or utility lines.
  - **Flags and Streamers:** Simple flags from plastic mounted on tall poles or mylar tape to make 6-foot streamers attached to the top of 8-foot-long poles. Flags and streamers work best in areas where there is steady wind.
  - **Scarecrows:** Effective in areas where geese view humans as dangerous predators. For maximum effect, the arms and legs should move in the wind, use bright colors, and large eyes. Large, blow-up toy snakes are reported to work as a type of scarecrow.
  - **Noisemakers:** Devices that make a loud bang such as propane cannons, blanks, and whistle bombs can scare geese. Making the noise as soon as geese arrive and persistence are the keys to success when using these devices. Consult noise ordinances and other permitting authorities (such as the local police department) before using.
  - **Lasers:** Relatively low-power, long-wavelength lasers provide an effective means of dispersing geese under low light conditions. The birds view the light as a physical object or predator coming toward them and generally fly away to escape. Never aim lasers in the direction of people, roads, or aircraft.
- Geese's favorite food is new shoots of grass. Low lying grass also allows easy access to the water for protection from predators. Let grass grow to six inches or taller. Stop fertilizing and watering the lawn to reduce the palatability of the lawn.
- Minimize open sight lines for geese to less than 30 feet.
- Plant shrubs or trees along ponds to limit takeoff and landing opportunities.

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Refer to: [http://www.humanesociety.org/assets/pdfs/wild\\_neighbors/canada\\_goose\\_guide.pdf](http://www.humanesociety.org/assets/pdfs/wild_neighbors/canada_goose_guide.pdf)  
and <https://wdfw.wa.gov/species-habitats/species/branta-canadensis> for additional information.

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#### **4.4930 BMPs for Privately-Owned Roads and Streets**

##### **Description of Pollutant Sources**

The paved surface of roads and streets can be the source of vegetative debris, paper, fine dust, vehicle liquids, tire and brake wear residues, heavy metals (lead and zinc), soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products. Street surface contaminants contain significant concentrations of particle sizes less than 250 microns.

##### **Pollutant Control Approach**

Sweep streets to minimize the contamination of stormwater.

##### **Recommended BMPs**

- Sweep streets with high-efficiency vacuum sweepers, regenerative air sweepers, or mechanical sweepers.
- Disposal of street sweeping solids must comply with all applicable federal, state, and local regulations for solid waste disposal.

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## **Chapter 5 - Source Control BMPs Required ~~f~~For New Development and Redevelopment**

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This chapter sets forth source control BMPs required by SCC Chapter 30.63A - Drainage, for new development or redevelopment involving specified land uses.

Chapter 5.1 lists BMPs required if the associated activities are anticipated at new development or redevelopment of the following types of facilities: airport, asphalt batch plant, auto repair shop, auto towing facility, auto wrecking yard, commercial boat launch, composting facility, construction contracting yard, distillation facility, manufacturing facility, rendering facility, fabrication shop, farm stand, farmers market, fish farm, forge or foundry, fueling station, fuel yard, greenhouse, plant nursery, waste storage or transfer facility, home improvement center, junkyard, laboratory, livestock auction yard, lumberyard, mortuary, motor vehicle or equipment sales facility, motor vehicle and equipment repair facility, petroleum product storage or refining facility, print shop or plant, race track, railroad yard, restaurant, mill, landfill, service station, stables, stockyard, slaughterhouse, livestock feed storage or retail sale facility, tannery, tavern, tire store, tool sales or rental shop, transit center, ultralight airpark, utility facility, veterinary clinic, warehouse, wood treatment facility, yacht or boat club, power generating facility, equestrian center, log scaling facility, metal working facility, resort, or home occupation.

In addition, new development or redevelopment for boatyards, fueling stations, vehicle recycling facilities, motor vehicle and equipment repair facilities, and wood treatment facilities must implement the BMPs set forth for each of these types of facilities in Chapter 5.2.

In all cases, appropriate sensitive area restrictions, spill response requirements, pollution prevention requirements, and source control standards will apply.

## 5.1 BMPs Required for Development Or Redevelopment At Commercial Or Industrial Facilities

### 5.1.1 BMPs for Loading and Unloading Areas for Liquid or Solid Material

#### Description of Pollutant Sources

Loading/unloading of liquid and solid materials at industrial and commercial facilities are typically conducted at shipping and receiving, outside storage, fueling areas, etc. Materials transferred can include products, raw materials, intermediate products, waste materials, fuels, scrap metals, etc. Leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc. during transfer are potential causes of stormwater contamination. Spills from hydraulic line breaks are a common problem at loading docks.

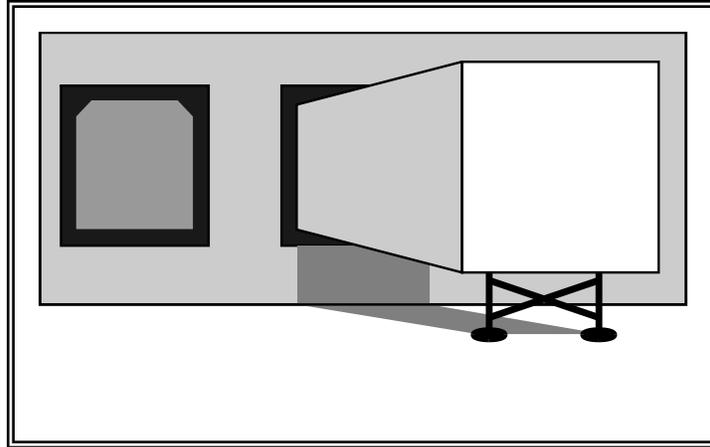
#### **Source Control BMPs** required for new development and redevelopment

