Vehicle and Equipment Cleaning GH-16

OBJECTIVES

- Reduce specific pollutants that can contaminate stormwater run-off or discharge into waterways
  - Oil and grease
  - Sediment
  - Trash
  - Metals
  - Inorganic chemicals/compounds
  - Organic chemicals/compounds
- Implement and conduct activities to reduce the potential for polluted/illicit discharges
  - Phosphate-free detergents
  - Training
  - Trash containers
  - Spill Response and Prevention
  - Wash area design
  - Commercial car washes

DESCRIPTION

Activities associated with cleaning municipal vehicles and equipment can easily contribute pollutants to stormwater discharges or directly discharge to the municipal separate storm sewer (MS4) through the wash water discharges. Pollutants can vary from engine oil to chemicals within detergents such as phosphates. Properly designed and constructed wash areas will reduce the potential for contaminated discharges. Training and inspections will add a further level of compliance and assurance for reducing polluted discharges into the MS4 and waterways.

CONSIDERATIONS

Following the recommendations within this BMP Fact Sheet in conjunction with associated BMPs for Good Housekeeping, along with proper documentation practices, will reduce the potential of polluted discharges into the MS4, local waterways, and groundwater.

Where applicable, consider using off-site commercial wash facilities in lieu of constructing or operating a facility on municipal property. Do not assume a commercial facility either collects wash water and recycles or discharges into the sanitary sewer system for treatment at a treatment plant. If commercial wash facilities are identified for use, obtain a letter from the operator regarding discharge practices to assure the facility is in compliance with planned vehicle and equipment cleaning.

A top-tier municipal vehicle and equipment cleaning program generally entails a self-sustained system on municipal property that is indoors, collects & filters wash water, and reuses wash water. This type of program is not necessarily the best option as costs for constructing and maintaining such a facility can be a burden on municipal budgets. For implementing a program, consider the practices that reduce pollutants to the Maximum Extent Practicable (MEP) while considering budget constraints.

RECOMMENDATIONS AND PROTOCOLS

Depending on the size of the municipal fleet, a decision to construct and maintain a self-operated facility or use a commercial facility should be common sense.

If the fleet only has several vehicles or pieces of equipment (less than five), use of a commercial wash facility would make the most sense. A municipality with a relatively high number of vehicles should consider a self-contained system. A cost comparison with constructing and operating a facility should be compared to the costs for use of a commercial wash facility to help in the determination.

For the objectives listed, the following represent further recommendations and protocols for vehicle and equipment cleaning:

Reduction of Specific Pollutants

Trash

- Place trash receptacles immediately near wash facilities
- Empty trash receptacles on a regular basis
- Sweep wash area to collect and dispose of trash and debris into receptacles on a regular basis (inlcudes metals that may have detached from vehicle or equipment)

Oil & Grease, Sediment, and Inorganic/Organic Chemicals

- Do not allow oil changing in wash area
- Assure wash water is contained within the wash area and collected by the proper drains or storage facility
- Do not leave hoses running that may cause overflow in wash area and result in run-off from the contained wash area

Other considerations

- Place signs in wash area indicating washing of vehicles and equipment is the only acceptable activity in the area
- Identify drains or wash water storage facilities where wash water may discharge
- Identify and mark drains where discharges are prohibited in the immediate area
- If the wash area is outdoors, consider covering when not in use to reduce contact with rain water

Implementation and Activity Protocols for Reduction of Pollutants

Phosphate-free detergents

- Whether the wash facility is indoors or outdoors; discharges to sanitary sewer or is contained in a recycling storage unit; consider using biodegradable, phosphate-free detergents

Trash Receptacles

- Place trash receptacles in the delineated wash area
- Empty and inspect receptacles regularly
- Replace damaged receptacles where a discharge could be contaminated by debris or trash in the receptacle

Wash Area Design

- The optimal location for a wash area is indoors where connection to the sanitary sewer is more easily achieved and exposure to rain events are essentially eliminated
- Considering collecting, filtering, and reusing wash water. This type of system is considered a closed loop system
- Slope wash area paving to assure collection into the determined drain line

- Construct berms and identify delineation of wash area to assure containment of wash water
- If draining to the sanitary sewer, obtain letter of authorization from the treatment plant
- Consider draining to sump with a filter prior to discharge. Clean filter on a regular basis and dispose debris in the proper locations
- First paving option should be portland concrete cement
- Consider an oil/water separator

Training

- Provide employees with training and exercises on proper cleaning and wash water disposal practices
- Revisit and conduct "refresher" training

