

Preventing Storm Water Pollution: What We Can Do ~Fleet Maintenance~



FUELING

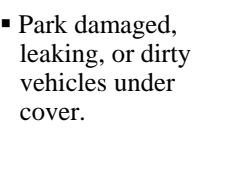


- Clean fueling areas often using approved methods.
- **DO NOT** top off fuel tank.
- Know location of emergency pump shut-off button.

GENERAL GUIDELINES



- Maintain vehicles and equipment in designated areas.



- Park damaged, leaking, or dirty vehicles under cover.



- Keep maintenance areas clean by promptly disposing of waste.

DISPOSAL METHODS



- Recycle or properly dispose of all used fluids, hydraulic filters, and batteries.



- Store all used fluids in properly labeled containers.

PARTS CLEANING



- Clean parts using designated cleaning stations.
- Allow parts to fully drain before removing from cleaning station.

Employees who service and repair our vehicles and equipment can help reduce water pollution by following precautions in their daily activities.

Protecting water quality requires that all employees do their part to prevent storm water pollution.

LEAKS and SPILLS



- Inspect for leaks or stains around vehicles and equipment.



- Immediately clean up spills.

SHOP and PAVEMENT CLEANING



- **DO NOT** hose down outside work areas.
- Use dry methods to clean work areas.
- Dispose of mop water properly.
- Clean outside work areas when rain is forecast.



WASHING



- Wash equipment and vehicles in designated facilities.

Preventing Storm Water Pollution:

What We Can Do

~ Materials Storage and Spill Cleanup ~



GENERAL TOPICS

Employees can help reduce waste and water pollution by making sure that materials:

- are **NOT** spilled or washed into storm drain systems;
- are stored and handled safely; and
- are cleaned up properly.

STORE and HANDLE MATERIALS SAFELY



- Read and follow label or MSDS instructions and local procedures.
- Store materials in original containers or clearly label replacement containers.



- Keep containers closed or sealed except when in use.
- Maintain all containers and replace those that leak.
- Inspect all containers regularly.



STORING MATERIALS and CONTAINERS



- **BEST**-indoors in sealed containers.
- **GOOD**-outdoors in sealed containers, within a covered, paved area.
- **ACCEPTABLE**-outdoors in sealed containers, on an uncovered, paved area.



SPILL TRAPPING DEVICE RECOMMENDATIONS



- **Indoors**-store barrels on a spill containment base.
- **Outdoors**-storage areas should be bordered by a curb or berm to contain spills.



- Store materials away from high-traffic areas to prevent accidents that might cause spills or cause spilled material to be spread.

LIQUIDS SPILLS

- Follow cleanup instructions specified on the MSDS and local procedures.



- Containing spills:
 - Use a drip pan or an absorbent to collect spills.
 - Use drain mats to cover storm drain inlets.



- Locate the source of the spill and take steps to stop further spillage.

- **DO NOT** hose the spill into a storm drain.



- Immediately clean up spills using absorbent materials and follow proper disposal procedures.



- Report large spills or spills of hazardous materials to your supervisor or environmental department personnel.

DRY MATERIAL SPILLS

- Cover a powder spill with plastic sheeting to keep it from spreading until the spill can be cleaned up.
- **DO NOT** hose the spill into a storm drain.
- If usable, place spilled material in original or properly marked container.
- Follow procedures for disposal of spilled material that cannot be used.

CONCLUSION

Protecting water quality requires that all employees do their part to prevent storm water pollution.

Preventing Storm Water Pollution:

What We Can Do

~Parks and Grounds Maintenance~



GENERAL TOPICS

Employees who maintain our parks and landscaped areas can help reduce water pollution by following precautions in their daily activities:

- Plant Selection
- Watering
- Debris Management
- Soil Management
- Pesticide and Herbicide Practices.

PLANT SELECTION



- Use Texas SmartScape™ as a tool for plant selection and care.
- Use native or adapted perennial vegetation.

WATERING



- Check soil moisture and water only when the top 4" to 5" of soil is dry.

- Avoid runoff by adjusting watering time, direction and volume of spray heads.



- Turn off sprinklers during rainy weather.



- Install rain and freeze sensors on automated sprinkler systems.



DEBRIS MANAGEMENT

- **DO NOT** dispose of grass clippings, leaves, or other debris in the storm drain.
- Remove accumulated litter and debris from storm drain inlets.
- Mow grass as high as possible leaving clippings on the lawn.



- Use composted leaves as a soil amendment or shred and add to flower beds as mulch.



- Sweep paved surfaces or blow clippings and trimmings onto grass rather than hosing down.



Preventing Storm Water Pollution:

What We Can Do

~Parks and Grounds Maintenance~



SOIL MANAGEMENT

- Test soil to determine fertilizer needs.
- Aerating and composting reduces fertilizer needs, improves drainage, and promotes root growth.



- Limit soil erosion by planting vegetation on bare areas and using mulch or matting for landscaped areas.