##### At All Loading/ Unloading Areas

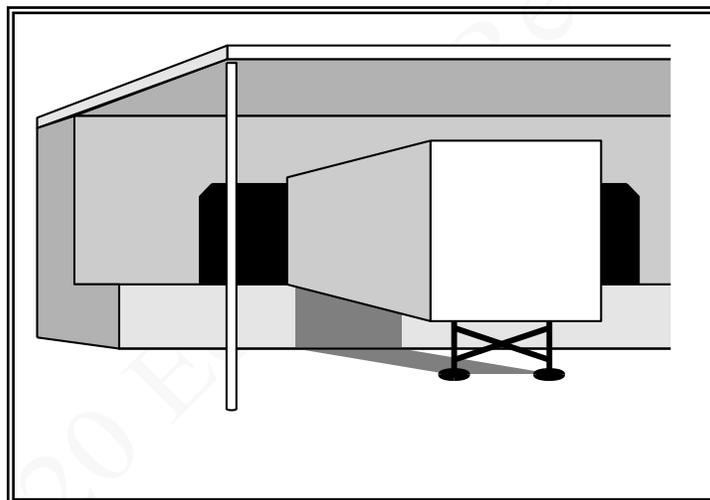
- To the extent practicable, conduct unloading or loading of solids and liquids in a manufacturing building, under a roof, or lean-to, or other appropriate cover.
- Berm, dike, and/or slope the loading/unloading area to prevent run-on of stormwater and to prevent the runoff or loss of any spilled material from the area.
- Place curbs along the edge of loading/unloading areas adjacent to surface water bodies, or slope the edge of the loading area such that the stormwater can flow to an internal storm drain system that leads to an approved treatment BMP.
- Pave and slope loading/unloading areas to prevent the pooling of water. The use of catch basins and drain lines within the interior of the paved area must be minimized as they will frequently be covered by material, or they should be placed in designated “alleyways” that are not covered by material, containers or equipment.
- For the transfer of pollutant liquids in areas that cannot contain a catastrophic spill, install an automatic shutoff system in case of unanticipated off-loading interruption (e.g. coupling break, hose rupture, overfill, etc.).
- Provide signage clearly designating loading and unloading areas.

##### At Loading and Unloading Docks

- Prevent the discharge of polluted stormwater by using one or more of the following measures: of building structural BMPs (such as dock seals or door skirts), berms, pavement slope, or diversion of contained stormwater to a sanitary sewer.
- Design the loading/unloading area with berms, sloping, etc. to prevent the run-on of stormwater.



**Figure 4.68** – Loading Dock with Door Skirt



**Figure 4.79** – Loading Dock with Overhang

At Tanker Truck Transfer Areas to Above/Below-Ground Storage Tanks

- Pave the area on which the transfer takes place. If any transferred liquid, such as gasoline, is reactive with asphalt pave the area with Portland cement concrete.
- Slope, berm, or dike the transfer area to a dead-end sump, spill containment sump, a spill control (SC) oil/water separator, or other spill control device. The volume of the spill containment sump should be a minimum of 50 gallons with an adequate grit sedimentation volume.

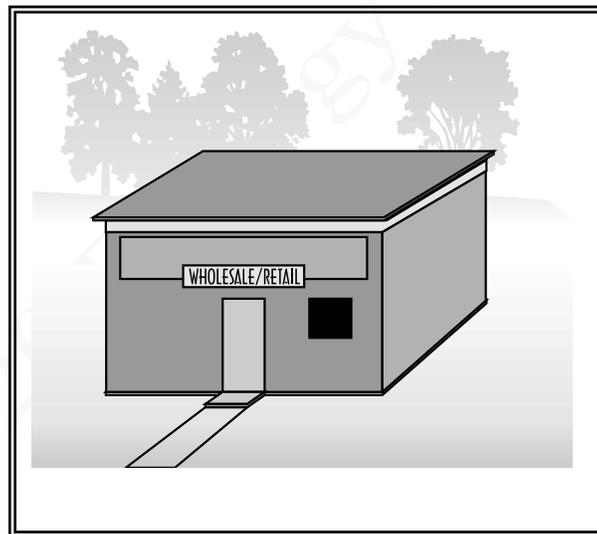
## 5.1.2 BMPs for Manufacturing Activities Conducted Outside

### Description of Pollutant Sources

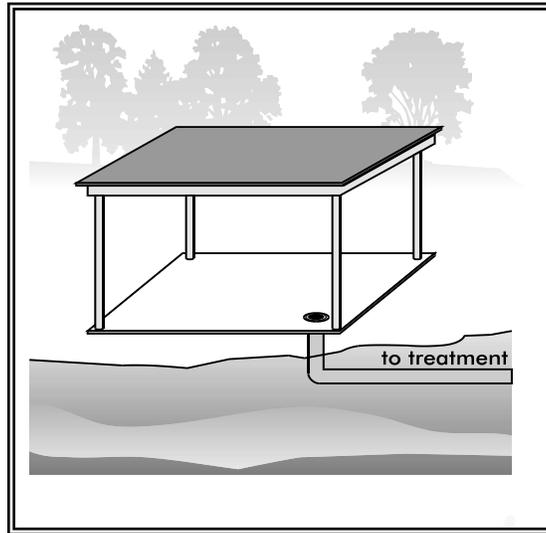
Manufacturing pollutant sources include outside process areas, stack emissions, and areas where manufacturing activity has taken place in the past and significant pollutant materials remain and are exposed to stormwater.

