



**Partners for a Clean Environment (PACE)
and**



Watershed Approach to Stream Health (WASH)

**Best Management Practices Library
Stormwater Pollution Prevention**

February 2004

TABLE OF CONTENTS

BMP: BUILDING MAINTENANCE & OPERATION.....	1
BMP: CONCRETE POURING & FINISHING	4
BMP: CONTAINER STORAGE OUTDOORS	6
BMP: CONTRACTING & PROPERTY LEASING	9
BMP: DEWATERING.....	11
BMP: DRY & CONTAINERIZED MATERIAL LOADING & UNLOADING...	13
BMP: EMPLOYEE & CONTRACTOR TRAINING	16
BMP: FIRE FIGHTING WASTEWATER.....	18
BMP: FOOD SERVICE & WASTE HANDLING	20
BMP: GOOD HOUSEKEEPING & SPILL PREVENTION.....	22
BMP: ILLICIT DISCHARGE ELIMINATION	24
BMP: LANDSCAPING, LAWN & VEGETATION MAINTENANCE	27
BMP: LIQUID BULK MATERIAL STORAGE, LOADING & UNLOADING ..	31
BMP: POTABLE LINE FLUSHING.....	34
BMP: SALT STORAGE & SNOW DISPOSAL	36
BMP: CLEAN-UP OF SANITARY SEWER BACK-UPS.....	38
BMP: SPILL CLEAN UP	40
BMP: STORM DRAINAGE SYSTEM MAINTENANCE	44
BMP: STREET SWEEPING & ROAD MAINTENANCE.....	47
BMP: SWIMMING POOL MAINTENANCE	50
BMP: VEHICLE & EQUIPMENT FUELING	52
BMP: VEHICLE & EQUIPMENT MAINTENANCE & REPAIR	55
BMP: VEHICLE & EQUIPMENT STORAGE	58
BMP: VEHICLE & EQUIPMENT WASHING.....	60
BMP: WASTE MANAGEMENT & DISPOSAL.....	63

BMP: BUILDING MAINTENANCE & OPERATION

AFFECTED FACILITIES

This BMP applies at all buildings and fixed structures operated or maintained by a municipality or the county.

BACKGROUND

Storm water runoff from building maintenance activities can be contaminated with toxic hydrocarbons in solvents, suspended solids, heavy metals or abnormal pH. Pressure (power) washing, exterior painting, sand blasting and graffiti removal are the primary activities addressed by this BMP. Following this BMP will prevent or reduce the discharge of pollutants by washing and cleaning up with as little water as possible.

REQUIRED PRACTICES

- Do not pressure wash an entire building if there are only a few areas that need cleaning. Spot clean, steam clean or scrape dirty areas rather than pressure washing the entire structure.
- Operate pressure-washing equipment according to manufacturer's recommendations.
- If the surrounding area is paved, wastewater from pressure washing must be collected. A ground pit or sump may be used to collect the wastewater. If soaps or detergents were used, the wastewater and solids must be pumped/cleaned out and disposed in an approved facility. If no soaps or detergents are used, the wastewater must first be filtered or screened to remove solids before being allowed to flow offsite.
- If the surrounding area is grassed, the wastewater (with or without soap) may be discharged directly to the grassy area without collection or filtering as long as it is well dispersed and all the wastewater can percolate into the grass and soil. If wastewater runs off the grassy area, it must be filtered.
- Set a storm drain cover, fabric filter, sand bag enclosure or other capture device over or around storm drains if any materials might escape the work area and enter a drain. Empty or clean-out the capture device at the end of each work day and properly dispose of the wastes.
- Do not dump any toxic substance or liquid waste on the pavement, the ground or towards a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, sandblasting or graffiti removal work. Properly dispose of the waste and scraps collected on the drop cloth.
- Use a ground cloth or oversized tub for paint mixing and tool cleaning. Properly dispose of the wastes.
- Enclose spray-painting operations with tarps or other means to minimize wind drift and to contain overspray.
- Clean paint brushes and tools covered with water-based paints in sinks plumbed to a sanitary sewer or in portable containers that can be dumped into sanitary sewer drains. Never clean tools over a storm drain.

- Brushes and tools covered with non-water-based paints, finishes, thinners, solvents or other materials must be cleaned over a tub or container and the cleaning wastes disposed or recycled at an approved facility. Never clean tools over a storm drain.
- Store toxic materials under cover or inside of secondary containment.
- Do not dump mop water or cleaning wastes into the storm drains. Dispose of wastewater properly.
- Do not store materials on rooftops unless completely covered by a shelter or secure tarp and placed on a pallet or platform to keep the material from contacting run-off.
- If roof top cooling towers discharge, leak or mist-out cooling water, it must not enter roof drains. Pipe it to a sanitary drain, if permitted.
- Blow-down from utility boilers may not be discharged to storm drains or simply blown out of the building where it might contact run-off.
- Sweep or use other dry methods to clean sidewalks. Do not hose down.
- Do not drain fire sprinkler systems to storm drains. See *BMP: Fire Fighting Waste Water* for details.
- Promptly clean-up any spills of any paints, cleaners or other maintenance chemicals or supplies. See *BMP: Spill Clean-Up* for details.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- If it is expected that a building or structure will be pressure washed regularly, design the landscaping and paving to accommodate pressure-washing procedures described above.
- Design rooftop cooling towers to drain to a sanitary drain, if permitted. It must not enter roof drains if they ultimately lead to the parking lot or storm drains.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform building maintenance within 60 days of the date of this BMP.
- Train all new hires and job transferees who will conduct building maintenance before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who conduct building maintenance at least yearly.
- Train all employees who might be required to clean-up a spill or leak on proper spill clean-up procedures. See "*BMP: Spill Clean-Up.*"

REQUIRED MAINTENANCE

- Maintain pressure washing equipment according to manufacturer's recommendations.

RECORDS

- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. Best Management Practices for Pressure Washers, Sacramento, CA
<http://stoppp.tripod.com/downloads/pressurewashbmps.doc>

BMP: CONCRETE POURING & FINISHING

AFFECTED FACILITIES

This BMP applies at all municipal and county construction and maintenance projects where wet concrete is poured or finished and to both new construction projects and concrete repair projects.

BACKGROUND

Concrete mixers, trucks and pumpers must be cleaned after discharging a batch. Shovels and finishing tools must be cleaned at the end of each job. The cleaning process is usually done with water. The wastewater from this “wash out” contains calcium carbonate and other components of concrete which can contaminate surface waters. Finishing of concrete by “aggregate washing” can also direct wastewater and concrete into surface waters.

REQUIRED PRACTICES

- Never wash out over a storm drain inlet or into a drainage ditch.
- If equipment must be washed out at the job site, designate a “Wash Out Area” that is as far as possible from any surface waters storm drain inlets or drainage ditches. The Wash Out Area should also be located in a low area where wash water and storm water will pool and soak into the ground.
- If no suitable Wash Out Area can be located at the job site, then wash out will have to be done into a bucket or container. The container will have to be taken to a suitable place for disposal.
- If there is a small amount of excess wet concrete remaining at the end of a job (less than 1 cubic yard) and it cannot be used elsewhere, discharge it in the wash out area. Larger volumes of excess concrete must be returned to the batch plant or disposed as solid waste.
- When performing “aggregate washing” (washing off the top layer of wet concrete to expose a rough finish), channel and collect the wash water in a pit (or pits) in the soil. Back fill the pit(s) with soil after the water has soaked in or evaporated.
- Limit the amount of fresh concrete or cement mortar mixed to only what is needed for that job.

REQUIRED STRUCTURES AND EQUIPMENT

- All job sites where concrete is poured (excluding sites using less than 2 cubic yards) must have a designated Wash Out Area. If no Wash Out Area can be located, then wash out must be done into a bucket or container.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors including all contractor truck drivers and pumper truck operators who pour or finish concrete on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will pour or finish concrete on this BMP before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors including all contractor truck drivers and pumper truck operators who pour or finish concrete at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of employee and contractor training.
- Keep records of job site inspections and any violations of this BMP. Share those records with other WASH members.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: CONTAINER STORAGE OUTDOORS

AFFECTED FACILITIES

This BMP applies at all municipal and county facilities where solid, liquid or sludge materials (but excluding gases) in containers (totes, portable tanks, drums, cans, boxes, bags, jars, bottles, etc.) are stored outdoors regularly or temporarily. This BMP does not apply to storage in permanent aboveground tanks. This BMP does not apply to management of waste/trash containers outdoors (see *BMP: Waste Management & Disposal*).

BACKGROUND

Accidental releases of materials from totes, drums, cartons, bottles and bags stored outdoors present the potential for contaminating storm waters with many different pollutants. Materials spilled or leaked may accumulate in soils or on other surfaces and be carried away with runoff or snow melt. These source controls apply to containers located outside of a building.

REQUIRED PRACTICES

- Make sure all containers are labeled sufficiently to identify the material inside. Keep materials in their original shipping container whenever possible.
- Store all containers indoors whenever possible. If they must be stored outdoors, place them in a shed or under a roof overhang, if possible.
- Dispense, handle and transfer containerized materials to avoid drips, spills or accidents. Do not leave containers open for any longer than it takes to add or remove material. Re-close or seal each container securely after using it.
- Store containers where they are protected from vehicle traffic: either away from traffic or protected by crash posts.
- Place containers only on paved, impervious surfaces and as far from (or at a lower elevation than) storm drain inlets and drainage ditches as possible.
- Empty material from any container that is badly dented, significantly corroded, structurally unsound or that cannot be securely closed.
- Clean up any spills, leaks or discharges promptly. Refer to *BMP: Spill Clean-Up*.
- If a container is found to be leaking either empty the contents into a leak-tight container or place entire leaking container inside of a larger leak-tight container. A leaking container can often be rolled or upended temporarily to stop leaking until a leak-tight container can be located.
- Keep all outdoor storage areas neat and orderly. See *BMP: Good Housekeeping & Spill Prevention* for details.
- Do not drain accumulated water from secondary containment structures unless OK'd by a supervisor. See *BMP: Dewatering* for details.

REQUIRED STRUCTURES AND EQUIPMENT

- Ensure that all containers stored outdoors are weather-proof. For 55-gallon drums, apply weather-proof caps to bung holes.