PESTICIDE and HERBICIDE PRACTICES

- Follow safety, storage and disposal procedures for chemicals.
- Follow label directions when mixing or applying chemicals.
- Mix chemicals on an impervious surface away from storm drains.



- **DO NOT** apply during windy conditions or if rain is predicted within 24 hours.



- Report any suspected problems regarding chemical applications.

- Use landscaping chemicals only as needed.
- Apply chemicals to the problem area only.



- Carefully select the appropriate product for the problem.
- Use non-toxic substitutes for chemicals when possible.

- Avoid over spray deposits onto paved surfaces where it may be washed into storm drains.



- **DO NOT** apply chemicals near sensitive areas including streams, lakes, wetlands, or drainageways.



CONCLUSION

Protecting water quality requires that all employees do their part to prevent storm water pollution.

Preventing Storm Water Pollution:

What We Can Do

~Streets and Drainage Maintenance~



GENERAL TOPICS

- **Employees who maintain and repair our streets and drainage infrastructure can help reduce water pollution by following precautions in their daily activities:**
 - Pavement Repair
 - Paint Striping
 - Storm Drain Inlet Cleaning
 - Storm Ditch Maintenance

PAVEMENT REPAIR



- Vacuum slurry and cuttings during saw-cutting operations.
- Properly dispose of slurry according to established procedures.



- Require concrete trucks to wash out in designated locations.
- Locate stockpiles of asphalt patching material on a paved surface and cover to prevent contact with rain.

- Mix only necessary amount of material for repairs.
- Sweep up and properly dispose of all unused materials.



- Clean trucks, equipment, and tools in designated wash facilities.



- Use biodegradable products rather than diesel for asphalt patching and cleanup activities.
- When wash facilities are not available, clean equipment over absorbents spread on an impervious surface.
- Promptly sweep up absorbent and dispose according to established procedures.



PAINT STRIPING

- **DO NOT** apply paint when rain is likely or in high winds.
- Waste handling for water-based (latex) paint:
 - Pour small quantities of unused paint in open barrels and allow to dry. Dispose of dried paint in trash.
 - Contain water used for equipment cleaning and dispose in sanitary sewer.
- Waste handling for oil-based paint:
 - Unused oil-based paint and solvents must be disposed in accordance with established procedures.



Preventing Storm Water Pollution:

What We Can Do

~Streets and Drainage Maintenance~



STORM DITCH MAINTENANCE



- Sample and analyze materials removed from ditches if it appears to be contaminated with oil or other pollutants.



- Contaminated sediments must be disposed in accordance with established procedures.



- Unpolluted soil may be used onsite as fill or stockpiled for other land application.



- Cover soil stockpiles to prevent erosion and/or install silt fence to capture sediment.



- Prevent erosion by applying grass seed to exposed soils.



- Use turf reinforcement mats to protect channels until vegetation is established.

STORM DRAIN INLET CLEANING

- Properly dispose of trash and debris removed from inlets.



- Report suspected dumping or pollution problems to supervisory personnel.



- Apply “NO DUMPING” markers to inlets where there is evidence of dumping.

REPORT POLLUTION and ILLEGAL DUMPING



- Look for signs of pollution during travel:
 - odor
 - oil sheen on water surface
 - excess trash and debris
 - colored or cloudy water
 - dead or dying fish.

- Report suspected pollution problems to supervisory personnel.



CONCLUSION

Protecting water quality requires that all employees do their part to prevent storm water pollution.

Preventing Storm Water Pollution: What We Can Do ~Land Disturbances~



GENERAL TOPICS

Employees can help reduce water pollution by preventing dirt and debris from being washed into the storm drain system during the following activities:

- Utility repairs
 - »Water and sanitary sewer lines
 - »Storm drain systems
- Street repairs
- Sidewalk construction and repairs
- Landscaping (parks, building, medians)
- Power pole installation and replacement

DEFINITIONS

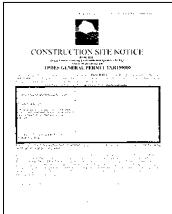
- Erosion is the removal or wearing away of soil due to water or wind.



- Sediment is the soil that settles out of flowing water.

GENERAL PRINCIPLES

- **Note:** Projects that disturb more than one acre must comply with the state's storm water permit for construction activities.



- If a permit is required, your supervisor or environmental coordinator will provide specific instructions.

- Preventing erosion is more effective than trying to remove sediment from runoff.



- Minimize the amount of disturbed area.



- Divert runoff or flowing water away from disturbed areas.

- Potential pollutants on construction sites include soil, trash, debris, oil, grease, lime, concrete truck wash water, etc.



- Projects must be managed to prevent or reduce soil and other pollutants from entering storm drains, creek or lakes.



- Locate stockpiles out of the street and away from runoff or flowing water to prevent sediment from washing into storm drains.



- Cover stockpiles or provide a barrier such as an organic filter berm or silt fence around the pile.