### Source Control BMPs required for new development and redevelopment

- Alter the activity by eliminating or minimizing the contamination of stormwater.
- Enclose the activity (see Figure 4.810): If possible, enclose the manufacturing activity in a building.
- Cover the activity and connect floor drains to a sanitary sewer or other treatment system approved by the Department of Ecology. Berm or slope the floor as needed to prevent drainage of pollutants to outside areas. (Figure 4.911)
- Isolate and segregate pollutants as feasible. Convey the segregated pollutants to a sanitary sewer, process treatment or a dead-end sump depending on available methods and applicable permit requirements.



**Figure 4.810 – Enclose the Activity**



**Figure 4.911 – Cover the Activity**

### **5.1.3 BMPs for Parking and Storage of Vehicles and Equipment**

#### **Description of Pollutant Sources**

Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways, can be sources of toxic hydrocarbons and other organic compounds, oils and greases, metals, and suspended solids caused by the parked vehicles.

#### **Treatment BMPs required for new development and redevelopment**

Treatment requirements are set forth in Chapter 30.63A SCC and Volume V of this manual.

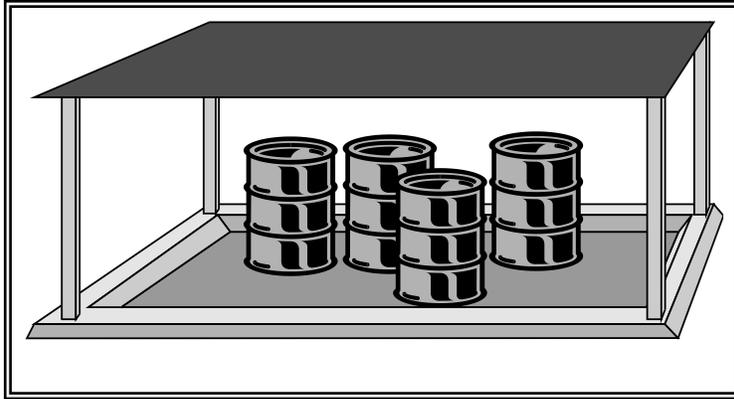
## 5.1.4 BMPs for Storing Containers of Liquids, Food Waste, or Dangerous Waste

### Description of Pollutant Sources

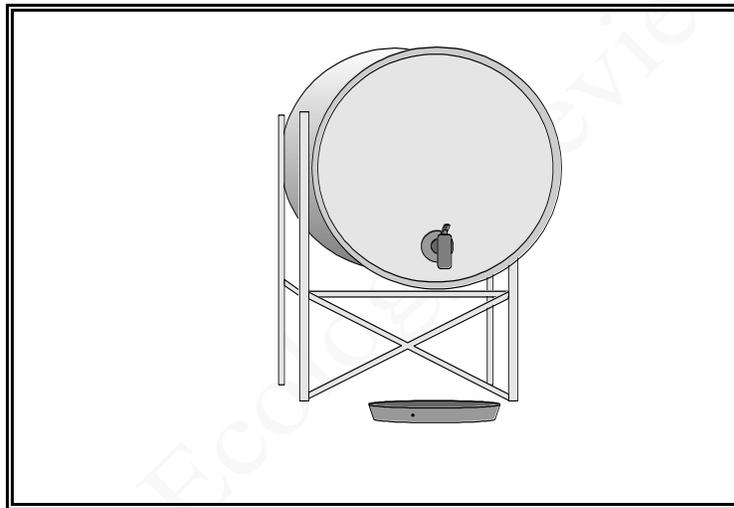
Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building used for temporary storage of accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock or cleaning chemical, or Dangerous Wastes (liquid or solid) unless the business is permitted by Ecology to store the wastes. Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid/alkali pH, BOD, COD are potential pollutant constituents.

### ~~Source control BMPs~~ Source Control BMPs required for new development and redevelopment

- Store containers in impervious containment under a roof or other appropriate cover, or in a building. For roll-containers (for example, dumpsters) that are picked up directly by the collection truck, a fillet can be placed on both sides of the curb to facilitate moving the dumpster.
- Keep containers with Dangerous Waste, food waste, or other potential pollutant liquids inside a building unless this is impracticable due to site constraints or other regulations.
- Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks and spills (see Figure 4.1~~02~~). The secondary containment shall be sloped to drain into a dead-end sump for the collection of leaks and small spills.
- For liquid wastes, surround the containers with a dike as illustrated in Figure 4.3 – Secondary Containment System (in Chapter 3). The containment volume of the diked area shall be equal to 0.1 times the enclosed volume of all containers stored within the diked area, or 1.1 times the volume of the largest container stored within the diked area, or the volume required by IFC requirements, whichever is greater.
- Provide signage clearly designating storage area and listing the maximum container volume to be stored in the area (based on diked area containment volume).
- Where material is temporarily stored in drums, use a containment system as illustrated, in lieu of the above system (see Figure 4.3, in Chapter 3).
- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer (see Figure 4.1~~13~~).