- Provide guards, fencing or other means to prevent vandalism at facilities where containers of material are stored outdoors.
- Always place all containers on a pallet or other device to elevate them off the ground or pavement. This avoids contact with storm water run-on/run-off.
- When liquids are removed from container, use spigots, pumps or other dispensing devices that can be easily opened and closed without leaking. Place a drip pan under each spout, spigot or nozzle.
- Make sure an adequate spill kit or locker with sufficient equipment and supplies is available near each outdoor storage area where spills are possible.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Build impervious secondary containment structures for any new or renovated outdoor container storage areas. Secondary containment should be of sufficient capacity to hold the contents of the largest single container plus 4” of rainfall. Design the containment so that it drains to a blind sump (no outlet).

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who store, handle or use containers outdoors on this BMP within 60 days of the date of this BMP.
- Train all new hires or job transferees who will store, handle or use containers outdoors on this BMP before they are assigned their new duties.
- Conduct refresher training on this BMP for all employees and contractors who store, handle or use containers outdoors at least yearly.
- Train all employees who might be required to clean-up a spill or leak on proper spill clean-up procedures. See *BMP: Spill Clean-Up*.
- Train all employees who store, handle or use containers outdoors on good housekeeping. See *BMP: Good Housekeeping & Spill Prevention*.
- Train all employees who might be involved with draining water from secondary containment on the proper procedures. See *BMP: Dewatering*.

REQUIRED MAINTENANCE

- Inspect all containers stored outdoors at least weekly and after each rainstorm. Any containers that are leaking must either be moved indoors immediately or placed in a leak-tight “overpack” container immediately.

RECORDS

- Keep records of employee and contractor training.
- Keep copies of current MSDSs for all materials stored outdoors.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: CONTRACTING & PROPERTY LEASING

AFFECTED FACILITIES

This BMP applies to all contracting and property leasing done by municipalities and the county.

BACKGROUND

Contractors perform much of the work for municipalities and the county. Municipalities and the county also lease out properties and buildings such as food service establishments to private parties. These outside parties must comply with the same BMPs and storm water pollution prevention practices as employees.

REQUIRED PRACTICES

- Contracts with service providers such as haulers, equipment operators, builders and maintenance service providers must contain language that requires the contractor, his or her employees and any sub-contractors to comply with and follow all applicable BMPs.
- Leases for real property owned by a city or the county must also contain language that requires the leasee to comply with and follow all applicable BMPs.
- Contract and lease language should specifically address waste management and require all contractors and leasees to properly dispose of all wastes generated in their operations.
- Contract and lease language should also address spill clean-up, good housekeeping and employee training.
- Contract and lease language should allow storm water inspectors to, at reasonable times and with appropriate advance notice, inspect operations and/or enter onto leased property to ascertain compliance.
- Contract and lease language should require reporting of suspected violations, spills and discharges to the contract administrator. The contract administrator must forward such reports to the city storm water specialist.
- Suggested language might appear as follows:

“Stormwater runoff flows directly to creeks and waters of the state without treatment. Allowing pollutants to directly or indirectly enter the storm sewer system is prohibited by federal, state and local regulations. The operation and maintenance of public streets, roads and highways can cause stormwater pollution in numerous ways. For example, storm water pollution can be caused by wastes from street or equipment cleaning, by improper storage of products or wastes, or inadequate clean up of left-over or spilled products of wastes. These pollutants can either enter storm drains directly or be transported by storm water runoff.

The Contractor shall take all measures necessary to prevent pollutants from entering storm drains of watercourses. For the purpose of eliminating stormwater pollution, the contractor shall implement effective Best Management Practices (BMPs). BMPs include general good housekeeping practices, appropriate scheduling of activities, operational practices, maintenance procedures and other measures to prevent then discharge of pollutants directly or indirectly to the storm drain system. These BMPs shall be

maintained for the duration of the Contractor's work. The Contractor shall also be responsible for proper disposal of all waste materials, including wastes generated by the implementation of BMPs. The following BMPs shall be implemented to prevent stormwater pollution... “

REQUIRED STRUCTURES AND EQUIPMENT

- Se applicable BMPs.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- See applicable BMPs.

REQUIRED EMPLOYEE TRAINING

- See applicable BMPs.

REQUIRED MAINTENANCE

- Se applicable BMPs.

RECORDS

- Keep records of all contracts and leases including language requiring compliance with storm water BMPs.

EXAMPLES

REFERENCES

BMP: DEWATERING

AFFECTED FACILITIES

This BMP applies at all municipal and county facilities including all storm sewer systems and underground and aboveground structures that might collect ground, surface or storm water.

BACKGROUND

Ground water, rain water or snow melt can accumulate in plugged catch basins, storm drain inlets, storm sewer lines and in underground structures like sumps and utility vaults. Storm water and snow melt can also accumulate in above-ground structures like secondary containment structures built around chemical and petroleum tanks and solid material storage areas. This water may have to be flushed out or removed for various reasons and, if it is contaminated, it cannot be allowed to run into surface waters. Contaminants may include oils or sediments. This BMP is designed to direct the proper removal of water from storm drainage systems and underground vaults.

REQUIRED PRACTICES: Storm Drainage Systems

- In the field, when dewatering debris that has been removed from storm drain inlets, catch basins or line flushing, do so in an area where the water can percolate into the soil. Large flat grassy areas at least 100 feet from surface waters are best.
- If no suitable areas are available in the field, the wet debris must be hauled to a central (municipal or county owned) site where it can be spread out and the water must be allowed to evaporate or percolate into the soil.
- Recovered debris and sediments may be reused as mulch or disposed in a sanitary landfill.

REQUIRED PRACTICES: Underground and Aboveground Containment

- Before draining accumulated storm water from any aboveground structure such as a secondary containment structure (such as an aboveground bulk chemical or petroleum tanks or bulk solid material storage areas), a supervisor must determine that the water is not contaminated. (For petroleum tanks, any visible sheen on the water is an indication of contamination.) If contamination is suspected, sampling and testing of the water must be completed before draining or disposal.
- If water (from underground or aboveground structures) is found or suspected of contamination (with any visible sheen, floatables or odor), it may not be drained to a storm drain or drainage ditch. It must be discharged to the sanitary sewer (if allowed) or transported to an approved disposal facility.
- If the water is clear with no turbidity, no visible (“rainbow”) sheen and no odor, it may be pumped to the storm drainage.
- Water from underground structures that contains sediments (turbidity) can be filtered through fabric or sand filters or allowed to settle (in a container or portable tank such as a Baker tank). Once the sediments are successfully removed, the clear water may be pumped to the storm drainage. Removed sediments should be disposed as trash.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED MAINTENANCE

If a central dewatering area is used, a soil sample should be collected at least once every 5 years and tested for contamination. If the site has become contaminated, the source of the contaminants should be identified and the site remediated before continuing to be used as a dewatering area.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform dewatering on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will conduct dewatering before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who conduct dewatering at least yearly.

RECORDS

- Keep records of employee and contractor training.
- Keep records of the disposal or reuse of recovered sediments.

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: DRY & CONTAINERIZED MATERIAL LOADING & UNLOADING

AFFECTED FACILITIES

This BMP applies at all municipal and county facilities where dry materials (package products, drums, cans, bags, dry bulk products and supplies including containerized liquids) are loaded or unloaded. This BMP applies if the materials are loaded or unloaded at a loading dock, in a parking lot or elsewhere. This BMP applies for both hazardous and non-hazardous dry and containerized materials including foodstuffs.

BACKGROUND

The loading and unloading of materials usually takes place outside on docks or terminals. Materials spilled, leaked, or lost during loading or unloading may collect in the soil or on other surfaces and have the potential to be carried away by storm water runoff or when the area is cleaned. Pollutants may include sediments, nutrients, heavy metals, organics, oil and grease or oxygen depleting materials. Additionally, rainwater may wash pollutants from machinery used to load to move materials. Loading and unloading of material may include package products, barrels, bags, cartons, and boxes.

REQUIRED PRACTICES

- Park delivery and loading vehicles in a designated area where leaks can be contained and where material will not enter a storm drain or ditch. If feasible, load or unload all materials indoors or under a cover, shelter or roof overhang.
- Do not load or unload materials near a storm drain inlet unless it is equipped with a shut-off valve, drain cover or seal or other method to keep spills out of the storm sewer or the drain is at a higher elevation.
- Where door skirts are fitted to loading docks, make sure trailers are parked snug against the skirts before handling any materials.
- Only load or unload a vehicle after it is immobilized (e.g., wheels are chocked) to ensure vehicle will not be moved while being loaded or unloaded.
- Only load or unload on paved surfaces: never on bare ground. Spills on soils are very difficult to clean up.
- Keep loading and unloading areas neat and tidy. Sweep outdoor areas at least weekly. See *BMP: Good Housekeeping* for details.
- Do not load or unload materials that produce excessive dust unless the area is equipped with a dust control device and the dust is disposed of properly.

REQUIRED STRUCTURES AND EQUIPMENT

- If door skirts are installed on loading docks, assure that they are tight fitting against the vehicles and that they are not damaged or torn.
- Make sure an adequate spill kit or locker with sufficient equipment and supplies is available near each work area where spills are possible. See *BMP: Spill Clean Up* for details.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Do not install storm drain inlets near material loading or unloading areas unless they are equipped with shut-off valves.
- All loading and unloading areas should be paved with concrete rather than asphalt.
- Loading and unloading areas should be under a roof or overhang to avoid exposure.
- Grade and slope material loading and unloading areas to avoid storm water run-on into the area.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform materials loading or unloading on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will perform material loading or unloading work on this BMP before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who perform materials loading or unloading on this BMP at least yearly.
- Train all forklift operators on the safe operation of their vehicles.
- Train all employees who might be required to clean-up a spill or leak on proper spill clean-up. See “*BMP: Spill Clean-Up.*”
- Train all employees on good housekeeping. See “*BMP: Good Housekeeping & Spill Prevention.*”

REQUIRED MAINTENANCE

- Check loading and unloading equipment (forklifts, dock levelers, etc.) regularly for leaks. Repair or replace any leaking components promptly.
- Inspect door skirts regularly for a tight seal around arriving trailers. Repair or replace defective skirts promptly.
- Dust collection devices associated with loading or unloading dust-producing materials such as baghouses, cyclones and cartridge filters must be inspected weekly. If leaks or malfunctions are discovered, they must be repaired or replaced promptly.

