Compilation of Selected Standard Operating Procedures—A Resource for Stormwater Phase II Communities in North Central Texas

Pollution Prevention/Good Housekeeping

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This publication was produced by the North Central Texas Council of Governments' Regional Stormwater Management Program.

Table of Contents

Introduction

This document was developed through the North Central Texas Council of Governments' Regional Stormwater Management Program. It compiles standard operating procedures (SOPs) from other areas in the country that help control the quantity and quality of stormwater produced from municipal activities, and is intended to serve as a resource for entities in the North Central Texas region to consider and modify to meet their specific needs when they are developing their own SOPs. See Table 1 for the list of available SOPs. The two main sources are the Piscataqua Region Estuaries Partnership and Partners for a Clean Environment. Although many of these SOPs overlap, it was decided to compile both sets so that entities could decide which one to use—or to pull from both of them.

Table 1. List of Available Standard Operating Procedures

Piscataqua Region Estuaries Partnership	Partners for a Clean Environment	Others
Catch Basin Cleaning	Facilities and Building Maintenance	Disposal of Horizontal Directional Drilling Wastes for Utility Line Installation (Ohio EPA)
Storm Drain System Repair and Maintenance	Fleet and Vehicle Maintenance	Debris Removal from Rivers and Streams (NY Dept. of Environmental Conservation, IN Division of Water)
Erosion and Sediment Control	Fueling and Fuel Spill Cleanup	Streambank Stabilization (U.S. Dept. of the Interior, Klamath Basin)
Landscape Design and Management	New Construction of Building and Structures	Post-Flood Stream Construction (NY Dept. of Environmental Conservation)
Storage and Disposal of Fertilizer and Pesticides	Outdoor Special Events and Festivals	
Fertilizing and Turf Health Application	Outdoor Materials Storage	
Weed and Pest Control Application	Parking Lot Maintenance	
Mowing and Irrigation	Parks, Golf Course, and Open Space Maintenance	
Vehicle and Equipment Storage	Pesticide, Fertilizer, and Herbicide Application	
Vehicle and Equipment Washing	Pressure Washing and Exterior Surface Cleaning	
Vehicle and Equipment Fueling	Snow Plowing, Snow Storage, and Deicer Application	
Spill Cleanup	Spill Prevention, Cleanup, and Reporting	
Parts Cleaning	Storm Drain System Maintenance	
Spare Parts Storage	Street and Road Maintenance and Repair	
Alternative Products Use/Storage/Disposal	Street Sweeping, Sweeper Cleaning, and Waste Disposal	
Petroleum and Chemical Disposal	Utility Installation Projects	
Petroleum and Chemical Handling	Waste Management, Storage, and Disposal	
Petroleum and Chemical Storage – Bulk	Waste Transfer Stations and Recycling Collection Centers	
Petroleum and Chemical Storage – Small Quantity		
Garbage Storage		
General Facility Housekeeping		
Floor Drains		
Painting		
Street Sweeping		
Snow Disposal		
Deicing Material Storage		
Deicing Material Application		

Background

SOPs are written instructions that describe the routine to be followed for a specific operation, analysis, or action. The United States Environmental Protection Agency (EPA) sees the development and use of SOPs as an integral part of a successful quality system, providing individuals with the information to perform a job properly. Other benefits include conformance with organizational practices, reduced error occurrences, reduced work effort, and improved data comparability, credibility, and defensibility. SOPs also serve as resources for training. The EPA recommends that the use of SOPs are reviewed and re-enforced by management to make sure that SOPs are written correctly and followed properly. For more information and guidance on preparing SOPs, visit www.epa.gov/quality/sops.html.

As part of the Texas Commission on Environmental Quality (TCEQ) *General Permit to Discharge Under the Texas Pollutant Discharge System*, permittees who operate level 3 or 4 small Municipal Separate Storm Sewer Systems (MS4s) are required to develop facility-specific stormwater management SOPs as part of their permits.

For each high-priority facility identified in the permit, the permittee must develop a SOP that identifies best management practices (BMPs) to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater from each facility.

According to the general permit, each facility-specific SOP must include a description of BMPs developed to comply with this requirement. These include general good housekeeping, deicing and anti-icing material storage, fueling operations and vehicle maintenance, and equipment and vehicle maintenance. Please see the general permit and/or the stormwater management plan (SWMP) for more information.