Preventing Storm Water Pollution: What We Can Do ~Land Disturbances~



BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are physical devices or procedures used to reduce or prevent pollution of lakes, streams or rivers.

- Erosion Control BMPs are used to protect disturbed soils from being washed away by rainfall or runoff.
- Sediment Control BMPs are used to trap sediment carried by runoff to keep it on the construction site.
- Waste Management BMPs are good housekeeping

EROSION CONTROL BMPs

- Vegetation - grasses or other plants that provide permanent erosion protection.
- Mulching - a layer of straw or wood mulch.



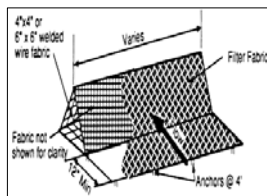
- Erosion control blankets - mesh matting made of straw, wood fiber, or plastic.
- Plastic sheeting - may be used for short term protection of disturbed areas or dirt stockpiles.

SEDIMENT CONTROL BMPs

- Organic filter berm - a 1 to 3 foot high berm



- Silt fence - filter fabric trenched into the soil and attached to supporting posts.



- Triangular sediment dike - filter fabric placed over filter fabric placed over welded wire shaped into a triangle.

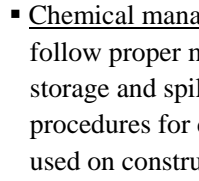


- Inlet protection - filter fabric or stone placed around or in front of a storm

WASTE MANAGEMENT BMPs



- Debris and trash control - use covered trash cans, bins, and/or roll off boxes for disposing trash and debris.



- Chemical management - follow proper material storage and spill cleanup procedures for chemicals used on construction sites.



- Concrete washout - use designated facilities to capture wash water from concrete truck cleaning.



CONCLUSION

Protecting water quality requires that all employees do their part to prevent storm water pollution.

Preventing Storm Water Pollution: What We Can Do ~Solid Waste Operations~



GENERAL TOPICS

Employees who work in our solid waste operations can help reduce water pollution by taking precautions in their daily activities:

- Trash Collection Activities
- Transfer Stations/Drop Off Operations
- Mulching Operations

LIQUID WASTE

- **DO NOT** pick up liquid wastes such as:
 - used motor oil
 - paint
 - antifreeze
 - cooling liquids
 - cooking oil



POLLUTION PREVENTION EQUIPMENT



- Carry spill kits on trash collection trucks and service vehicles. Kits could include:
 - broom
 - shovel
 - absorbent
 - pop-up pools

HAZARDOUS WASTE

- **DO NOT** pick up hazardous wastes (flammables, toxics, explosives) such as:



- used batteries
- solvents, fuels
- fluorescent bulbs
- pool chemicals
- pesticides/fertilizers
- fireworks and ammunition



- Notify residents of household hazardous waste collection/disposal opportunities.

TRASH COLLECTION

- Notify residents of persistent problems with scattered trash.
- Watch the area around the hopper to avoid leaving litter behind.
- Pick up any trash that falls from truck during compaction.



LEAKS and SPILLS

- Check vehicle frequently for leaking fluids and notify supervisor of significant leaks.
- If a major spill or leak occurs, contain the spill using absorbents and take steps to stop the leak if possible.
- Immediately clean up spills to minimize safety hazards and deter spreading.



VEHICLE WASHING

- Make certain hopper drain plugs are always sealed during collection.
- Wash collection trucks only in facilities where wash water drains to the sanitary sewer system or is collected and recycled.



Preventing Storm Water Pollution: What We Can Do ~Solid Waste Operations~



TRANSFER STATIONS and DROP-OFF OPERATIONS



- Pick up all windblown litter and rubbish.



- Provide covered storage areas for solid and liquid wastes that will not be taken to the landfill.



- Dry sweep litter and rubbish periodically, especially during rainy and windy conditions.



- Use litter screens such as:
 - chain link fences
 - steel mesh
 - orange construction fencing.

PREVENTING RUNOFF



- **DO NOT** overfill collection receptacles.

- **DO NOT** hose down work areas that drain into storm sewers or drainage ways.

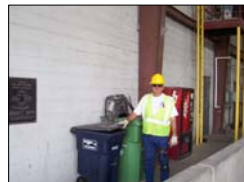


- Conduct facility wash-down activities as directed by the supervisor.

- Retain spills and prevent them from entering the environment.



SECURING TRASH



- Make sure lids on bins and receptacles are closed, especially during rain events.



- Notify haulers and citizens on requirements to cover loads during transport.

MULCHING OPERATIONS



- Remove trash and foreign materials from brush prior to grinding.
- Place trash and debris in covered containers.



- Use litter screens (fencing) to capture windblown trash.
- Use mulch berms to filter runoff from work area.

CLEAN-UP SPILLS PROPERLY



- Locate source of spill and prevent further spillage.



- Immediately clean up spills to minimize safety hazards and deter spreading.

CONCLUSION

Protecting water quality requires that all employees do their part to prevent storm water pollution.