RECORDS

- Keep records of employee and contractor training.
- Keep records of inspections and repairs performed on loading and unloading equipment including air pollution control devices.

EXAMPLES

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003

3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: EMPLOYEE & CONTRACTOR TRAINING

AFFECTED FACILITIES

This BMP applies at all municipal and county facilities.

BACKGROUND

Employee and contractor training and knowledge are the beginning point for solving storm water pollution problems. An employee or contractor who is trained at the start of any job will perform the task correctly; an untrained employee may not perform the task correctly and may never learn to do it the right way. Specific training aspects for employees and contractors are identified in each BMP. The focus of this BMP is more general and includes the overall objectives for assuring effective training. Employee and contractor training is among the most important BMPs.

REQUIRED PRACTICES

- Initial training, training for new hires and job transferees and refresher training are all required. Training frequency is identified for each BMP.
- Many BMPs cross-reference other BMPs. Employees and contractors whose work is covered should also be trained on cross-referenced BMPs. Refer to the **REQUIRED EMPLOYEE & CONTRACTOR TRAINING** section of each applicable BMP for job-specific training requirements.
- It is up to each facility or department supervisor to decide which employees or contractors require training. Only employees and contractors whose work is outdoors (always or occasionally) and involves potential storm water pollutants.
- Training may include formal classroom training sessions, videos, handouts or offsite commercial or community college training.
- Training sessions should allow adequate time for questions and discussion.
- The trainer should be thoroughly familiar with storm water pollution prevention.

REQUIRED STRUCTURES AND EQUIPMENT

- None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- None

REQUIRED EMPLOYEE TRAINING

- See **REQUIRED PRACTICES**

REQUIRED MAINTENANCE

- None

RECORDS

- Keep records of all employee classroom training sessions, offsite classes or on-the-job training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: FIRE FIGHTING WASTEWATER

AFFECTED FACILITIES

This BMP applies at all locations where municipal or county firefighters use water from fire hydrants to fight a fire. This BMP only applies after the fire is under control and personnel are available to conduct this BMP. This BMP also applies at all municipal and county buildings with fire sprinkler systems.

BACKGROUND

The wastewater from fire fighting can contain a variety of contaminants primarily sediments from ashes. Storm water can also be contaminated from organics from car and engine fires. These contaminants can flow into surface waters near the fire if waste water is allowed to enter storm drains or ditches.

REQUIRED PRACTICES

- As soon as possible after the fire is under control, block storm drains inlets and entry into drainage ditches. Use covers, sand bag dams or plastic sheeting to avoid fire-fighting flows into surface waters.
- If wastewater accumulates in pools or low areas, take samples for testing to determine proper disposal.
- When draining a fire sprinkler system from a building, do not drain the wastewater to a storm drain or ditch. Due to the quantity and velocity, the wastewater is best drained onto a clean impervious surface such as a parking lot. Discharge to the sanitary sewer if allowed by the local sanitary district.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED EMPLOYEE TRAINING

- Train all current fire fighters on this BMP within 60 days of the date of this BMP.
- Train all new hire fire fighters on this BMP before they are assigned to their new duties.
- Conduct refresher training for all fire fighters at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of employee training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: FOOD SERVICE & WASTE HANDLING

AFFECTED FACILITIES

This BMP applies at all fixed municipal and county facilities that prepare, cook, handle or serve food and generate food wastes.

BACKGROUND

Restaurants and cafeterias generate food wastes and cleaning wastes. These wastes contain organics and nutrients that can pollute storm water and receiving waters. These materials can cause algae blooms and deplete oxygen thus harming fish and wildlife. Cleaners used by food handling operations can contain caustic materials that can harm receiving waters. Pathogens from decaying food can also harm animals and humans. This BMP is designed to minimize the release of food wastes and restaurant cleaning wastes into storm water.

REQUIRED PRACTICES

- Keep outdoor food waste storage areas and surrounding areas clean. Practice good housekeeping. See *BMP: Good Housekeeping & Spill Prevention* for details.
- Clean floor mats, air vents, hoods, meat trays, garbage cans and other equipment indoors at the mop sink or near a floor drain that is plumbed to the sanitary sewer. Portable equipment may also be cleaned in dishwashers or public car washes. Do not clean floor mats, air vents, hoods, meat trays, garbage cans and other equipment outdoors unless it is performed in an area where wastewater will drain to the sanitary sewer (if approved) or collected for proper disposal.
- Dispose of waste mop water in the mop sink, floor drain, or toilet. Do not dump waste mop water outdoors.
- Place food and grease waste in leak-proof containers with tight-fitting lids where they cannot be knocked over by wind.
- Do not place liquids or liquid-containing food wastes in dumpsters or outdoor waste receptacles. If liquid wastes must be disposed in the trash, absorb them on kitty litter or other absorbents before disposal.

REQUIRED STRUCTURES AND EQUIPMENT

- Food waste containers located outdoors must be sturdy and leak-tight. Liners may be used to keep containers leak-tight. Containers located where wild or domestic animals are known to scavenge must be animal-proof.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- If food and grease waste containers must be stored outdoors, consider designing a bermed or diked area where food and grease wastes can be stored and storm water run-on will be diverted.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform food serving or handling on this BMP within 60 days of the date of this BMP.
- Train new hires and job transferees who will perform food serving or handling on this BMP before assigning them to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who perform food serving or handling at least yearly.
- Train all facility employees and contractors on good housekeeping. See “*BMP: Good Housekeeping & Spill Prevention.*”

REQUIRED MAINTENANCE

- Regularly inspect and clean grease traps and/or grease interceptors. Refer to municipal ordinance for frequency requirements. Grease and solids removed from the trap or interceptor must be disposed or reclaimed at an approved facility.
- Regularly inspect and clean recyclable grease (tallow) bins. Recycle these wastes with a commercial recycler whenever possible.

RECORDS

- Keep records of employee and contractor training.
- Keep records of the dates of grease trap/interceptor and tallow bin cleanings and the amount of materials removed.
- Keep records of grease and tallow sent to reclaimers.

EXAMPLES

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. *Typical Stormwater Violations Observed in Restaurants*
<http://www.ci.pinole.ca.us/publicworks/downloads/RestaurantStormwater.pdf>
8. Alameda Countywide Clean Water Program – Restaurant fact sheet
www.cleanwaterprogram.com/restaurant_fact_sht.pdf

BMP: GOOD HOUSEKEEPING & SPILL PREVENTION

AFFECTED FACILITIES

This BMP applies at all municipal and county operations.

BACKGROUND

Most storm water pollution occurs as a result of a spill, leak or release: when materials or wastes are uncontrolled and exposed to storm water. Spills and releases often occur when a container is punctured or broken in an accident. Accidents often occur because an employee tripped or had to handle a container in an awkward position and he or she lost control of it. Good housekeeping is simply the practice of keeping all materials, supplies and containers well organized. Storing materials securely when not in use and only having materials that are needed for the current work activity in the work area. Good housekeeping also helps prevent storm water pollution if an accident or release does occur. A small accident in an area with lots of other materials (some of which may be hazardous) can quickly escalate into a major accident. A neat tidy work area is easier to clean up than one that is cluttered.

REQUIRED PRACTICES

- Keep all work areas neat and well organized. Sweep or pick-up all trash and debris daily or as needed.
- Recycle or dispose of all wastes properly and promptly. Do not let waste accumulate at or around the work place. See *BMP: Waste Management & Disposal* for details on proper waste management.
- Do not handle, use, pour, dispose or transfer materials outdoors near or in storm drain inlets or drainage ditches.
- Do not try to handle a container alone if it is awkward or requires over-exertion. Get help or use powered equipment.
- Do not wash down or hose down any outdoor work areas or trash/waste container storage areas except where wash water will only enter the sanitary sewer (if approved). Use only dry clean-up methods. Clean-up all spills or releases promptly and use the practices described in "*BMP: Spill Clean-Up*".

REQUIRED STRUCTURES AND EQUIPMENT

- Make sure an adequate spill kit or locker with sufficient equipment and supplies is available near each work area where spills or leaks are possible.
- Stencil any storm drain inlets at or near the facility to notify employees and contractors not to dispose of any materials or wastes here.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Design new or remodeled facilities so that all work involving industrial materials or wastes is conducted indoors or under a roof or inside of containment.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who work outdoors on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who work outdoors on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who work outdoors at least annually.
- Train all employees and contractors who might be required to clean-up a spill or leak on proper spill clean-up practices. See “*BMP: Spill Clean-Up.*”

REQUIRED MAINTENANCE

- Sweep all outdoor work areas daily or as needed. Dispose of dust and debris collected at an approved disposal facility.

RECORDS

- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: ILLICIT DISCHARGE ELIMINATION

AFFECTED FACILITIES

This BMP applies to all employees and contractors who work on or near storm drainage systems including storm drain inlets, storm sewers and drainage ditches. This includes building inspectors and fire inspectors as well as storm drainage and streets personnel.

BACKGROUND

Storm drainage systems have often been misused for waste disposal. Wastes ranging from used motor oil to spent solvents to grass clippings to trash to paint brush cleaning wastes have all been sent to storm drainage systems. Just about anything that can be pumped, dumped or shoveled has been disposed in storm drainage systems. These “illicit discharges” come from two sources: (a) illicit connections (permanent, hard-piped connections) into storm drainage systems and (b) regular or occasional dumping (“midnight dumping”) of wastes into storm drain inlets and drainage ditches.

Illicit connections are more common in older buildings and may have been in place for decades. Illicit connections may include discharges of sanitary sewerage, process wastewater, cooling water, floor drains, boiler or compressor blow-down and/or septic systems. Illicit connections are often discovered during building remodels, additions or renovations.

Illicit dumping may consist of pouring wastes such as cleaning wastes, spent solvents, spent degreasers, turpentine from paint cleaning and scraps. Illegal dumping may also include disposal of landscaping wastes like grass clippings, leaves, tree trimmings and weeds. Some illegal dumping has been known to involve hazardous waste such as excess or expired industrial chemicals, pesticides and used oil. Illicit dumping also includes allowing wastewater from vehicle or equipment cleaning on commercial property (especially cleaning with solvents or soaps) to flow into storm drainage systems.