**Figure 4.102** – Covered and Bermed Containment Area



**Figure 4.113** – Mounted Container with Drip Pan

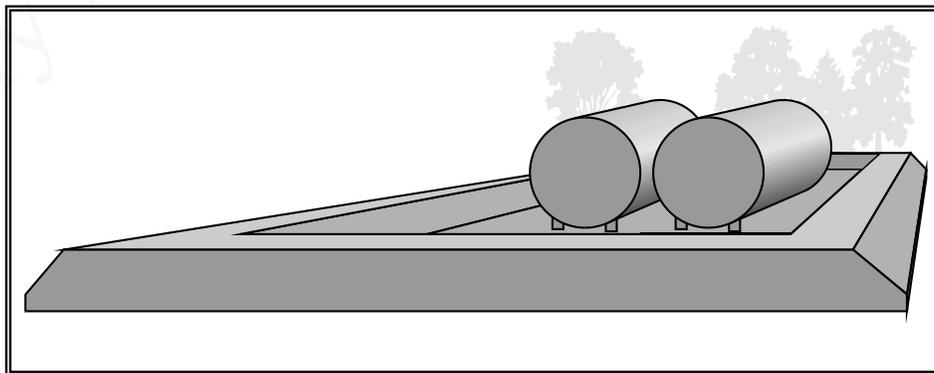
## 5.1.5 BMPs for Storing Liquids in Permanent Above-ground Tanks

### Description of Pollutant Sources

Above-ground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. They may be heated with steam heat exchangers equipped with steam traps. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

### **Source Control BMP** Source Control BMPs required for new development and redevelopment

- Install secondary containment or a double walled tank.
- Slope any containment area to a drain with a sump.
- Stormwater collected in the containment area will need to be discharged to treatment such as an API or CP oil/water separator, or equivalent BMP.
- Add safeguards against accidental releases including protective guards around tanks to protect against vehicle or forklift damage, and tagging valves to reduce human error. Tank water and condensate discharges are process wastewater that may need an NPDES Permit.
- Locate permanent tanks in impervious (Portland cement concrete or equivalent) secondary containment surrounded by dikes as illustrated in Figure 4.124, or UL Approved double-walled. The containment volume of the diked area shall be equal to 0.1 times the enclosed volume of all containers stored within the diked area, or 1.1 times the volume of the largest container stored within the diked area, or the volume required by IFC requirements, whichever is greater.
- Slope the secondary containment to drain to a dead-end sump (optional), or equivalent, for the collection of small spills.
- Include a tank overfill protection system to minimize the risk of spillage during loading.
- Provide signage clearly designating storage area and listing the maximum container volume to be stored in the area (based on diked area containment volume).



**Figure 4.124** – Above-ground Tank Storage

## 5.1.6 BMPs for Outside Storage or Transfer of Solid Raw Materials, Byproducts, or Finished Products

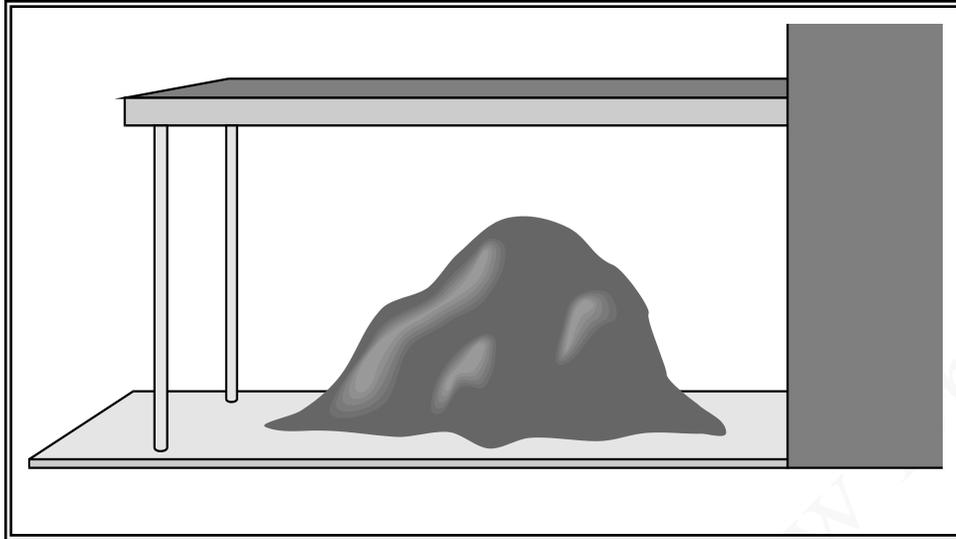
### Description of Pollutant Sources

Solid raw materials, by-products, or products such as gravel, sand, salts, topsoil, compost, logs, sawdust, wood chips, lumber and other building materials, concrete, and metal products sometimes are typically stored outside in large piles, stacks, etc. at commercial or industrial establishments. Contact of outside bulk materials with stormwater can cause leachate, and erosion of the stored materials. Contaminants include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc.).

### Source Control BMPs required for new development and redevelopment

Choose one or more of the source control BMP options listed below for stockpiles greater than 5 cubic yards of erodible or water soluble materials such as soil, road deicing salts, compost, unwashed sand and gravel, sawdust, etc. Also included are outside storage areas for solid materials such as logs, bark, lumber, metal products, etc.

- Store in a building or paved and bermed covered area as shown in Figure 4.135, or;
- Pave the area and install a stormwater drainage system. Place curbs or berms along the perimeter of the area to prevent the run-on of uncontaminated stormwater and to collect and convey runoff to treatment. Slope the paved area in a manner that minimizes the contact between stormwater (e.g., pooling) and leachable materials in compost, logs, bark, wood chips, etc.
- For large stockpiles that cannot be covered, implement containment practices at the perimeter of the site and at any catch basins as needed to prevent erosion and discharge of the stockpiled material offsite or to a storm drain. Ensure that contaminated stormwater is not discharged directly to catch basins without conveying through a treatment BMP.
- Provide signage clearly designating storage area and listing the maximum container volume to be stored in the area (based on diked area containment volume).