A printed or electronic copy of the facility-specific stormwater management SOP (or equivalent existing plan or document) must be maintained and be available for review by the TCEQ. The SOP must be kept on site when possible and must be updated as necessary.

Objectives

The objectives of this document are the following:

- To help municipalities create a commonly accepted set of standards and guidance
- To assist municipalities in meeting stormwater Phase II requirements

Common Stormwater Pollutants, Sources, and Impacts

On its way to creeks, rivers, and lakes, stormwater runoff can accumulate pollutants such as pesticides, pathogens (bacteria), sediment, oil, gas, and heavy metals. These pollutants can degrade water quality and aquatic habitat, impair ecosystem functions, and harm human health. Recognizing the sources of these pollutants and the impacts of each pollutant can help an individual understand the goals and objectives when managing stormwater. Table 2 summarizes common stormwater pollutants, their sources, and potential impacts.

Table 2: Common Stormwater Pollutants, Sources, and Impacts

Pollutants	Sources	Impacts
Sediment	Construction sites; eroding streambanks and lakeshores; winter sand and salt application; vehicle/boat washing; agricultural sites	Destruction of plant and fish habitat; transportation of attached oils, nutrients, and other pollutants; increased maintenance costs; flooding
Nutrients (phosphorus, nitrogen)	Fertilizers; malfunctioning septic systems; livestock, bird, and pet waste; vehicle/boat washing; gray water; decaying grass and leaves; sewer overflows; leaking trash containers; leaking sewer lines	Increased potential for nuisance or toxic algal blooms; increased potential for hypoxia/anoxia (low levels of dissolved oxygen, which can kill aquatic organisms)
Hydrocarbons (petroleum compounds)	Vehicle and equipment leaks; vehicle and equipment emissions; fuel spills; improper fuel storage and disposal; equipment cleaning; pesticides	Toxic to human and aquatic life at low levels
Heavy metals	Vehicle brake and tire wear; vehicle/equipment exhaust; batteries; galvanized metal; paint and wood preservatives; fuels, pesticides, and cleaners	Toxic at low levels; drinking water contamination
Pathogens (bacteria)	Livestock, bird, and pet waste; malfunctioning septic systems; sewer overflows; damaged sanitary lines	Risk to human health, leading to closure of shellfish areas and swimming areas; drinking water contamination
Toxic chemicals	Pesticides; dioxins; polychlorinated biphenyls (PCBs); spills, illegal discharges, and leaks	Toxic to human and aquatic life at low levels
Debris/litter	Improper waste disposal and storage; fishing gear; leaking trash containers; cigarette butts; littering	Potential risk to human and aquatic life; aesthetically displeasing

Source: "Guidelines and Standard Operating Procedures: Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping," November 2006. Courtesy of Piscataqua Region Estuaries Partnership. Available online at http://water.epa.gov/polwaste/npdes/stormwater/upload/NH_IDDE_SOP.pdf.

Standard Operating Procedures from Piscataqua Region Estuaries Partnership

Available online at http://water.epa.gov/polwaste/npdes/stormwater/upload/NH_IDDE_SOP.pdf.
Provided courtesy of Piscataqua Region Estuaries Partnership.
Modified with North Central Texas–specific information.
Note: Cross-references to other SOPs and forms in this set are highlighted so that people writing their procedures can easily spot and remove or otherwise revise these references if they won't be included in their documentation.
All "Related Guidance" sections remain as published in the source document.

Catch Basin Cleaning

Purpose: To protect stormwater by maintaining the ability of catch basins to trap sediments, organic matter, and litter. This reduces clogging in the storm drain system as well as the transport of sediments and pollutants into receiving waterbodies.