REQUIRED PRACTICES

- All municipal and county employees and contractors are to stay alert for evidence of illicit discharges or the threat of an illicit discharge into the storm sewer system at any point or any time.
 - Evidence of illicit connections (hard-piped, permanent connections into the storm drainage system) includes: (a) any dry weather flows and (b) discolored or odorous wet weather flows in storm drainage systems.
 - Evidence of illicit dumping includes: (a) staining or discoloration of storm drain inlets and drainage ditches, (b) unsealed, empty or overturned containers sitting in or near storm drainage systems, (c) hoses or flexible piping running into storm drainage systems and (d) open drain valves or pipes on secondary containment. Illicit dumping may also be observed as it happens as in the case of a facility that steam cleans its mobile equipment or vehicles over or near a storm drain inlet or next to a roadside drainage ditch.

- When any employee or contractor discovers evidence of an illicit discharge, this suspicion is to be reported to their supervisor or the city storm water coordinator immediately. Describe the evidence noted, the exact location and the exact time and date of the observation.
- Upon receipt of a report of a suspected illicit discharge, the city storm water coordinator will conduct an investigation promptly and record his/her findings. For details, see *WASH Stormwater – Illicit Discharge Ordinance*.

Note: Non-storm water discharges that are allowed to enter storm drainage systems include the following *only*: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising groundwater, uncontaminated infiltrating or pumped ground water, foundation or footing drains, crawl space pumps, air conditioning condensate, springs, natural riparian habitat or wetland flows, de-chlorinated swimming pool flows, fire fighting activities, dye testing (with prior notification) and any other water source not containing pollutants. Discharge of these waters is not considered illicit discharge.

REQUIRED STRUCTURES AND EQUIPMENT

- Upon receipt of a report of a suspected illicit discharge, the city storm water coordinator will conduct an investigation promptly and record his/her findings. For details, see *WASH Stormwater- Illicit Discharge Ordinance*.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- No new construction, remodel, addition or renovation will be permitted to include any illicit connection.
- Any illicit connection discovered during a remodel, renovation, remodel or addition will be immediately disconnected.

REQUIRED EMPLOYEE TRAINING

- Train all employees who perform building maintenance, building inspections, fire inspections and street sweeping or maintenance within 60 days of the date of this BMP.
- Train all new hires and job transferees who will conduct building maintenance, building inspections, fire inspections and street sweeping or maintenance before they are assigned to their new duties.
- Conduct refresher training for all employees who conduct building maintenance, building inspections, fire inspections and street sweeping or maintenance at least yearly.

REQUIRED MAINTENANCE

- None

RECORDS

- Keep records of employee training.
- Keep records of all reports of suspected illicit discharges.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
3. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
4. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
5. WASH: Model Stormwater Illicit Discharge Ordinance, 6/30/03 (Draft 3)

BMP: LANDSCAPING, LAWN & VEGETATION MAINTENANCE

AFFECTED FACILITIES

This BMP applies at all municipal and county installations where pesticides or fertilizers are stored, mixed, applied, recycled or disposed. It also applies at any municipal or county property where lawns or vegetation are cut, mowed, trimmed or removed.

BACKGROUND

Landscape management activities include vegetation removal, pesticide application, fertilizer application, watering, and other gardening and lawn care activities. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. These practices may contribute pollutants to the storm drain system. Landscape chemicals and wastes can pollute storm water with sediments and toxics that can kill fish and wildlife and can harm humans. Fertilizers can contribute to algae blooms and deplete oxygen from receiving waters. The major objectives of this BMP are to minimize or prevent the discharge of pesticides, fertilizers, and landscape wastes to storm water and receiving waters.

REQUIRED PRACTICES

Landscaping and Lawn Maintenance:

- Control soil erosion by seeding, sod, mats, mulching, terracing or other effective methods.
- Mulch-mow grasses whenever possible.
- Dispose of organic wastes by composting whenever possible. When composting is not possible, dispose of organic wastes in an approved disposal facility. Do not wash down or dispose of lawn clippings, leaves, tree trimmings, or other landscape waste in or near a storm drain, drainage ditch, or open body of water.
- Use mulch or other erosion control methods to prevent erosion of exposed soils and flowerbeds.
- Do not apply bark on top of plastic sheeting unless the area is enclosed by a barrier-like lawn edging or it is far away from a storm drain inlet. Bark on plastic is easily washed off by heavy rainfall.
- Only irrigate as much water as needed. Never water at rates that exceed the infiltration rate of the soil.
- Till fertilizers into the soil rather than broadcasting them wherever feasible.

Pesticide & Fertilizer Application

- Develop an Integrated Pest Management Plan. Use manual and/or mechanical methods for weed/pest control and vegetation removal wherever possible rather than chemical methods. When chemicals are required, use the least toxic method to control animal and plant pests. Pheromone-based traps and sticky paper are often more effective than chemicals. Beneficial organisms should be promoted.
- When chemicals are used, use the most biodegradable pesticide that will accomplish the desired vector control.

- Sweep pavements or sidewalks where fertilizers or other solid chemicals have fallen. Sweep the chemicals back onto grassy areas.
- Follow all federal and state regulations governing use, storage and disposal of pesticides, herbicides and fertilizers and training of pesticide applicators (“Read the Label”).
- Follow all manufacturers’ recommendations for mixing, applying, cleaning-up, storage and handling of pesticides and fertilizers. Never over-apply or apply at times or under conditions contrary to the manufacturer’s recommendations.
- Time the application of pesticides and fertilizers to coincide with the manufacturer’s recommendation for best results. Do not apply fertilizers during a heavy rainfall or if a heavy rainfall is expected. Do not apply a pesticide immediately before an irrigation cycle.
- Store and mix pesticides in a protected area with impervious secondary containment (preferably indoors) so that spills or leaks will not contact soils.
- Make sure all containers are clearly labeled.
- Mix only the minimum amount of pesticide that will be needed for the immediate job.
- Dispose of triple rinsate from empty containers and rinsate from sprayer cleaning properly. Do not pour onto ground or into any drainage system. Use the rinsate as diluent for the next batch if possible.
- Cleanup any spills or leaks of pesticides and fertilizers promptly. See “*BMP: Spill Clean-Up*” for details.
- Use rinse water from cleaning of containers and application equipment as a diluent for the next batch of that pesticide wherever possible,
- Dispose of excess or leftover chemicals and empty or expired pesticide containers according to instructions on the label. Do not dispose of excess, expired or waste pesticides or fertilizers in storm sewers, drainage ditches or any surface waters.
- Do not spray pesticides within 100 feet of any surface water body or wetland (unless your municipality has a stricter limit).
- Do not apply any fertilizer or pesticide in any drainage ditch.
- Spot spray pesticides on infested areas whenever possible rather than treat a larger area. Do not use pesticides on a regular (preventive) basis. Apply only when there is an actual pest problem.
- Use granular pesticides whenever possible since they result in lower application losses.
- Do not apply pesticides or fertilizers in winds exceeding 7 mph (City of Knoxville, TN: Std AM-13, 1/01).
- Avoid broadcast spraying. Use spot spraying only.

REQUIRED STRUCTURES AND EQUIPMENT

- All pesticide application equipment must be capable of immediate shut-off in the event of an emergency.
- Use automatic timers on all irrigation equipment to minimize run-off.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Design new or re-landscaped areas using xeriscaping principals to the maximum extent possible. Use of hardy plant materials appropriate to the climate is required. (See

“*Storm Water Protection – It’s Part of the Landscaping Plan*” published by WASH Boulder County.)

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who conduct grass mowing or landscaping activity on this BMP within 60 days of the BMP date.
- Train all new employees and job transferees who conduct grass mowing or landscaping activity on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who do grass mowing or landscaping activities at least annually.
- Pesticide application must be done only under the supervision of a certified “pesticide applicator”.
- All employees who handle or apply pesticides or herbicides should be trained on the most recent Material Safety Data Sheet(s).
- Train employees on the proper methods for cleaning up spills or leaks of pesticides, herbicides and fertilizers. See “*BMP: Spill Clean-Up*”.
- Employees who handle or apply pesticides, herbicides or fertilizers should be trained in waste management. See *BMP: Waste Management* for details.

REQUIRED MAINTENANCE

- Maintain all irrigation systems so that irrigation water is applied evenly and where it is needed, and so that a minimum amount of water falls on impervious surfaces or runs off from the target property.
- Repair broken or leaking sprinkler heads quickly.
- Regularly inspect, maintain and calibrate all pesticide and fertilizer application equipment so that it can be set at the correct application rates.

RECORDS

- Keep records of employee and contractor training.
- Keep records of fertilizer and pesticide purchases and amounts and locations used.
- Keep an inventory of fertilizers and pesticides including expiration dates.

EXAMPLES

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003

5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. *Storm Water Protection – It's Part of the Landscaping Plan*, WASH Project, Boulder County

BMP: LIQUID BULK MATERIAL STORAGE, LOADING & UNLOADING

AFFECTED FACILITIES

This BMP applies at all fixed municipal and county facilities where liquid bulk materials (including but not limited to gasoline, diesel fuel, heating oil, lube oil, hydraulic oil, used oil and magnesium chloride) are loaded, unloaded or stored. This BMP applies for loading or unloading to/from and storage in aboveground storage tanks (ASTs), partially buried storage tanks and underground storage tanks (USTs).

BACKGROUND

Bulk liquid materials pose a threat to storm water if a spill or release occurs and is washed away by rain or snow melt. A leak can contaminate storm water with organics and hydrocarbons. Since bulk liquids are normally handled in large volumes, the resulting pollution can be significant. A tank truck of gasoline can carry up to 8000 gallons. Aboveground fuel storage tanks can hold many thousands of gallons of fuel. It has been estimated that as little as one quart of petroleum product can contaminate up to 250,000 gallons of water so a large-scale leak can be an environmental disaster. It is the intent of this BMP to minimize the risks of spills and leaks when receiving, dispensing or storing bulk liquid materials like gasoline, diesel fuel and chemicals such as magnesium chloride.