**Figure 4.135 – Covered Storage Area for Bulk Solids (include berm if needed)**

## 5.1.7 BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures

### Description of Pollutant Sources

**Discharge of wash water or other wastewater to the storm sewer system is prohibited by federal law and Snohomish County code.** Vehicles, aircraft, vessels, and transportation, restaurant cooking, carpet cleaning, and industrial equipment, and large buildings may be commercially cleaned with low or high pressure water or steam. This includes frequent “charity” car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

### ~~Source-control BMP~~ **Source Control BMPs** required for new development and redevelopment

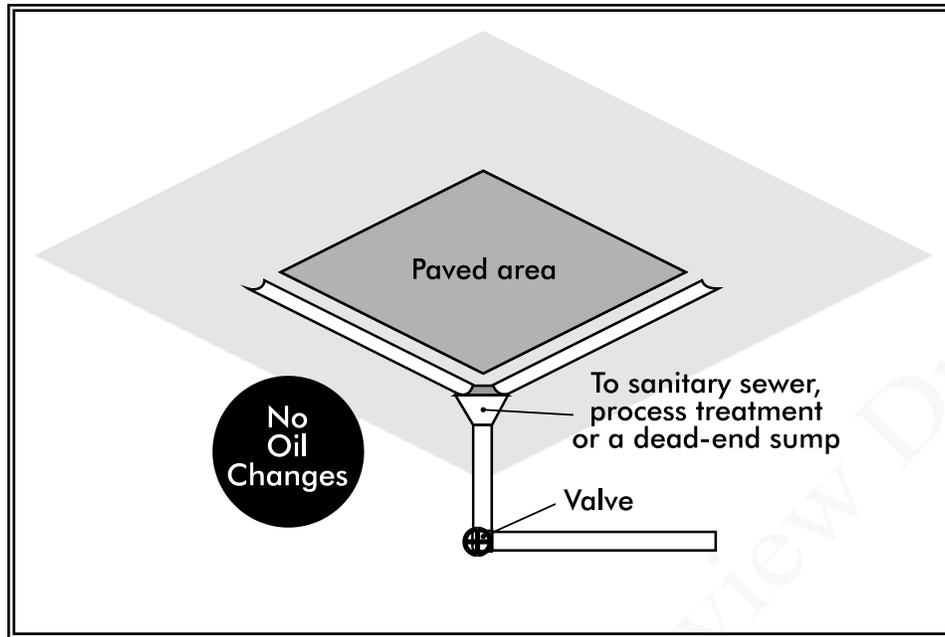
Conduct vehicle / equipment washing in one of the following locations:

- At a commercial washing facility in which the washing occurs in an enclosure and drains to the sanitary sewer, or
- In a building constructed specifically for washing of vehicles and equipment, which drains to a sanitary sewer.

Conduct outside washing operation in a designated wash area with the following features:

- In a paved area, constructed as a spill containment pad to prevent the run-on of stormwater from adjacent areas. Slope the spill containment area so that washwater is collected in a containment pad drain system with perimeter drains, trench drains or catchment drains. Size the containment pad to extend out a minimum of four feet on all sides of the vehicles and/or equipment being washed.
- Convey the washwater to a sump (like a grit separator) and then to a sanitary sewer (if allowed by the local Sewer Authority), or other appropriate wastewater treatment or recycle system. An NPDES permit may be required for any washwater discharge to a storm drain or receiving water after treatment. Contact the Ecology regional office for NPDES Permit requirements.
- The containment sump must have a positive control outlet valve for spill control with live containment volume, and oil/water separation. Size the minimum live storage volume to contain the maximum expected daily washwater flow plus the sludge storage volume below the outlet pipe.
- Close the inlet valve in the discharge pipe when washing is not occurring, thereby preventing the entry of uncontaminated stormwater into the pretreatment/ treatment system. The stormwater can then drain into the conveyance/discharge system outside of the wash pad (essentially bypasses the washwater treatment/conveyance system). Post signs to inform people of the operation and purpose of the valve. Clean the concrete pad thoroughly until there is no foam or visible sheen in the washwater prior to closing the inlet valve and allowing uncontaminated stormwater to overflow and drain off the pad. (See Figure 4.146)

- Mark the wash area at gas stations, multi-family residences and any other business where non-employees wash vehicles. At gas stations, the wash area must be located away from pump pads.
- For uncovered wash pads, the positive control outlet valve may be manually operated, but a pneumatic or electric valve system is preferable. The valve may be on a timer circuit where it is opened upon completion of a wash cycle. The timer would then close the valve after the sump or separator is drained (Figure 4.164). Post signs with instructions for proper operation of the stormwater discharge valves.
- Collect the washwater from building structures and convey it to a sanitary sewer system or other wastewater treatment system approved by Ecology. If the washwater does not contain oils, soaps, or detergents then it could drain to soils that have sufficient natural attenuation capacity for dust and sediment.
- A washing practices operations manual shall be developed for the site and implemented as part of the source control code requirements for the site. At a minimum, the manual shall contain the following requirements:
  1. The positive control outlet valve for spill control will be shut during the washing cycle to collect the washwater in the sump. The valve should remain shut for at least two hours following the washing operation to allow the oil and solids to separate before discharge to a sanitary sewer. (See Ecology Publication WQ-95-056)
  2. The inlet valve in the discharge pipe should be closed when washing is not occurring, thereby preventing the entry of uncontaminated stormwater into the pretreatment/treatment system. The stormwater can then drain into the conveyance/discharge system outside of the wash pad (essentially bypasses the washwater treatment/conveyance system). Post signs to inform people of the operation and purpose of the valve. Clean the concrete pad thoroughly until there is no foam or visible sheen in the washwater prior to closing the inlet valve and allowing uncontaminated stormwater to overflow and drain off the pad. (See Figure 4.164)
  3. Use phosphate-free biodegradable detergents when practicable. Because soluble/emulsifiable detergents can be used in the wash medium, the selection of soaps and detergents and treatment BMPs should be considered carefully. Oil/water separators are ineffective in removing emulsified or water soluble detergents.