Spill Response and Prevention

- Place spill clean-up materials in readily available locations by the wash area (clearly mark location of spill clean-up materials)
- Clean up spills or any wash water that may improperly discharge and contaminate
- Train employees on Spill Prevention and Control (see BMP Fact Sheet GH-10) relative to cleaning vehicles and equipment

Commercial wash facilities

- In lieu of constructing and maintaining a municipal wash facility, consider a commercial wash facility that meets the guidelines outlined within this BMP Fact Sheet
- Obtain a letter from the commercial wash facility outlining operations relative to discharging wash water or collection & recycling practices

Other Recommendations and Protocols

If discharging to the sanitary sewer system, clarify with the treatment facility if pre-treatment is required. Posting signs that provide direction and identify restrictions are highly recommended.

DOCUMENTATION

Proper documentation practices are essential for any municipal SWMP to show compliance with the Clean Water Act, NPDES, and generally the requirements of the permit issued to allow discharges through the defined MS4. As with all sections of an MS4 permit, all documentation should be centralized.

For vehicle and equipment cleaning, templates are provided within the BMP manual to assist the municipality with documentation compliance. The following templates can be used for compliance:

- **Training Record:** This document is used to provide record of a training event or session relative to vehicle and equipment cleaning.
- **Training and Education Log:** Enter a completed training record for vehicle and equipment cleaning into the log.
- **Activity Record:** Complete a record if washing at a commercial facility or implementing improvements for new design considerations or remediation.

- **Inspection Record:** Complete an inspection based on the recommendations in the section titled "INSPECTIONS AND MEASUREMENTS" or as outlined in your SWMP for vehicle and equipment cleaning wash areas
- **Inspection, Event, and Activity Log:** Enter an inspection record for vehicle and equipment cleaning into the log.
- **Municipal Yard Map:** Organize and complete a municipal yard map (including locations of interior building features). Identify the vehicle and equipment cleaning wash area on the map. Place a copy of the map within your SWMP documentation.

INSPECTIONS AND MEASUREMENTS

According to the EPA, studies have yet to show the effectiveness of vehicle and equipment cleaning Best Management Practices with respect to reducing pollutants to stormwater. However, individual contaminants identified as potential pollutants should be reduced to the Maximum Extent Practicable (MEP).

Frequency of inspections for vehicle and equipment cleaning is recommended as follows:

- *Rain Event Inspection:* Conduct an inspection of the wash area after a defined rain event (if wash area is located outside). A defined rain event is determined in the SWMP.
- *Regular Inspection:* If a rain event does not dictate an inspection, inspect the wash area on a monthly basis (if inside) or every two weeks (if outside). This frequency is assuming regular weekly use of six or more times per week. Adjust inspection frequency based on actual use.
- *Operator Inspection:* Conduct an inspection periodically when the wash area is in use by a trained employee.

Items that should be inspected and maintained in vehicle and equipment cleaning wash areas (and recommended maintenance actions):

- *Integrity of wash area paving* : patch and repair missing or extensively cracked paving
- *Containment berms:* Repair and patch broken or missing berm sections that delineate the wash area (and contain wash water)
- *Cleanliness:* Sweep and remove debris or trash
- *Sumps, oil/water separators, holding tanks, filters:* replace broken or leaking units; replace and/or clean debris build-up (includes drain grates)
- *Operating equipment:* Replace or repair broken hoses, nozzles, recycling units, treatment units, and so on
- *Spill Prevention and Control Materials:* Replace used or defunct clean-up materials
- *Signs:* Replace missing signs identifying restrictions and allowances in wash area

Effectiveness can be demonstrated by several means. Two specific types of measurements include (1) properly implementing and maintaining practices (and documentation of implementation and maintenance) recommended in this fact sheet and (2) including cleaning activities as a part of an analytical monitoring program. A successful analytical monitoring program will require collecting and testing samples prior to implementation of the practices, and continually (at defined frequencies) collecting and analyzing samples after implementation of the practices. The BMP would be considered effective (as a part of larger collection of BMPs listed for improvements) if reductions in particular pollutants or chemicals are observed.

SOURCES

U.S. Environmental Protection Agency Municipal Vehicle and Equipment Washing information at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=132&minmeasure=6

California Stormwater Quality Association, Municipal Stormwater Best Management Practice Handbook (2004 edition) at http://www.cabmphandbooks.com/Municipal.asp

Florida Department of Environmental Protection, Guide to Best Management Practices for Closed-Loop Recycled Systems at http://www.dep.state.fl.us/water/wastewater/docs/GuideBMPClosed-LoopRecycleSystems.pdf