REQUIRED PRACTICES

- Park delivery and receiving vehicles in a designated area where leaks can be contained and where they will not enter a storm drain or ditch. Transfer liquids only on paved impervious surfaces.
- If transfers must take place near a storm drain inlet, place a cover or mat over the inlet to protect it during transfer operations.
- Only load or unload a vehicle after it is immobilized (e.g., wheels are chocked) and (if flammable materials are involved) grounding cables are attached. These measures will prevent accidental movement and static build-up.
- At least one qualified person (e.g. the delivery driver) must attend any transfer operation for the entire duration of the loading or unloading operation.
- Place drip pans or buckets under all hose or pipe connections and leave them in-place until the loading or unloading operation is complete unless the loading/unloading area is paved and equipped with secondary containment. Recycle or dispose of any leaked material collected in a drip pan or bucket properly. See “*BMP: Waste Management & Disposal*” for details.
- Keep drain valves in secondary containment around ASTs locked in the closed position at all times. Open for draining only under supervision. For details on proper draining, see *BMP: Dewatering*.
- Keep loading and unloading areas neat and tidy. Sweep outdoor areas at least weekly. If a spill or leak occurs, debris can complicate the clean up. See *BMP: Good Housekeeping & Spill Prevention* for details.

REQUIRED STRUCTURES AND EQUIPMENT

- Provide impervious secondary containment for all ASTs (except double-walled tanks) that is sufficient to contain the entire contents of the largest single tank plus an additional 4” of rainfall.
- Provide ASTs with protection from vehicle collisions: crash posts or concrete secondary containment structures.
- Provide all tanks with some form of overfill protection such as an automatic shut-off valve, a high level alarm or an overflow pipe to another tank. (*All required for gas tanks except high level alarm*)
- Make sure an adequate spill kit or locker with sufficient equipment and supplies is available near each work area where spills are possible.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Do not install storm drains near or at a lower elevation than material loading or unloading areas unless they are equipped with shut-off valves.
- All loading and unloading areas should be paved with concrete rather than asphalt and provided with impervious secondary containment.
- Grade and slope material loading and unloading areas to avoid run-on to the area.
- Provide a means of secondary containment for all new or rebuilt stationary liquid bulk storage vessels. Double wall tanks are preferred. Separate structures made of concrete, steel, plastic or other impervious materials may also be used so long as they allow for complete containment of the contents of the largest single container with 4 inches of freeboard remaining.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform liquid bulk materials storage, loading or unloading on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will perform liquid bulk material storage, loading or unloading work on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who perform liquid bulk materials storage, loading or unloading at least yearly.
- Train all employees and contractors who work with or around bulk liquid storage tanks on good housekeeping. See *BMP: Good Housekeeping & Spill Prevention*.
- Train all employees and contractors who might be required to clean up a spill or leak on proper spill clean-up. See “*BMP: Spill Clean-Up.*”
- Train all employees who might be involved with draining secondary containment structures. See “*BMP: Dewatering.*”

REQUIRED MAINTENANCE

- Check all equipment (pumps, valves, connections, hoses, pipelines, transfer lines, fuel islands, AST tank bodies, AST tank supports and foundations) monthly for leaks, seeps, cracks or damage. Repair or replace any faulty components promptly.
- Comply with all preventive maintenance conditions of the facility Spill Prevention Control and Countermeasure (SPCC) Plan, if applicable.
- Inspect secondary containment structures around ASTs at least yearly for cracks, damage or corrosion. Repair any faults within 30 days.

RECORDS

- Keep a written record of each time uncontaminated storm water was drained from secondary containment. Record the date, amount drained and confirmation that the water was uncontaminated.
- Keep a written record of all inspections and repairs done on all tanks.
- Keep records of employee and contractor training.
- Keep written records of all uncontrolled releases, how and when they occurred, and use for training purposes and future spill prevention.

EXAMPLES

REFERENCES

1. *Colorado's Phase II Municipal Guidance*, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: POTABLE LINE FLUSHING

AFFECTED FACILITIES

This BMP applies at all municipal and county water utilities and potable water distribution systems.

BACKGROUND

Potable water is chlorinated. The discharge of chlorine to surface waters can damage aquatic life. New potable water lines are often flushed with “super-chlorinated” water: water that is treated at a higher-than-normal dosage of chlorine. This water is even more harmful to aquatic life. This BMP prohibits discharge of these waters unless de-chlorinated.

REQUIRED PRACTICES

- Do not discharge potable water or super-chlorinated water to any storm drain or ditch or surface water.
- Potable water or super-chlorinated water may be discharged after de-chlorination by aeration, retention or chemical treatment to “no measurable chlorine” content.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform potable water line flushing within 60 days of the date of this BMP.
- Train all new hires and job transferees who are will conduct potable line flushing on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who conduct potable line flushing at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of employee and contractor training.
- Keep records of the volumes of water discharged to storm drains, ditches or surface waters including the analytical test results showing “no measurable chlorine” content.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: SALT STORAGE & SNOW DISPOSAL

AFFECTED FACILITIES

This BMP applies at all municipal or county facilities where salt (rock salt) is stored or inventoried and where snow is disposed (dumped after transport from its original location).

BACKGROUND

Rock salt can severely damage surface waters. When stored in large quantities, run-on and run-off from salt storage areas can quickly dissolve large volumes of salt and carry it into surface waters. Rock salt spread on streets, parking areas, sidewalks and walking paths can be picked up when snow is removed and dumped in disposal areas. This snow can also pick up debris and sediments. Surface waters must be protected from snow disposal areas.

REQUIRED PRACTICES

Rock salt must be stored on impervious paved areas (asphalt or concrete) and these areas must bermed to adequately protect the salt from escaping the cover.

REQUIRED STRUCTURES AND EQUIPMENT

- Snow disposal areas must be located at least 500 feet from any storm drain inlets, drainage ditches or surface waters.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- New salt storage facilities must be totally enclosed such as salt domes or fabricated buildings.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who work with salt storage facilities or snow plowing on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who work with salt storage facilities or snow plowing on this BMP before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who work with salt storage facilities or snow plowing at least yearly.

REQUIRED MAINTENANCE

- Inspect and maintain salt storage facilities. Repair any gaps in covers or berms promptly.

RECORDS

- Keep records of employee and contractor training.

EXAMPLES

- See the County's new road maintenance shop in Longmont scheduled to open in 2005.

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. Storm Water Fact Sheet: Minimizing Effects from Highway Deicing, US EPA (832-99-016), Sept. 1999

BMP: CLEAN-UP OF SANITARY SEWER BACK-UPS

AFFECTED FACILITIES

This BMP applies at all municipal sanitary sewer systems.

BACKGROUND

The back-up of a sanitary sewer can result in the discharge of raw sewerage to surface waters. This is both a threat to human health and to the environment. Sewerage incident response and investigation may involve a number of agencies. Back-ups, while rare, can involve large volumes of wastewater and can pose a substantial threat to the receiving surface waters.

REQUIRED PRACTICES

- Stop the discharge as quickly as possible.
- Do not pump sewerage back-ups, disinfectant or disinfected sewerage into storm drains, ditches or surface waters.
- When a back-up occurs and when disinfecting the contaminated area, take every effort to ensure that sewerage, disinfectant and disinfected sewerage is not accidentally discharged into a storm drain or ditch. Methods may include: (a) blocking storm drain inlets and catch basins, (b) containing and diverting sewerage and disinfectant away from open channels and other storm drain fixtures and (c) removing the material with vacuum equipment.
- Do not clean tools or equipment in or near surface waters or over storm drains or ditches.
- When the response actions are complete, inspect the flow path of the backed up waters. Identify any areas that may have experienced soil erosion and need repair.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who might be called upon to respond to sanitary sewer back-ups within 60 days of the date of this BMP.
- Train all new hires and job transferees who will conduct sanitary sewer back-up response on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who respond to sewer back-ups at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of each sanitary sewer back-up including the location, the estimated amount of sewerage and/or disinfectant discharged and the results of the clean-up efforts. Report sewerage back-ups to the municipal storm water coordinator.
- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. Proposed Rule: NPDES Permit Requirements for Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems and Sanitary Sewer Overflows ("CMOM"), *Federal Register*, January 4, 2001

BMP: SPILL CLEAN UP

AFFECTED FACILITIES

This BMP applies at all municipal and county installations where fuels, oils, lubricants, anti-freeze, solvents, cleaners, detergents, degreasers, paints, thinners, lacquers, stains, acids, caustics, fertilizers, herbicides, pesticides and other chemicals are handled, stored, used, re-packaged or transferred. This BMP also applies at all field locations where municipal employees are involved in spill clean up. If any spill, release or leak of any quantity of any such chemical occurs, this BMP must be followed to promptly clean-up the release.

BACKGROUND

Spill and leaks, if not properly controlled, can adversely impact storm waters and receiving waters. Due to the type of work or the materials involved, many activities that occur either at a municipal facility or field operations have the potential for accidental spills or leaks. Proper spill response planning and preparation enables employees and contractors to effectively respond to problems when they occur and minimize the discharge of pollutants to the environment.

Activities with high potential for spills include:

- Chemical transfer
- Equipment and Vehicle Fueling
- Fertilizer Application
- Pesticide Application
- Painting/Staining/Striping

REQUIRED PRACTICES

- Handle, use, store, re-package and transfer all chemicals indoors or under cover from the weather where possible.
- As soon as an outdoor spill or leak is discovered, notify your supervisor or another employee. If the material is hazardous or of sufficient quantity, it may require specially trained personnel to clean up.
- Use “Dry” methods for spill clean up. Do not “wash-down” or “hose-down” spills or leaks. For spills or leaks of solid materials (powders, granulated materials, etc.) sweep up with a broom.
- Use the “3 Step Method” for cleaning up spills of non-hazardous liquids:
 - 1) Spread absorbents (loose, sheets, pigs, or socks) on spill.
 - 2) Sweep up the absorbed material.
 - 3) If residues still remain, mop up and dispose of waste mop water in a sanitary sewer.
- Clean up spills thoroughly and promptly. Delaying clean up allows for spreading of wastes by wind, rain and vehicle traffic and it is a safety hazard. If the spill response cannot be done immediately, assign someone to guard the area (or string WARNING tape) to prevent foot or vehicle traffic.
- If the spill or leak threatens to enter or flow into a storm drain inlet or surface water body, contain the spill before attempting to clean it up. For liquids, place absorbent pigs or

socks in its pathway. Place absorbent pigs or socks around all threatened storm drain inlets before starting the clean up.

