

SC-20 Vehicle and Equipment Fueling

Description

Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil and grease, and heavy metals to stormwater runoff. Implementing the following best management practices (BMPs) can help prevent fuel spills and leaks.

Approach

Reduce the potential for pollutant discharge through source control pollution prevention and 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 fueling stations whenever possible. These businesses are better equipped to handle fuel and spills properly.
- Focus pollution prevention activities on containment of spills and leaks, most of which may occur during liquid transfers.



Good Housekeeping

- “Spot clean” leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.
- Manage materials and waste properly to reduce adverse impacts on stormwater quality (see the section on material handling and waste management).
- Paint signs on storm drain inlets to indicate the drains are not to receive liquid or solid wastes.
- Post signs at sinks to remind employees not to pour wastes down the drains.
- Clean yard storm drain inlet(s) regularly and especially after large storms.
- Do not pour materials down storm drains.

Objectives

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

Targeted Constituents

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

Minimum BMPs Covered

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	✓



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- Build a shed or temporary roof over fueling area to limit exposure to rain.
- Post signs that remind employees and customers not to “top off” when filling fuel tanks and that ban customers and employees from changing engine oil or other fluids at the fueling location.
- Report leaking vehicles to fleet maintenance.
- Ensure the following safeguards are in place:
 - ✓ Overflow protection devices on tank systems to warn the operator or automatically shut down transfer pumps when the tank reaches full capacity.
 - ✓ Protective guards around tanks and piping to prevent vehicle or forklift damage.
 - ✓ Clear tagging or labeling of all valves to reduce human error.
 - ✓ Emergency shut-off devices and posting of emergency phone numbers.



Preventative Maintenance

Fuel Dispensing Areas

- Inspect vehicles and equipment for leaks regularly, and repair any identified leaks immediately.
- If the fueling area is paved, sweep it weekly to collect loose particles, and wipe up spills with rags and other absorbent material immediately. Do not hose down the area to a storm drain.
- Fit underground storage tanks with spill containment and overfill prevention systems meeting the requirements of section 2635(b) of Title 23 of the California Code of Regulations.
- Fit fuel dispensing nozzles with “hold-open latches” (automatic shutoffs) except where prohibited by local fire departments.
- Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against “topping off” vehicle fuel tanks.
- Design fueling area to prevent stormwater runoff and spills. Use a perimeter drain or slope pavement inward with drainage to a sump; regularly remove materials accumulated in the sump.
- Pave the area with concrete rather than asphalt.
- Cover the fueling area with an overhanging roof structure or canopy so that precipitation cannot come in contact with the fueling area. Where covering is not

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feasible and the fuel island is surrounded by pavement, apply a suitable sealant that protects the asphalt from spilled fuels.

- Install vapor recovery nozzles to help control drips as well as air pollution.
- Use secondary containment when transferring fuel from the tank truck to the fuel tank. Cover storm drains in the vicinity during transfer.

Air/Water Supply Area

- Minimize the possibility of stormwater pollution from air/water supply areas by doing at least one of the following:
 - ✓ “Spot clean” leaks and drips routinely to prevent runoff of spillage.
 - ✓ Grade and pave the air/water supply area to prevent run-on of stormwater.
 - ✓ Install a roof over the air/water supply area.
 - ✓ Install a low containment berm around the air/water supply area.

Inspection

- For aboveground tank leak and spill control:
 - ✓ Check for external corrosion and structural failure.
 - ✓ Check for spills and overfills caused by operator error.
 - ✓ Check for failure of the piping system.
 - ✓ Check for leaks or spills during pumping of liquids or gases from a truck or rail car to a storage facility or from a storage facility to a truck or rail car.
 - ✓ Visually inspect a new tank or container installation for loose fittings, poor welding, and improper or poorly fitted gaskets.
 - ✓ Inspect tank foundations, connections, coatings, tank walls, and the piping system. Look for corrosion, leaks, cracks, scratches, and other physical damage that might weaken the tank or container system.
 - ✓ Have a qualified professional conduct integrity testing periodically.
- Inspect and clean, if necessary, storm drain inlets and catch basins within the facility boundary before October 1 each year.



Spill and Leak Prevention and Response

- Keep your spill prevention, control, and countermeasure (SPCC) plan up to date.

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- Maintain an adequate stockpile of spill cleanup materials at locations where they are readily accessible.
- Clean leaks, drips, and other spills with as little water as possible.
 - ✓ Use rags for small spills.
 - ✓ Use a damp mop for general cleanup.
 - ✓ Use dry absorbent material for larger spills.
- Use the following three-step method for cleaning floors:
 1. Clean spills with rags or other absorbent materials.
 2. Sweep the floor using dry absorbent material.
 3. Mop the floor. Mop water may be discharged to the sanitary sewer via a toilet or sink.
- When using absorbent materials on small spills, remove the materials promptly and dispose of them properly.
- Store portable absorbent booms (long flexible shafts or barriers made of absorbent material) in unbermed fueling areas.
- Report spills promptly.
- If a dead-end sump is not used to collect spills, install an oil/water separator.



