Snohomish County Drainage Manual

Volume IV
Source Control BMPs

January 2016
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Chapter 1 - Introduction To Volume IV

Chapter 7.53 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 defines “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.”

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 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 By Chapter 7.53 SCC

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 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 one or more employees;
- commercial activities or properties with one employee; and
- non-commercial activities performed at residential properties.
Table 2.1 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 the director of the Department of Planning and Development Services. 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 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.
### Table 4.1 – Source Control BMPs
Required For Different Properties Or Activities

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

Required BMPs for prohibited discharge elimination:

Site map showing the following features
(Note: not required for noncommercial activities performed at residential properties) Maps showing storm sewers onsite 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.

- Storm 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

  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.
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

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:
  o Call 911. The dispatcher will route the information to the proper response agency.
  o Call Snohomish County at 425-388-6481.
  o Call the Washington State Department of Ecology at (425) 649-7000
  o Call the Washington State Department of Health at (360) 236-4700
  o 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) 649-7000 and ask for an oil spill operations or a hazardous waste specialist.


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
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) Spill kits
     - spill control kits available and stocked
     - spill plans posted

  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) 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) Site map
     - site map accurately and completely depicts all information set forth in site map requirements in Chapter 2.1

  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 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>
<thead>
<tr>
<th>BMP / TASK</th>
<th>ASSIGNED TO</th>
<th>DATE</th>
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<tbody>
<tr>
<td>Site inspections</td>
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<tr>
<td>Training</td>
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<td>Recordkeeping</td>
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<td>Drip pan content disposal</td>
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<td>Other containment system content disposal</td>
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<td>Spill kit deployment / maintenance / refill</td>
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<td>Spill plan preparation / posting</td>
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<td>Spill reporting</td>
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<td>Work area cleanup</td>
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<tr>
<td>Emergency task assignments</td>
<td></td>
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</tbody>
</table>
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.”

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.

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

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.

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 By Chapter 7.53 SCC For Specific Activities Or Land Uses

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

**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 General Stormwater Permit for Industrial Activities. 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**

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.
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 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 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 At 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 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.

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](image)

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.

![Drip Pan Within Rails](image)

**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]
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

- 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:
  o Non-water absorbents capable of absorbing 15 gallons of diesel fuel;
  o A storm drain plug or cover kit;
  o A non-water absorbent containment boom of a minimum 10 feet in length with a 12-gallon absorbent capacity;
  o A non-metallic shovel; and,
  o 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.

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 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

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

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.

![Secondary Containment System](image)

**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).
• 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 Sheeting
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 washed, 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-prophenyl-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

- All source control BMPs set forth in the individual NPDES stormwater permit must be implemented.
- Cover and/or enclose wood treatment areas, and perform them 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 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.
Chapter 4 - Additional Recommended Source Control BMPs For Specific Activities Or Land Uses

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 General Stormwater Permit for Industrial Activities. 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

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, 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 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 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 At 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

Lanscaping 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 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 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 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 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.
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 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 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 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 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 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 BMPs

- All source control BMPs for this activity/land use are required and found in section 3.20.
4.21 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.

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

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 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 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

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

- 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 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.
Chapter 5 - Source Control BMPs Required For New Development and Redevelopment

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.
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 4.8): 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 4.9)
- 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 4.8 – Enclose the Activity
Figure 4.9 – 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 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 4.10). 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 4.11).
Figure 4.10 – Covered and Bermed Containment Area

Figure 4.11 – 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 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 4.12, 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 4.12 – 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 4.13, 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 4.13 – 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 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 4.14)
• 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 4.14). 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 4.14)

  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.
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.
5.2  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 General Stormwater Permit for Industrial Activities. 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

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 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 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 4.15). 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 4.15 -- 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 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 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-prophenyl-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 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.