- If a leaking portable container is discovered, either transfer the contents to another container, place the entire leaking container inside another larger container or, if it can be done safely, roll or turn the container so the hole is at the top. Then move the contained container indoors.
- If a spill or release escapes the boundaries of the facility or enters a body of surface water, notify the local fire department and the State of Colorado spill notification hotline, (877) 518-5608, immediately upon discovery.
- If a spill or leak is of a hazardous substance exceeds 1 quart or an unknown substance of any amount, notify the county EERT or the city spill contractor.
- Clean or dispose of all clean-up equipment and supplies properly. Some clean-up wastes may be “hazardous wastes” and will require disposal at a specially permitted hazardous waste disposal facility.
- Comply with the facility Spill Prevention, Controls and Countermeasure Plan (SPCC) requirements where applicable (large volume fuel or oil storage facilities). See 40 CFR 112.

REQUIRED STRUCTURES AND EQUIPMENT

- Activities involving handling or transfer of industrial-type chemicals outdoors should be equipped with permanent or temporary secondary containment devices like berms or dikes around the handling area to catch spills where possible.
- Establish spill kits or lockers at each facility within close proximity to the location where industrial-type chemicals are handled outdoors. Stock each kit or locker with adequate equipment and supplies to clean up the expected worst-case spill or leak of the materials being handled at the facility. Facilities handling many different types of materials or chemicals may require different kinds of spill response equipment and supplies. Also stock adequate personal protective equipment (PPE) to equip the spill responders (minimum of 2 responders per clean-up).
- Place signs near and on spill kits and lockers so that all employees know the location(s) of these supplies.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Construct impervious berms or secondary containment around areas where materials are stored, handled, transferred routinely. Make sure these berms or dikes are adequate to contain the maximum quantity of a single spill or leak plus a simultaneous heavy rain fall.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors working at facilities that handle, store, transfer, use or re-package the types of materials identified and who might be called upon to assist in a clean-up of a spill, leak or release on this BMP within 60 days of the date of this BMP.

- Train new hires and job transferees who will work at facilities that handle, store, transfer, use or re-package the types of materials identified on this BMP before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who work at facilities that handle, store, transfer, use or re-package the types of materials identified on this BMP at least annually.
- Make sure employees and contractors know the location(s) of each spill kit or locker at their facility.
- Train employees and contractors on the correct use of spill response equipment and supplies.
- Train employees and contractors on the proper personal protective equipment to be used for each type of clean up. Training similar to OSHA “Hazard Communication” (49 CFR 1910.1200) and/or “Hazardous Waste Operations and Emergency Response” (49 CFR 1910.120q) may be useful.
- If handling or clean up of the materials onsite requires PPE (refer to the Material Safety Data Sheet for this information), train employees and contractors on the correct use of each type of PPE including: gloves, goggles, splash shields, boots, aprons and respirators (if applicable).
- Train employees and contractors on the proper methods for disposal of clean-up wastes. Make sure employees and contractors know that clean-up of some hazardous materials like certain solvents and thinners may generate a “hazardous waste” that cannot be disposed along with normal facility solid waste.
- Train all employees on good housekeeping. See “*BMP: Good Housekeeping*” for details.
- If the facility has an SPCC Plan, train all employees and contractors who handle the oil or fuel on the requirements of the Plan.

REQUIRED MAINTENANCE

- Inspect each spill kit or locker monthly and after each spill response episode. Repair or replace any equipment that is worn or not suitable for service. Replace any supplies that have been consumed.
- Inspect all secondary containments structures like berms and dikes for cracks, gaps or damage. Repair problems within 30 days.
- Maintain an up-to-date book containing all Material Safety Data Sheets for all materials that might require clean up.

RECORDS

- Keep a record of each spill clean-up operations. Record the date, time, material spilled, the cause of the spill and an estimate the amount spilled and the amount cleaned-up. Send a copy of the report to the city storm water coordinator.
- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: STORM DRAINAGE SYSTEM MAINTENANCE

AFFECTED FACILITIES

This BMP applies at all municipal storm drainage structures. This includes storm drain inlets, catch basins, sumps, storm sewer lines, manholes, drainage ditches, outfalls and detention areas.

BACKGROUND

As a consequence of its function, the storm water conveyance system collects and transports urban runoff and snowmelt that may contain certain pollutants. Any pollutant that might wind up on a street or parking lot can wind up in the storm drain. This may include oil and grease, nutrients, trash, organics and oxygen depleting compounds. Maintaining catch basins, storm water inlets and other storm water conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capability and ensure the system functions properly to avoid flooding.

REQUIRED PRACTICES

- Do not discharge any contaminated stormwater or storm sewer flush water into surface waters. Contaminated wastewater must be disposed at an approved disposal facility depending on the type and concentration of contaminants
- Remove rubbish, debris and wastes from storm drain inlets, sumps, catch basins and drainage ditches regularly.
- Do not store wastes collected from cleaning of sumps, catch basins, drainage ditches or line flushing in areas where they might be washed back into the sewer system by the next rain fall.
 - Remove all wastes for permanent disposal at an approved site as soon as possible and dispose according to applicable state and federal regulations.
 - If temporary storage is required before pick-up, store wastes in containers or at least 100 feet from or at a lower elevation than any storm drain inlets or ditches.
- Flush out storm sewer systems according to a pre-determined schedule with maximum activity just prior to the wet season (late winter and early spring). If there are certain runs that are prone to fast sediment build-up such as runs without sufficient slope, schedule them more frequently.
- Discharge line-flushing wastewater in an area where sediments and debris can be easily separated and collected for proper disposal. For dewatering of wastes and debris, refer to *BMP: Dewatering*.
- Periodically sample the collected sediments to determine if they can be disposed in a sanitary landfill. Also samples can be tested for possible illegal discharges if they are suspected.
- If oil, antifreeze or other wastes are discovered in any catch basins, the wastes removed may be hazardous or require special disposal. Dispose of contaminated debris properly.
- Inspect and repair any storm sewers found to be leaking or damaged.
- Report any suspected illegal connections or dumping to the city storm water coordinator. See *BMP: Illicit Discharges*.

- Mow drainage ditches periodically although vegetation can be left long unless it restricts flow or causes backing-up. During mowing, inspect ditches for signs of erosion.
- Do not spray pesticides, herbicides or fertilizer on drainage ditches or onto roadways or curbs.
- Do not disturb wetlands or sensitive wildlife habitat without checking with the state Dept. of Fish & Wildlife and US Army Corp of Engineers.

REQUIRED STRUCTURES AND EQUIPMENT

- Stencil, mark or place decals or medallions on all storm drain inlets with warnings not to dispose of any materials or wastes.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Grade and size all new storm sewers and drainage ditches for optimal channel hydraulics.
- When upgrading or modifying an existing storm sewer, check for illegal connections or dumping: staining, discoloration, unusual odors, or connections from unknown origins. Report all such discharges to the city storm water coordinator.
- Install swales and filter strips in drainage ditches to act as a bio-filter.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform maintenance or cleaning of storm drainage systems on this BMP within 60 days of the date of this BMP. Include training on the required recordkeeping associated with this BMP.
- Train all new hires and job transferees who will perform maintenance or cleaning of storm drainage systems on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who perform maintenance or cleaning of storm drainage systems at least annually.
- Train employees who perform maintenance, cleaning, modifications, or new system installation on how to recognize and report illegal connections or dumping.
- Train employees on the recognition of wetlands and how they can affect this BMP.
- Train all employees who might be involved in dewatering of storm sewer systems. See *BMP: Dewatering*.

REQUIRED MAINTENANCE

- Inspect and repair or replace any defective drain inlets, catch basins, catch basin lids, sumps, clean-out grates and outfall grates.
- Where signs of erosion are noted in drainage ditches, make appropriate modifications: re-seeding, re-grading, diversion, etc.
- Maintain and replace faded, damaged or missing stencils, markings, decals or medallions on drain inlets.

RECORDS

- Keep accurate records of the number of sumps and catch basins cleaned. Record the amount of waste collected and disposed.
- Keep records of employee and contractor training.
- Keep records of repairs and maintenance performed on storm drainage systems.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)
7. Storm Water Fact Sheet: Catch Basin Cleaning, US EPA (832-F-99-011), Set. 1999

BMP: STREET SWEEPING & ROAD MAINTENANCE

AFFECTED FACILITIES

This BMP applies at all municipal and county roads, streets, medians and rights-of-way where sweeping, repair work, painting, striping or maintenance is performed and at all locations where debris is transferred from sweepers or temporarily stored prior to permanent disposal. This BMP also covers sweeping and maintenance of municipal parking lots, sidewalks and other municipally-owned large outdoor paved surfaces. For landscaped areas along streets and roads, refer to *BMP: Landscaping, Lawn & Vegetation Maintenance*.

BACKGROUND

Streets, roads, highways and other large paved surfaces are significant sources of pollutants in storm water discharges. Operation and maintenance practices, if not conducted properly, can contribute to the problem. Street sweepings can contain sediments, organics and oil and grease. Maintenance work like concrete repair, saw cut slurry, asphalt repair and painting can also be a source of storm water pollution. This BMP is designed to control the sweeping, collection and disposal of street sweeping wastes and maintenance wastes and to keep them out of storm water.

REQUIRED PRACTICES:

Street Sweeping

- Operate all sweepers to get optimal debris removal. This includes adjusting sweeper speed, brush alignment and rotation rate, and sweeping pattern. Conduct sweeping at optimal frequencies.
- If storm drain plugging or high pollutant loadings have been found in certain areas, schedule additional sweeping in those areas.
- Schedule sweeping immediately after special events like street fairs, art shows and parades where additional debris is likely to have accumulated.
- Schedule sweeping immediately after street repair projects that involve saw cutting, chip sealing or other operations that might have left wastes or debris on road surfaces.
- Schedule additional sweeping, where feasible, during new construction projects involving temporary storage of construction materials like dirt, sand and road base along the roadway.
- Schedule sweeping to immediately follow median grass cutting operations.
- Ensure that debris from sweeper hoppers is collected and taken to a secure temporary storage area or directly to its permanent disposal site. Do not empty sweeper hoppers even temporarily onto areas near storm drains or surface water bodies or where wind or rain could re-entrain or scatter the debris.
- Avoid conducting sweeping operations during rainstorms.
- Do not wash down any streets or curbs (fine water spray for dust control is acceptable but it should use as little water as possible).
- Inform citizens about the importance of not placing leaves, trash, oil or other wastes in the gutter.