Material Handling and Waste Management

- Do not pour liquid wastes into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- Do not put used or leftover cleaning solutions, solvents, and automotive fluids in the sanitary sewer.
- Collect leaking or dripping fluids in drip pans or containers. Fluids are easier to recycle if kept separate.
- Promptly transfer used fluids to the proper waste or recycling drums. Do not leave drip pans or other open containers lying around.
- Minimize the possibility of stormwater pollution from outside waste receptacles by doing at least one of the following:
 - ✓ Use only watertight waste receptacles and keep the lids closed.

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- ✓ Grade and pave the waste receptacle area to prevent run-on of stormwater.
- ✓ Install a roof over the waste receptacle area.
- ✓ Install a low containment berm around the waste receptacle area.
- ✓ Use and maintain drip pans under waste receptacles.
- Post “No littering” signs.



Employee Training Program

- Educate employees about facility-wide pollution prevention measures and goals.
- Train designated employees (e.g., those involved with handling or managing fuels) on proper fueling and cleanup procedures.
- Train designated employees upon hiring and annually thereafter on proper methods for handling and disposing of waste. Make sure that all employees understand stormwater discharge prohibitions, wastewater discharge requirements, and these BMPs.
- Ensure that employees are familiar with the site’s SPCC plan and/or proper spill cleanup procedures.
- Use a training log or similar method to document training. The training log should include entries for:
 - ✓ Training topic
 - ✓ Trainer
 - ✓ Attendees
 - ✓ Frequency
 - ✓ Comments
 - ✓ Target date for completion of training
 - ✓ Date completed



Quality Assurance and Record Keeping

- Keep accurate maintenance logs that document minimum BMP activities performed for vehicle and equipment fueling, quantities of materials removed, and improvement actions.

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- Keep accurate logs of spill response actions that document the types of liquids spilled, how they were cleaned up, and the method of disposal.
- Establish procedures to complete logs and file them in the central office.

Potential Capital Facility Costs and Operation and Maintenance Requirements Facilities

- The retrofitting of existing fueling areas to minimize stormwater exposure or spill runoff can be expensive. Good design must occur during the initial installation. Extruded curb along the “upstream” side of the fueling area to prevent stormwater run-on is of modest cost.
- Capital investments will likely be required at some sites if adequate cover and containment facilities do not exist and can vary significantly depending upon site conditions.

Maintenance

- Most of the operations and maintenance (O&M) activities associated with implementing these BMPs are integrally linked to routine operations as previously described. Therefore, additional O&M is not required.
- For facilities responsible for pretreating their wastewater prior to discharging, the proper functioning of the structural treatment system is an important maintenance consideration.
- Routine cleanout of sumps and oil/water separators is required for the devices to maintain their effectiveness, usually at least once a month. During periods of heavy rainfall, cleanout is required more often to ensure pollutants are not washed through the system. Sediment removal is also required on a regular basis to keep the device working efficiently.

Supplemental Information Designing New Installations

The elements listed below should be included in the design and construction of new or substantially remodeled facilities.

Fuel Dispensing Areas

- Fuel dispensing areas must be paved with Portland cement concrete (or equivalent smooth impervious surface) with a 2- to 4-percent slope to prevent ponding, and they must be separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. The fuel dispensing area is defined as extending 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less.

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The paving around the fuel dispensing area may exceed the minimum dimensions of the fuel dispensing area.

- The fuel dispensing area must be covered, and the cover's minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area, as defined above. The cover must not drain onto the fuel dispensing area.
- If necessary, install and maintain an oil control device in the appropriate catch basin(s) to treat runoff from the fueling area.

Outdoor Waste Receptacle Area

- Grade and pave the outdoor waste receptacle area to prevent run-on of stormwater to the maximum extent practicable.

Air/Water Supply Area

- Grade and pave the air/water supply area to prevent run-on of stormwater to the maximum extent practicable.

Designated Fueling Area

- If your facility has a large amount of mobile equipment working throughout the site and you currently fuel it with a mobile fuel truck, consider establishing a designated fueling area. With the exception of tracked equipment such as bulldozers and perhaps small forklifts, most vehicles should be able to travel to a designated area with little lost time. Place temporary caps over nearby catch basins and manhole covers so that if a spill occurs it is prevented from entering the storm drain.

Examples

The SPCC plan, which is required by law for some facilities, is an effective program to reduce the number of accidental spills and minimize contamination of stormwater runoff.

The City of Palo Alto has an effective program for commercial vehicle service facilities. Many of the program's elements, including specific BMP guidance and lists of equipment suppliers, are also applicable to industrial facilities.

References and Resources

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