# Vehicle and Equipment Fueling GH-15

**OBJECTIVES**

- Reduce specific pollutants that can contaminate stormwater run-off or discharge into waterways
  - Oil and grease
  - Organic chemicals/compounds
  - Inorganic chemicals/compounds
  - Non-stormwater discharges
- Implement and conduct activities to reduce the potential for polluted/illicit discharges
  - Training
  - Spill Response and Prevention
  - Fuel area design
  - General Practices

**DESCRIPTION**

Activities associated with fueling municipal vehicles and equipment can easily contribute pollutants to stormwater discharges or directly discharge to the municipal separate storm sewer (MS4). Spills and leaks that oocur during vehicle and equipment fueling can contribute hydrocarbons, oils, grease, metals, and other toxic chemicals to stormwater run-off or dischrage directly into storm sewers or receiving waters. Properly designed and constructed fueling 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.

A Spill Prevention Control and Countermeasure Plan (SPCC) is required for facilities that are subject to the oil pollution regulations specified in Part 112 of Title 40 of the Code of Federal Regulations or if they have a storage capacity of 10,000 gallons or more of petroleum. (Health and Safety Code 6.67)

An initial Spill Prevention Response Plan (Plan) and any future updates, which address the requirements described in Chapter 9 of the act (35 P. S. § § 6021.901— 6021.904) and the corresponding chapter, shall be submitted to the DEP for aboveground storage tank facilities with an aggregate above ground storage capacity greater than 21,000 gallons. A current copy of the Plan shall be readily available at the facility at all times.

Observe all federal, state, and local requirements and/or regulations with above ground and below ground storage tanks.

Consider using a commercial fueling center in lieu of a self-maintained facility. Commercial fueling stations tend to be better equipped to handle fuel and spills.

A top-tier municipal vehicle and equipment fueling program and facility generally entails the use of vapor recovery nozzles, dedicated and "isolated" fueling depots, spill response station, impervious surfaces, and containment devices. This 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

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

### Reduction of Specific Pollutants

*Oil & Grease and Inorganic/Organic Chemicals*

- Do not allow oil changing in fueling area
- "Spot clean" leaks and drips regularly to remove specific pollutants
- Design fueling area to prevent stormwater run-off and discharges from spills
- Inspect all components (i.e. tanks, nozzles, etc.) for corrosion, leaks, damage, and so on. Repair/replace as necessary.
- Keep ample spill response materials available; recommend spill response station.

*Other considerations*

- Place signs in fueling area indicating fueling of vehicles and equipment is the only acceptable activity in the area
- Report and address leaking vehicles
- Do not wash down fueling areas; use dry cleaning methods such as rags and brooms
- Refer to BMP Fact Sheet GH-5 Non-stormwater discharges for preventing/reducing potential polluted discharges
- Identify and mark drains where discharges are prohibited in the immediate area

### Implementation and Activity Protocols for Reduction of Potential Discharges

*Training*

- Provide employees with training and exercises on proper fueling techniques. Provide additional focus on containment of spills or leaks
- Revisit and conduct "refresher" training

*Spill Response and Prevention*

- Place spill clean-up materials in readily available locations by the fueling 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

*Fuel Area Design*

- Consider berms or dikes to prevent run-off and run-on with stormwater or spills
- Consider an overhang roof structure or canopy to reduce the potential for rain to contact the fueling area
- Consider reduction or prevention of run-off and run-on in design (such as an extruded

curb "upstream" of fueling area to reduce run-on)
- Install impervious surfaces in lieu of permeable surfaces to reduce ground infiltration
- Consider rigid inlet protection devices for nearby inlets
- "Hold-open latches" unless prohibited by the fire department
- Emergency shut-off switch
- Install a spill resposne station in the fueling area (or adjacent)
- Consider oil/water separators

*General Practices*
- Place drip pans or absorbent pads under direct fueling locaiton if fueling will occur over a permeable surface
- Do not "top off" fuel tanks
- Do not place used spill response materials in adjacent trash receptacles. Dispose in a proper manner.
- Do not leave active fueling operations unattended

**Other Recommendations and Protocols**
A spill prevention plan dedicated to the fueling area can be used as a training guide and reference during a spill event.

## 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 fueling, templates are provided within the BMP manual to assist the municipality with documentation compliance. Consider the following templates for compliance:

- **Training Record:** This document is used to provide record of a training event or session relative to vehicle and equipment fueling.
- **Training and Education Log:** Enter a completed training record for vehicle and equipment fueling into the log.
- **Event Record:** Complete an event record for a major spill/leak or a considerable discharge is observed in a fueling area.
- **Activity Record:** Complete an activity record for remediation efforts or implementation of activities that increase the effectiveness of the BMP.
- **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 fueling areas
- **Inspection, Event, and Activity Log:** Enter an inspection record for vehicle and equipment fueling into the log.
- **Spill Prevention Plan:** A dedicated plan for spill response in the fueling area
- **Municipal Yard Map:** Organize and complete a municipal yard map (including locations of interior building features). Identify the vehicle and equipment fueling area on the map along with emergency shut-off valves (if applicable). Place a copy of the map within your SWMP documentation.

## INSPECTIONS AND MEASUREMENTS

According to the EPA, it is difficult to quantify the effectiveness of vehicle and equipment fueling BMPs. However, it has been demonstarted that implementation of such practices has decreased the concentration of pollutants in stormwater run-off.

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

- *Rain Event Inspection:* Conduct an inspection of the fueling area after a defined rain event (if fueling 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 fueling area every two weeks
- *Operator Inspection:* Conduct an inspection periodically when the fueling area is in use by a trained employee.

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

- *Containment berms (if applicable):* Repair and patch broken or missing berm sections
- *Cleanliness:* Sweep and remove debris or trash
- *Paving surface:* check for leaks or spilss
- *Tanks/Containers:* check fittings, foundations, connections, integrity of unit, or other structural component for leaks, cracks, failures, or damage. Replace as necessary
- *Piping Systems:* Check for failures, extensive cracking, or leaks
- *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 and nozzles
- *Drains/inlets:* Check for discharges and integrity of units.
- *Special Equipment (i.e. oil/water separator, basin inserts, etc):* Clean or replace as necessary
- *Spill Prevention and Control Materials:* Replace used or defunct spill clean-up materials
- *Signs:* Replace missing signs identifying restrictions and allowances in fuel 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 fueling 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 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 at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=6

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

CALTRANS BMP Field Manual, January 2003 edition at http://www.dot.ca.gov/hq/construc/stormwater/BMP_Field_Manual_Master_5x8_revision5.pdf

Pennsylvania Emergency Management Agency Hazardous Material Emergency Planning and Response Act outline at http://www.portal.state.pa.us/portal/server.pt/community/programs_and_services/4547/hazardous_material_preparedness/458022