- Consider using street signage or windshield flyer placements advising residents of “No Parking: Street Sweeping” days. Consider enforcement for parked vehicles that consistently ignore the no parking days.

Street or Road Maintenance

- Schedule painting, striping, marking and asphalt and concrete cutting or repair activities for dry weather. Do not conduct these activities during or immediately after a rainfall.
- Protect nearby (within 25 feet) storm drain inlets from maintenance work (e.g. preparing the surface for an asphalt cap, chip sealing, concrete breaking or saw cutting). Place covers, straw bales, sand bags, filter fabric or plastic around or over inlets to protect them from entry of wastes, dusts, overspray or slurry.
- Sweep up wastes after all field operations and dispose of the wastes appropriately. Do not sweep or hose down wastes into storm drains.
- When saw cutting concrete, use the minimum amount of water. Let the waste slurry dry and then sweep it up before leaving the location. Alternately, a small wet vacuum may be used to pick up the waste slurry immediately after cutting is complete.
- Store maintenance supplies including cement bags, sealants and tars under cover (such as a tarp) and away from drainage areas. Secure or cover open cement bags to prevent the wind from spreading cement dust.
- When working on bridges, transport paint and materials to and from the job site in containers with secure lids and tied down to the transport vehicle. Do not transfer or load paint over water. Perform work so as to capture waste, scraps, rust or paint. It may be necessary to suspend nets or tarps below the bridge to catch falling debris. If sanding, use a vacuum bag attachment.
- Do not spray herbicides on roadways or along curbs. Use a heat lance or manual methods to control weeds.

REQUIRED STRUCTURES AND EQUIPMENT

- Use high-efficiency vacuum sweepers whenever possible. High-efficiency sweepers do not use water for dust control (they use filters) and generally have the highest debris removal efficiency.
- Ensure that any temporary storage areas for debris are protected from wind or rain re-entrainment.
- Provide for erosion and/or sediment control on all areas subject to erosion.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- During construction projects, control erosion to the maximum extent possible. Provide permanent erosion control that will remain effective for the life of the street. Refer to WASH new and post construction standards for guidance.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform street sweeping or maintenance on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will perform street sweeping or maintenance on this BMP before they are assigned to their new duties.

- Conduct refresher training on this BMP for all employees and contractors who perform street sweeping or maintenance at least annually.
- Train all employees and contractors who might work with concrete pouring or finishing on the proper practices. See *BMP: Concrete Pouring & Finishing*.

REQUIRED MAINTENANCE

- Inspect and maintain all sweepers, vehicles, and striping/painting equipment according to manufacturer's recommendations.
- Inspect and maintain any temporary debris storage areas. If debris is stored in containment or under covers, repair any cracks or splits that might allow debris to escape back into the environment.
- Maintain all erosion or sediment control devices or equipment installed in erosion-prone areas.

RECORDS

- Record the number of curb miles of streets (excluding bike and pedestrian paths) swept.
- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control*

BMP: SWIMMING POOL MAINTENANCE

AFFECTED FACILITIES

This BMP applies at all municipal swimming pools, wading pools and water parks.

BACKGROUND

The primary pollutant of concern in municipal swimming pool water is chlorine or chloramines used as disinfectants. These chemicals, if discharged to a storm drain system, can be toxic to aquatic life. Following this BMP will reduce the pollutants in this discharge.

REQUIRED PRACTICES

- Do not discharge pool water to a street or storm drain when draining pools. Discharge to the sanitary sewer if permitted to do so.
- Provide drip pans or buckets beneath drainpipe connections to catch leaks.
- Never clean a filter in the street or near a storm drain.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- New or renovated pools should be connected to the sanitary sewer for pool water discharges if allowed by the sanitation district.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform pool maintenance on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will conduct pool maintenance on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who conduct pool maintenance at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: VEHICLE & EQUIPMENT FUELING

AFFECTED FACILITIES

This BMP applies at all municipal operations where vehicles or powered mobile equipment are fueled with gasoline or diesel fuel. This BMP applies for fueling from stationary tanks (above or underground) as well as fueling from portable tanks (e.g. trailers) and containers (e.g. 5 gallon jerry cans). Propane and natural gas fueling stations as well as electric charging stations are exempt from this BMP.

BACKGROUND

Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil and grease as well as heavy metals to storm water runoff and snow melt. Implementing this BMP will help prevent fuel spills and leaks.

REQUIRED PRACTICES

- Maintain all fueling equipment in good working order. Conduct preventive maintenance.
- Do not allow “topping off” of fuel tanks.
- Do not allow drivers or operators to leave their vehicles or equipment unattended while fueling.
- If there are any storm drains near the fueling area, instruct the driver or operator to place drain inlet covers or mats over each drain while fueling. Stencil these drain inlets with “Cover (or Place Mat Over) While Fueling”.
- When fueling small equipment in the field like lawn movers, small sweepers, weed whackers, blowers, portable generators, etc., do so over a paved (concrete) area well away from any storm drains or ditches. When pouring fuel from a jerry can, use a funnel.

REQUIRED STRUCTURES AND EQUIPMENT

- Divert any roof drains that discharge into or near fueling areas or aboveground storage tanks.
- Post signs near fueling stations discouraging “topping off” of tanks and that drivers/operators remain with vehicles/equipment while fueling.
- Post signs at each fueling location with information on how and to whom spills or releases are to be reported.
- Make sure that adequate spill response equipment and supplies are available at each fueling station. See “*BMP: Spill Clean-Up*” for details.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Construct impervious berms or secondary containment around vehicle and equipment fueling stations to contain leaks or drips.
- Install oil/water separators in any storm drain inlet that might receive run-off from a fueling area.

- Install covers or canopies over fueling stations to avoid exposure to storm water.
- Grade, contour and install impervious pavement around fueling stations to divert run-on and run-off stormwater.
- If storm drains must be located near fueling areas, install shut-off valves in storm drain inlets that can be turned off while fueling.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current drivers and mobile liquid fuel burning equipment operators (employees and contractors) on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who will drive or operate fuel burning vehicles or equipment on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all drivers and mobile liquid fuel burning equipment operators (employees and contractors) at least annually.
- Train all employees and contractors who might be involved in cleaning up spills from vehicle fueling on proper clean-up procedures. See *BMP: Spill Clean-Up* for details.

REQUIRED MAINTENANCE

- Conduct all regular and preventive maintenance identified in the SPCC Plan or facility maintenance plan.
- Inspect and clean all oil/water separators according to the manufacturer's recommended intervals or according to municipal ordinance.
- Keep ample supplies of spill response equipment and materials available nearby. See "*BMP: Spill Clean-Up*" for detailed list of recommended equipment and supplies.
- Inspect all fueling equipment and fuel islands at least daily for leaks, drips, corrosion, wear or damage. Keep a log of these inspections. Repair or replace all faulty equipment promptly.
- For underground storage tanks fitted with non-alarmed leak detection devices, take readings of these devices on a regular basis. State regulations for underground storage tanks will usually specify the reading intervals.

RECORDS

- Keep records of employee and contractor training.
- Keep records of inspections and repairs done on fueling equipment.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001

4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*,
January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara
Valley, CA)

BMP: VEHICLE & EQUIPMENT MAINTENANCE & REPAIR

AFFECTED FACILITIES

This BMP applies at all municipal and county operations where vehicles or equipment are maintained or repaired. This includes facilities that perform: oil changes and lubrication, engine and mechanical repair, transmission, steering and brake work, body work, fluid changes and routine maintenance.

BACKGROUND

Automotive maintenance facilities are considered to be storm water “hot spots” where significant loads of hydrocarbons, trace metals and other pollutants can contaminate storm water. Some of the wastes generated include:

- Solvents (paints and paint thinners)
- Antifreeze
- Brake fluid and brake lining
- Batteries
- Motor oils
- Fuels (gasoline, diesel and kerosene)
- Lubricating grease

Estimates show that each year over 180 million gallons of used oil is disposed improperly (Alameda CCWP, 1992) and that a single quart of motor oil can pollute 250,000 gallons of drinking water (DNREC, 1994). For this reason, automotive maintenance facilities’ discharges to storm and sanitary sewers are highly regulated. Fluid spills and improper disposal of materials result in pollutants, heavy metals and toxic materials entering surface waters, creating public health and environmental risks. Alteration of practices involving the clean-up and storage of automotive fluids and cleaning of vehicle parts can help reduce the influence of automotive maintenance practices on storm water runoff and local water supplies. Common activities at maintenance shops that generate this waste include parts cleaning, fluid changing and replacement and repair of equipment.

REQUIRED PRACTICES

- Move leaking vehicles or equipment indoors or under cover as soon as possible. If they cannot be moved indoors immediately drain the leaking fluids immediately and place a tag on the steering wheel to alert drivers of leaks.
- Drain fluids only indoors and perform maintenance work indoors as much as possible. If maintenance work must be performed outdoors, use drip pans and drop cloths underneath the vehicles or equipment to catch leaks and drips.
- Transfer fluids from drip pans to the appropriate waste containers as the first step in clean up after repair work is completed.
- Clean up any spills or leaks of any automotive fluids promptly. See “*BMP: Spill Clean-Up*” for details.
- Dispose of wastewater from tire leak check tubs in the sanitary sewer only (if allowed).

- Clean all parts indoors at a centralized station or tub.
- Practice good housekeeping in all outdoor maintenance work areas. See *BMP: Good Housekeeping* for details.

REQUIRED STRUCTURES AND EQUIPMENT

- When maintenance work must be performed outdoors, it should be done in a contained area. Work under a roof overhang or temporary shelter and/or use curbs, berms or dikes to contain spills and runoff. Leaking materials and contaminated run-off should either be channeled to a sanitary sewer or collected for proper disposal.
- Make sure an adequate spill kit or locker with sufficient equipment and supplies is available near each work area where spills of automotive fluids are possible. All service trucks that service vehicles or equipment in the field must be equipped with an adequate spill kit.
- Install a dedicated parts cleaning station and have the used fluid recycled.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Design a dedicated work area for fluid draining and re-filling. Use curbs, berms or dikes to control spills and allow for easy clean up. Isolate the work area from all sanitary sewer inlets, storm drain inlets and drainage ditches.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform maintenance on vehicles or equipment (including mechanics who service equipment in the field) on this BMP within 60 days of the date of this BMP.
- Train all new employees and job transferees who will perform maintenance on vehicles or equipment (including mechanics who service equipment in the field) on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors who perform maintenance on vehicles or equipment at least annually.
- Train all employees who might be required to clean-up a spill or leak on proper spill clean-up. See "*BMP: Spill Clean-Up.*"
- Train all maintenance facility employees on good housekeeping. See "*BMP: Good Housekeeping*" and "*BMP: Waste Management.*"

REQUIRED MAINTENANCE

- Clean and maintain any oil/water separators installed at the facility according to municipal ordinance.

