

SC-21 Vehicle and Equipment Cleaning

Description

Wash water from vehicle and equipment cleaning activities performed outdoors or in areas where wash water flows onto the ground can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals, and suspended solids to stormwater runoff. Use of the procedures outlined in this fact sheet can prevent or reduce the discharge of pollutants to stormwater during vehicle and equipment cleaning.

Approach

Reduce the potential for pollutant discharge through source control pollution prevention and best management practice (BMP) implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

General Pollution Prevention Protocols

- Use properly maintained off-site commercial washing and steam cleaning businesses whenever possible. These businesses are better equipped to handle and properly dispose of the wash waters.
- Use dry cleaning methods to remove debris and sweep the area; avoid washing with water when possible.
- Good housekeeping practices can minimize the risk of contamination from wash water discharges.
- Use biodegradable, phosphate-free detergents for washing vehicles as appropriate.
- Emphasize the connection between the storm drain system and runoff, and help reinforce that vehicle and equipment washing activities affect local water quality through storm drain stenciling programs.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Substitute Products

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Minimum BMPs Addressed

 Good Housekeeping	✓
 Preventative Maintenance	✓
 Spill and Leak Prevention and Response	✓
 Material Handling & Waste Management	✓
 Erosion and Sediment Controls	
 Employee Training Program	✓
 Quality Assurance and Record Keeping	✓



SC-21 Vehicle and Equipment Cleaning

- Map on-site storm drain locations to avoid discharges to the storm drain system.
- Designate specific wash areas with clarifier or place wash areas away from storm drain connections.



Good Housekeeping

- Mark the area clearly as a wash area by:
 - ✓ Posting signs stating that only washing is allowed in that area; and
 - ✓ Providing information on how washing is to be done.
- Provide trash containers in wash area.
- Have all vehicle and equipment washing done in areas designed to collect and hold the wash and rinse water or effluent generated from the process. Recycle, collect, or treat wash water effluent prior to discharge to the sanitary sewer system.
- If washing/cleaning must occur on-site, consider washing vehicles and equipment inside a building or on an impervious surface to control the targeted constituents by directing them to the sanitary sewer.
- If washing must occur on-site and outdoors:
 - ✓ Use designated paved wash areas. This area must be covered or bermed to collect the wash water and graded to direct the wash water to a treatment or disposal facility.
 - ✓ Do not perform oil changes and other engine maintenance in the designated washing area. Perform those activities in a place designated for them.
 - ✓ Cover the wash area when not in use to prevent contact with rainwater.
- Do not permit steam cleaning wash water to enter the storm drain system.
- If possible, conduct pressure and steam cleaning at appropriate off-site areas to avoid generating runoff with high pollutant concentrations.



Preventative Maintenance

- Install sumps or drain lines to collect wash water for treatment.
- Use hoses with nozzles that automatically turn off when left unattended.
- Conduct routine inspections of drain lines, holding tanks, and hoses, and repair leaks immediately.

SC-21 Vehicle and Equipment Cleaning

- Conduct routine inspection and maintenance of wash water recycling and treatment systems.



Spill and Leak Prevention and Response

- Keep the spill prevention, control, and countermeasure (SPCC) plan up to date.
- Have an emergency plan, equipment, and trained personnel ready at all times to deal immediately with major spills.
- Collect all spilled liquids, and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.



Material Handling and Waste Management

- Collect all wash water from vehicle and equipment cleaning operations. Consider either treating and reusing or discharging wash waters to a sanitary sewer system.
- Large quantities of wash waters might require treatment at the facility. Treatment using a process treatment system (e.g., holding tank, filtration system, and related appurtenances) will require engineering and capital expenditures.
- Collect and treat small amounts of wash water at the facility and either recycle or discharge to the sanitary sewer system or collect and dispose of as an industrial waste.
- Discharge wash waters into a sanitary sewer only after contacting the local sewer authority to find out if pretreatment is required.



Employee Training Program

- Train employees on proper cleaning and wash water disposal procedures and conduct refresher courses on a regular basis.
- Train staff on proper maintenance measures for the wash area.
- Train employees and contractors on proper spill containment and cleanup. Employees should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Use a training log or similar method to document training.



Quality Assurance and Record Keeping

- Keep accurate maintenance/inspection logs that document the minimum BMP activities performed for vehicle and equipment cleaning activities and improvement actions.

SC-21 Vehicle and Equipment Cleaning

- Keep accurate logs of spill response actions that document what was spilled, how it was cleaned up, and what method was used to dispose of the waste.
- Establish procedures to complete logs, and file them in the central office.

Other Facility-Specific Considerations

- Some municipalities may require pretreatment and monitoring of wash water discharges to the sanitary sewer.
- Steam cleaning can generate significant pollutant concentrations requiring that careful consideration be given to the environmental impacts and compliance issues related to the condensate wastewater generated from the process.

Potential Limitations and Work-Arounds

Some facilities may have space constraints, limited staffing, and time limitations that preclude implementation of certain BMPs. The following are typical limitations and recommended work-arounds:

- Most car washing BMPs are inexpensive and rely more on good housekeeping practices (e.g., where vehicles are washed, planning for the collection of wash water) than on expensive technology. However, the construction of a specialized area for vehicle washing can be expensive. Also, for facilities that cannot recycle their wash water, the cost of pretreating the water through either structural practices or planning for collection and hauling of contaminated water to sewage treatment plants can be cost-prohibitive.
- A potential work-around is to use properly maintained off-site commercial washing and steam cleaning businesses whenever possible.

Potential Capital Facility Costs and Operation & Maintenance Requirements

Facilities

- Many facilities already have indoor covered areas for vehicle and equipment cleaning activities and will require no additional capital expenditures for providing cover.
- Capital investments will be required at some sites if systems are not in place to collect and recycle/treat and properly discharge wash water. The cost associated with these investments will vary depending on the size of the washing facility and local regulations regarding effluent wash water.

Maintenance

- Routinely inspect wash and collection systems and repair them as necessary.
- Sweep washing areas frequently to remove solid debris.

SC-21 Vehicle and Equipment Cleaning

- Repair berms and dikes as necessary.
- Inspect and maintain sumps, oil/water separators, and on-site treatment/recycling units.

Supplemental Information Designated Cleaning Areas

- Washing operations outdoors should be conducted in a designated wash area having the following characteristics:
 - ✓ Paved with Portland cement concrete.
 - ✓ Covered and bermed to prevent contact with stormwater and contain wash water.
 - ✓ Sloped for wash water collections.
 - ✓ A wash water drainage system to the sanitary or recycle treatment process waste sewer, or to a dead-end sump equipped with an oil/water separator if necessary.

SC-21 Vehicle and Equipment Cleaning

References and Resources

- Orange County Stormwater Program. n.d. *Best Management Practices for Industrial/Commercial Business Activities*. Available online at <http://ocwatersheds.com/documents/bmp/industrialcommercialbusinessesactivities>.
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- Washington State Department of Ecology. 2012. *Vehicle and Equipment Washwater Discharges Best Management Practices Manual*. Publication no. WQ-R-95-056. Available online at <https://fortress.wa.gov/ecy/publications/publications/95056.pdf>.