**Figure 4.164 – Uncovered Wash Area**

### Exceptions

- At gas stations (for charity car washes) or commercial parking lots, where it is not possible to discharge the washwater to a sanitary sewer, a temporary plug or a temporary sump pump can be used at the storm drain to collect the washwater for off-site disposal such as to a nearby sanitary sewer.
- New and used car dealerships may wash vehicles in the parking stalls as long as a temporary plug system is used to collect the washwater for disposal as stated above, or an approved treatment system for the washwater is in place.

At industrial sites contact the local Ecology Regional Office for NPDES Permit requirements even if soaps, detergents, and/or other chemical cleaners are not used in washing trucks.

## **5.1.835 BMPs for the Storage of Dry Pesticides and Fertilizers**

### **Description of Pollutant Sources**

Pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment as a result of container leaks and outside storage of pesticide-contaminated materials and equipment. Inappropriate management of pesticides or fertilizers can result in stormwater contamination. Runoff contaminated by pesticides and fertilizers can severely degrade streams and lakes and adversely affect fish and other aquatic life.

### **Pollutant Control Approach:**

Store fertilizer and pesticide properly to prevent stormwater contamination.

### **Structural Source control BMPs Source Control BMPs required for new development and redevelopment**

- Store pesticides and fertilizers in enclosed impervious containment areas that prevent precipitation or unauthorized personnel from coming into contact with the materials.

## **5.1.936 BMPs for Nurseries and Greenhouses**

### **Description of Pollutant Sources**

These BMPs are for use by commercial container plant, greenhouse grown, and cut foliage production operations. Common practices at nurseries and greenhouses can cause elevated levels of phosphorus, nitrogen, sediment, bacteria, and organic material which can contribute to the degradation of water quality.

### **Pollutant Control Approach:**

Minimize the pollutants that leave the site by controlling the placement of materials, stabilizing the site, and managing irrigation water.

### **Structural Source control BMPs Source Control BMPs required for new development and redevelopment**

- Use windbreaks or other means (e.g. pot in pot) to minimize plant blowover. (FDACS, 2014)
- Cover potting areas with a permanent structure to minimize movement of loose soil. Use a temporary structure if a permanent structure is not feasible. (Haver, 2014)
- Control runoff from central potting locations that have a watering station used to irrigate plants immediately after potting. Either:
  - Collect runoff in a small basin and reuse the runoff.
  - Or, route runoff through an onsite vegetative treatment area.
  - Or, use a graveled area and allow runoff to infiltrate.
- Surround soil storage and compost storage areas with a berm or wattles.
- Utilize a synthetic (geotextile) groundcover material to stabilize disturbed areas and prevent erosion in areas where vegetative cover is not an option. (FDACS, 2014)
- In areas with a large amount of foot traffic, use appropriate aggregate such as rock and gravel for stabilization. (FDACS, 2014)
- Store potting substrate that contains fertilizer in a dedicated area with an impermeable base. If the storage area is not under a roof to protect it from rainfall, manage runoff by directing it to a stormwater treatment area. (FDACS, 2014)

## **5.1.10 BMPs for Temporary Fruit Storage**

### **Description of Pollutant Sources**

This activity applies to businesses that temporarily store fruits and vegetables outdoors prior to or after packing, processing, or sale, or that crush, cut, or shred fruits or vegetables for wines, frozen juices, and other food and beverage products.

Activities involving the storage or processing of fruits, vegetables, and grains can potentially result in the delivery of pollutants to stormwater. Potential pollutants of concern from all fruit and vegetable storage and processing activities include nutrients, suspended solids, substances that increase biological oxygen demand (BOD), and color. These pollutants must not be discharged to the drainage system or directly into receiving waters.

### **Structural Source control BMPs required for new development and redevelopment**

Enclose the processing area in a building or shed, or cover the area with provisions for stormwater run-on prevention. Alternatively, pave and slope the area to drain to the sanitary sewer, holding tank, or process treatment system collection drain.

## 5.2 BMPs for Specific Commercial or Industrial Facilities

### 5.2.1 BMPs for the Building, Repair, and Maintenance of Boats and Ships

**NOTE:** All boatyards in Washington State with haul out facilities are required to be covered under the NPDES General Permit for Boatyard Activities. All shipyards in Washington State with haul out facilities such as drydocks, graving docks, marine railways or synchrolifts are required to be covered under an individual NPDES Permit. Any facility conducting boatyard or shipyard activities strictly from dockside, with no vessel haul out, must be covered by the NPDES Industrial Stormwater General ~~Stormwater~~ Permit for Industrial Activities. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit shall constitute compliance with that code chapter.

#### Description of Pollutant Sources

Sources of pollutants at boat and shipbuilding, repair, and maintenance at boatyards, shipyards, ports, and marinas include pressure washing, surface preparation, paint removal, sanding, painting, engine maintenance and repairs, and material handling and storage, if conducted outdoors. Potential pollutants 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 TSS, oil and grease, organics, copper, lead, tin, and zinc.