RECORDS

- Keep records of employee and contractor training.
- Keep records of contracts with disposal and recycling firms.
- Document major leaks or spill events to use for training purposes.

- Document non-biodegradable solvent use to track trends and to determine if storage containers might be leaking.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: VEHICLE & EQUIPMENT STORAGE

AFFECTED FACILITIES

This BMP applies at municipal and county facilities where vehicles or powered equipment are stored or parked for periods in excess of 24 hours.

BACKGROUND

Vehicles and powered equipment contain fuels and lubricants. If these fluids are allowed to leak onto pavements, parking areas or storage yards, they can be picked up by storm water run-off and contaminate surface waters. This BMP is designed to prevent this type of storm water pollution.

REQUIRED PRACTICES

- Do not park or store leaking vehicles or equipment outdoors. Leaking vehicles or equipment should be moved indoors as quickly as possible until they can be repaired.
- If leaking vehicles or equipment cannot be moved indoors or cannot be promptly repaired, cover the equipment with a weatherproof tarp and place a drip pan or bucket under the leak temporarily. Check the drip pan frequently (at least daily) and empty it into an appropriate waste or recycling container.

REQUIRED STRUCTURES AND EQUIPMENT

None

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

None

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all employees and contractors who operate vehicles or powered equipment on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees who are will operate vehicles or powered equipment before they are assigned to their new duties.
- Conduct refresher training for all employees and contractors who operate vehicles or powered equipment at least yearly.

REQUIRED MAINTENANCE

None

RECORDS

- Keep records of employee and contractor training.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: VEHICLE & EQUIPMENT WASHING

AFFECTED FACILITIES

This BMP applies at all municipal facilities where washing, power washing, or steam cleaning is performed on vehicles or equipment. This BMP applies whether detergents are used or not.

BACKGROUND

Wastewater from vehicle or equipment cleaning performed outdoors can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals and suspended solids to storm water. This BMP is designed to prevent or reduce the discharge of these pollutants to storm water.

REQUIRED PRACTICES

- If possible, use off-site commercial car washing facilities.
- If possible, wash vehicles and equipment indoors or under a roof and make sure the wastewater drains to a sanitary sewer.
- Use power washing without detergents or soaps where possible. Power washing usually uses less water.
- If detergents must be used (including Hotsy's), use phosphate-free, biodegradable detergents and only use in locations where the wastewater will be discharged to the sanitary sewer.
- If vehicles or equipment must be washed outdoors, designate a specific washing area where wastewater will not enter storm drain inlets or drainage ditches.
- For washing of small portable equipment like lawn mowers and where no soaps or detergents are used (plain water only), vehicles or equipment may be washed on flat grassy areas (not on bare ground) that are not near surface water bodies or storm drain inlets. Wastes generated by cleaning such as grass clipping should be collected and disposed properly.
- If vehicles or equipment are cleaned in the field (such as brushing off mowing equipment), collect the wastes and dispose properly.
- Do not store solvents or degreasers in the wash area.
- Keep all wash areas neat and orderly. See *BMP: Good Housekeeping* for details.

REQUIRED STRUCTURES AND EQUIPMENT

- Install curbs, berms or dikes around the wash area to control and contain wastewater. Plumb to the sanitary sewer (if approved).
- Install curbs, berms or dikes to divert run-on to the washing area.
- Mark the wash area clearly. Post signs stating that only washing may be done in the designated area, that no oil changes or equipment maintenance may be performed in that area
- Post signage describing the acceptable washing procedures: e.g., which detergents (if any) may be used, and, if engine steaming is allowed, which spray settings are to be used.

- Use hoses or wands with nozzles that automatically shut-off when not in use. A simple trigger mechanism is often adequate.
- Provide a trash container nearby washing areas.

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- Where approved by the local sanitation district, plumb area wash water floor drains to the sanitary sewer with a sump and/or oil/water separator in-line to remove sediments and oils or to a holding tank.
- Consider installing shut-off valves in discharge plumbing. Shut-off valves can be closed when washing is not being performed so that spill or leaks are captured before discharge.
- Design vehicle or equipment wash areas with curbs, berms, dikes, channels, trench drains, or sloping sufficient to contain all wastewater. Make sure the berms extent out at least four feet from the outermost edge of the equipment that will be washed there.
- Construct a cover or shelter over washing areas to avoid exposure to storm water.
- Consider installing wastewater filtering and recycling apparatus.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform vehicle or equipment washing on this BMP within 60 days of the BMP date.
- Train all new employees and job transferees who will perform vehicle or equipment washing on this BMP before they are assigned their new duties.
- Conduct refresher training for all employees and contractors who perform vehicle or equipment washing at least annually.
- Train all employees and contractors who perform vehicle washing on good housekeeping. See *“BMP: Good Housekeeping.”*

REQUIRED MAINTENANCE

- Perform monthly inspections, clean and maintain any sumps or oil/water separators installed at the wash area.
- Inspect and maintain washing equipment especially the hoses, wands and nozzles. Make sure they deliver the proper rate of water and shut-off automatically when not in use.
- For wash areas that are plumbed to a sanitary sewer, clean the sewer inlet at least weekly.

RECORDS

- Keep records of employee and contractor training.
- Keep records of equipment inspections and sewer inlet cleaning.

EXAMPLES

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001

2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

BMP: WASTE MANAGEMENT & DISPOSAL

AFFECTED FACILITIES

This BMP applies at all municipal and county facilities and all operations in the field where any waste, scrap, trash or debris is generated. This excludes food wastes. Facilities that only generate food wastes should refer to *BMP: Food Service & Waste Handling*.

BACKGROUND

Improper storage and handling of solid or liquid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids and other pollutants to enter storm water runoff and snow melt. The discharge of pollutants to storm water from waste handling and disposal can be prevented and reduced by tracking waste generation, storage and disposal. Reducing waste generation, source reduction, re-use and recycling reduce the potential for storm water pollution. Proper storage, handling and management of waste will further reduce storm water pollution.

REQUIRED PRACTICES

- Do not dispose of any wastes or trash onsite. Do not bury, landfill, underground inject, pile, stack or pump any wastewater, wastes, trash, debris or scrap onto or into the ground.
- Never place liquids or liquid-containing wastes in a dumpster or trash receptacle.
- Place all wastes, debris and scrap in sturdy containers (receptacles) while being accumulated onsite. Do not locate or place outdoor waste receptacles near storm drains or ditches unless at a lower elevation.
- Place waste receptacles indoors or under a roof or roof overhang whenever possible.
- All waste receptacles must be leak-tight with tight-fitting lids or covers. This includes dumpsters. Plastic liners can be used to ensure leak tightness. Return leaking dumpsters to the owner for replacement.
- Keep all container lids closed at all times unless adding or removing material.
- Sweep up around outdoor waste containers regularly and immediately before any expected storm event.
- Arrange for wastes to be picked up regularly and disposed at approved disposal facilities. If waste generation exceeds the capacity of waste containers, either obtain more containers or increase the frequency of pick-ups.
- Do not wash out waste containers or dumpsters outdoors. Return dumpsters to the owners for cleaning at the owner's facility. If municipally owned containers must be washed, do so at a sink or floor drain so that wastewater goes to the sanitary sewer.
- When working in the field, place all wastes in appropriate containers in the vicinity of the work site. If no public containers are available, containerize or bag the wastes and bring them back to base for proper placement into containers.
- If wastewater, liquid or liquid-containing non-hazardous waste is generated at a fixed facility or in the field, it must be disposed into the sanitary sewer (if approved) or collected for transportation to a disposal site that can receive that type of wastewater.
- Do not drain water that has accumulated inside of secondary containment structures unless the water is uncontaminated. See *BMP: Dewatering* for details.

REQUIRED STRUCTURES AND EQUIPMENT

- Sturdy containers of adequate capacity must be provided at every fixed location where wastes, debris, trash or scrap are generated. All dumpsters and outdoor waste containers must be leak-tight.
- Containers holding liquids or liquid-containing wastes like used oil or drained antifreeze must be leak-tight and if stored outdoors, placed inside of secondary containment (a berm, dike or a larger container).
- Stencil any storm drain inlets at fixed municipal facilities to notify employees not to dispose of any materials or wastes there. The stencil should clearly read “Dispose of No Wastes Here”, “Drains to Creek” or a similar warning.

INSTALLATIONS REQUIRED DURING NEW CONSTRUCTION OR RENOVATION

- Design new or renovated facilities with waste or scrap accumulation areas indoors or under a roof or, if outdoors, inside of a containment structure (berm, dike or sump)

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors whose work outdoors generates any waste, scrap, debris or trash on this BMP within 60 days of the date of this BMP.
- Train all new hires and job transferees whose work outdoors will generate any waste, scrap, debris or trash on this BMP before they are assigned to their new duties.
- Conduct refresher training on this BMP for all employees and contractors at least annually.
- Train all employees and contractors who might be required to clean-up a spill or leak on proper spill clean-up procedures. See “*BMP: Spill Clean-Up.*”
- Train all employees and contractors who work outdoors on good housekeeping. See “*BMP: Good Housekeeping & Spill Prevention.*”

REQUIRED MAINTENANCE

- Repair or replace (or return) any leaking or damaged waste receptacles (or dumpsters) promptly.
- Repair or replace missing or poorly fitted lids or covers on waste receptacles promptly.

RECORDS

- Keep records of employee and contractor training.
- Keep records on all wastes disposed: hazardous waste manifests, trash removal statements (bills), receipts or invoices from recyclers.
- Keep records of water drained from secondary containment structures. Date, estimated amount and confirmation that the water was uncontaminated.

EXAMPLES

REFERENCES

1. Colorado's Phase II Municipal Guidance, October 2001
2. *California Stormwater BMP Handbook*, January 2003
3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001
4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003
5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)
6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)