#### ~~Source control BMPs~~ Source Control BMPs required for new development and redevelopment:

- All structural BMPs required by the NPDES General Permit for Boatyard Activities must be constructed.
- Construct fixed platforms with appropriate plastic or tarpaulin barriers as work surfaces and for containment when work is performed on a vessel in the water to prevent blast material or paint overspray from contacting stormwater or the receiving water.
- Construct enclosed areas for blasting and sanding activities.
- Construct a collection system for deck drainage.

## 5.2.2 BMPs for Commercial Composting

### Description of Pollutant Sources

Commercial compost facilities, operating outside without cover, require large areas to decompose wastes and other feedstocks. These facilities should be designed to separate stormwater from leachate (i.e., industrial wastewater) to the greatest extent possible. When stormwater is allowed to contact any active composting areas, including waste receiving and processing areas, it becomes leachate. Pollutants in leachate include nutrients, biochemical oxygen demand (BOD), organics, coliform bacteria, acidic pH, color, and suspended solids. Stormwater at a compost facility consists of runoff from areas at the facility that are not associated with active processing and curing, such as product storage areas, vehicle maintenance areas, and access roads.

**NOTE: Leachate is a wastewater and is considered a prohibited discharge under Chapter 7.53 SCC.** Discharge of leachate from a compost facility will require a State Waste Discharge Permit or NPDES permit from Ecology, depending on the disposal method chosen for managing leachate at the facility (See Chapter 2 in “Compost Facility Resource Handbook, Guidance for Washington State”, November 1998, Publication # 97-502.) An additional alternative, zero discharge, is possible by containing all leachate from the facility (in tanks or ponds) or preventing production of leachate (by composting under a roof or in an enclosed building). Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit or State Waste Discharge Permit shall constitute compliance with that code chapter.

### **Source Control BMPs** required for new development and redevelopment

- Construct a cover or structure to prevent rainwater from falling on outdoor composting activities, or construct an impervious compost pad that is bermed or curbed to prevent stormwater run-on and leachate runoff.
- Slope compost pads and construct leachate drainage systems as needed to direct leachate to the required leachate collection device.

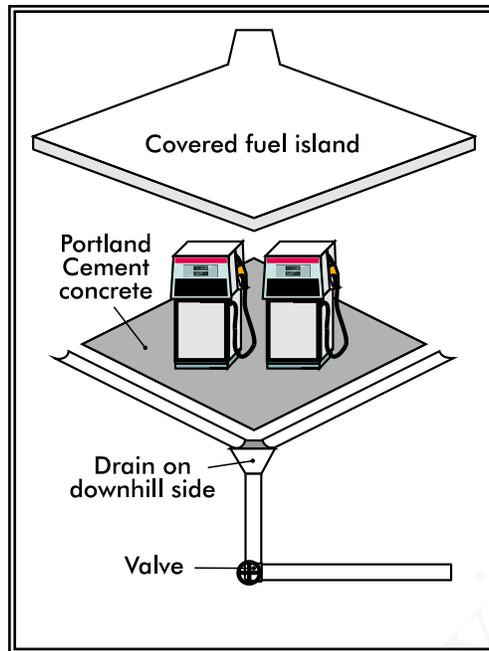
## 5.2.3 BMPs for Fueling Stations

### Description of Pollutant Sources

A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes above or under-ground fuel storage facilities. In addition to general service gas stations, fueling may also occur at 24-hour convenience stores, construction sites, warehouses, car washes, manufacturing establishments, port facilities, and businesses with fleet vehicles. Typically, stormwater contamination at fueling stations is caused by leaks/spills of fuels, lube oils, radiator coolants, and vehicle washwater.

### ~~Source control BMPs~~ **Source Control BMPs required for new development and redevelopment**

- Design the fueling island to control spills (dead-end sump or spill control separator if allowed by other regulations, and to treat collected stormwater and/or wastewater to required levels. Include BMPs for spill control of oil and hazardous substances. Slope the concrete containment pad around the fueling island toward drains; either trench drains, catch basins and/or a dead-end sump. Drains to treatment shall have a shutoff valve, which must be closed in the event of a spill.
- The fueling pad must be paved with Portland cement concrete.
- The fueling island must have a roof or canopy to prevent the direct entry of precipitation onto the spill containment pad (see Figure 4.157). The roof or canopy should, at a minimum, cover the spill containment pad (within the grade break or fuel dispensing area) and preferably extend several additional feet to reduce the introduction of windblown rain. Convey all roof drains to storm drains outside the fueling containment area.
- Stormwater collected on the fuel island containment pad must be conveyed to a sanitary sewer system, other wastewater treatment system approved by Ecology, or to a stormwater treatment system selected, designed, and constructed in accordance with the requirements of Volume V. Discharges from treatment systems to storm drains or surface water or to the ground must not display ongoing or recurring visible sheen and must not contain greater than a significant amount of oil and grease.
- Alternatively, stormwater collected on the fuel island containment pad may be collected and held for proper offsite disposal.
- Transfer the fuel from the delivery tank trucks to the fuel storage tank in impervious contained areas and ensure that appropriate overflow protection is used. Alternatively, cover nearby storm drains during the filling process and use drip pans under all hose connections.



**Figure 4.157 -- Additional BMP for Vehicles 10 feet in height or greater**

- If a roof or canopy is impractical the concrete fueling pad must be equipped with emergency spill control, which includes a shutoff valve for the drainage from the fueling area. The valve must be closed in the event of a spill. An electronically actuated valve is preferred to minimize the time lapse between spill and containment. Spills must be cleaned up and disposed off-site in accordance with BMPs for Spills of Oil and Hazardous Substances.
- The valve may be opened to convey contaminated stormwater to a sanitary sewer or to a stormwater treatment system selected, designed, and constructed in accordance with the requirements of Volume V. Discharges from treatment systems to storm drains or surface water or to the ground must not display ongoing or recurring visible sheen, and must not exceed state or federal pretreatment regulations.

## 5.2.4 BMPs for Vehicle Recycling Facilities

### Description of Pollutant Sources

Includes businesses that reclaim various materials for resale or for scrap, such as vehicles and vehicle/ equipment parts, construction materials, metals, beverage containers, and papers. Potential sources of pollutants include paper, plastic, metal scrap debris, engines, transmissions, radiators, batteries, and other materials that contain fluids or are contaminated with fluids. Other pollutant sources include leachate from metal components, contaminated soil, and the erosion of soil. Activities that can generate pollutants include the transfer, dismantling, and crushing of vehicles and scrap metal; the transfer and removal of fluids; maintenance and cleaning of vehicles, parts, and equipment; and storage of fluids, parts for resale, solid wastes, scrap parts, and materials, equipment and vehicles that contain fluids; generally in uncovered areas. Potential pollutants typically found at vehicle recycle and scrap yards include oil and grease, ethylene and propylene glycol, total suspended solids, BOD, heavy metals, and acidic pH.

### ~~Source control BMPs~~ **Source Control BMPs** required for new development and redevelopment

All facilities subject to Ecology's Industrial Stormwater General Permit shall include all structural source control BMPs applicable to the proposed facility that are set forth in Ecology Publication #94-146 *Vehicle Recyclers - A Guide for Implementing the Industrial Stormwater General National Pollutant Discharge Elimination System (NPDES) Permit Requirements Best Management Practices to Prevent Stormwater Pollution at Vehicle Recycler Facilities* (Washington State Department of Ecology, January 2006).

## 5.2.5 BMPs for Motor Vehicle and Equipment Repair Facilities

### Description of Pollutant Sources

Pollutant sources include parts/vehicle cleaning, spills/leaks of fuel and other liquids, replacement of liquids, outdoor storage of batteries/liquids/parts, and vehicle parking.

### ~~Source control BMPs~~ **Source Control BMPs** required for new development and redevelopment

- Conduct all maintenance and repair of vehicles and equipment in a building, or other covered impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and runoff of contaminated stormwater.
- The maintenance of refrigeration engines in refrigerated trailers may be conducted in the parking area with due caution to avoid the release of engine or refrigeration fluids to storm drains or surface water.
- Park large mobile equipment, such as log stackers, in a designated contained area.

## 5.2.6 BMPs for Wood Treatment Facilities

**NOTE:** A wood treatment facility is required to operate under an individual NPDES stormwater permit. Chapter 7.53 SCC states that full implementation of all BMPs required by an NPDES industrial stormwater permit shall constitute compliance with that code chapter.

### Description of Pollutant Sources

Wood treatment includes both antistaining and wood preserving using pressure processes or by dipping or spraying. Wood preservatives include creosote, creosote/coal tar, pentachlorophenol, copper naphthenate, arsenic trioxide, malathion, or inorganic arsenicals such as chromated copper arsenate, acid copper chromate, chromate zinc chloride, and fluor-chrome-arsenate-phenol. Anti-staining chemical additives include iodo-propenyl-butyl carbamate, dimethyl sulfoxide, didecyl dimethyl ammonium chloride, sodium azide, 8-quinolinol; copper (II) chelate, sodium ortho-phenylphenate, 2-(thiocyanomethylthio)-benzothiazole (TCMTB) and methylene bis-(thiocyanate), and zinc naphthenate. Pollutant sources include drips of condensate or preservative after pressurized treatment; product washwater (in the treatment or storage areas), spills and leaks from process equipment and preservative tanks, fugitive emissions from vapors in the process, blowouts and emergency pressure releases, and kick-back from lumber (phenomenon where preservative leaks as it returns to normal pressure). Potential pollutants typically include the wood treating chemicals, BOD, suspended solids, oil and grease, benzene, toluene, ethylbenzene, phenol, chlorophenols, nitrophenols, heavy metals, and PAH depending on the chemical additive used.

### ~~Source control BMPs~~ **Source Control BMPs** required for new development and redevelopment

- All structural BMPs required by the individual NPDES Permit must be constructed.
- Cover and/or enclose, and contain with impervious surfaces, all wood treatment areas. Slope and drain areas around dip tanks, spray booths, retorts, and any other process equipment in a manner that allows return of treatment chemicals to the wood treatment process.
- Cover storage areas for freshly treated wood to prevent contact of treated wood products with stormwater. Segregate clean stormwater from process water. Ensure that all process water is conveyed to an approved treatment system.

## References

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(FDACS, 2014) — Florida Department of Agriculture and Consumer Services (FDACS), Water Quality/Quantity Best Management Practices for Florida Nurseries, DACS P-1267, April 2014. [v(D)]

(Haver, 2014) — Darren Haver, Best Management Practices: A Water Quality Field Guide for Nurseries, Southern California Edition, The Regents of the University of California, 2014. (viii)

(NFPA, 2012) — National Fire Protection Association (NFPA), NFPA 30A: Code for Motor Fuel Dispensing Facilities and Repair Garages, 2012. [v(C)]

This is the master draft to be revised for formal review purposes/

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