Always:

- Inspect catch basins for structural integrity and evidence of illicit discharges during cleaning. Use the Catch Basin Cleaning Form.
- If there is gross contamination (sewage or oil), stop cleaning and report to supervisor for follow up.
- Stockpile and cover catch basin residuals on an impervious surface that discharges to a sanitary sewer or buffered area until test results are known.
- Test catch basin stockpile as follows:
  - If obviously (by visual and/or olfactory examination) contaminated with sanitary wastewater, animal wastes, oil, gasoline, or other petroleum products, test the solids pursuant to the hazardous waste determination requirements in TCEQ's *Guidelines for the Classification and Coding of Industrial and Hazardous Wastes* (PDF available at www.tceq.texas.gov/publications/rg/rg-022.html) and dispose of as follows:
    - If non-hazardous – dispose at any permitted, lined solid waste landfill or other solid waste treatment facility permitted to accept this material.
    - If hazardous – dispose of in accordance with Special Waste Regulations in Texas (see www.tceq.texas.gov/publications/rg/rg-029.html/at_download/file).
  - If not obviously contaminated,
    - Test for metals, volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs).
    - Compare to the Texas Risk Reduction Program (TRRP) protective concentration levels for reuse. (See www.tceq.texas.gov/remediation/trrp/trrppcls.html.)

Whenever Possible:

- Inspect each catch basin at least annually during catch basin cleaning.
- Create a checklist for catch basins to help classify which catch basins require maintenance and how often.
- Perform street sweeping on an appropriate schedule to reduce the amount of sediment, debris, and organic matter entering the catch basins; this in turn reduces the frequency with which they will need to be cleaned.
- Discharge fluids collected during catch basin cleaning to a sanitary sewer or buffered detention area.

Related Guidance:

NHDES Environmental Fact Sheet: WMD-SW-32 Management of Street Wastes

Catch Basin Cleaning Form						
Date:			Precipitation in the last 3 days? No Yes			
Supervisor/Crew Leader						
		Problem identified? (Check all that apply.)				
Catch Basin ID	Basin Location	Flow	Poor Condition	Oil Sheen	Excess Sediment	Comments

Storm Drain System Repair and Maintenance

Purpose: To protect stormwater by replacing or repairing components of the storm drain system on a regular basis to prevent a failure of the storm drain system.

Always:

- Practice preventive maintenance for cracks, leaks, and other conditions that could cause breakdowns in the system by identifying condition issues:
  - For catch basins during catch basin cleaning. (See "Catch Basin Cleaning" SOP.)
  - For outfalls during Illicit Discharge Detection and Elimination (IDDE) inspection.
- Repair defective structures or equipment identified during an inspection as soon as possible.
- Test and dispose of stockpiled materials as described in the "Catch Basin Cleaning" SOP.
- Document inspections, cleanings, and repairs, and maintain complete records in a record-keeping system. (See "Catch Basin Cleaning" SOP and example documentation for pipes).
- Use appropriate erosion and sediment control practices when performing repairs.

Whenever Possible:

- Practice preventive maintenance for pipes by televising:
  - Prior to reconstruction of roadways, or
  - On a regular schedule beginning with high-priority areas.
- Research and implement new technology that will improve the overall performance of the storm drain system.
- Perform street sweeping on a regular basis to reduce the amount of sediment, debris, and organic matter entering the storm drain system; this in turn reduces the frequency with which the system will need to be cleaned.
- Use documentation of repairs and maintenance to develop a capital improvement and operation and maintenance (O&M) plan for future system maintenance.

Never:

- Never allow defective equipment or structures to go unrepaired.

Related Guidance:

USEPA National Menu of BMPs
NHDES BMPs to Control Nonpoint Source Pollution

Example of documentation of condition issues identified during televising.

INSPECTION REPORT

DATE:	WORK #:	WEATHER:	OPERATOR:	SECTION NR:	SECTION NAME:
PRESENT:	VEHICLE:	CAMERA:	PRESET:	CLEANED:	RATE:

STREET:	MAP #1:	MH:	874
CITY:	MAP #2:	MH:	872
LOCALE:	TAPE #:	TVD LGTH:	208.2 ft

INSPECT REASON:	PIPE SIZE:	6"
SECTION TYPE:	MATERIAL:	Clay Tile JT LGTH: 2ft
AREA:	LINING:	...no data
	RSRVD:	

REMARK: apparent defects in coating throughout line

1:495 POSITION		OBSERVATION	MPEG	PH	RATE
874	0.00	inspection begins at upstream manhole		1a	0
	4.10	roots light		2a, b	1
	37.55	roots light		3a, b	1
	48.60 S1	sag begins, START		4a	2
	51.60 E1	sag ends, END		5a	2
	64.40	service connection, at 09 o'clock		6a, b	2
	92.60	Infiltration Running at joint at 03 o'clock		7a, b	4
	93.20	service connection, at 02 o'clock		8a, b	1
	98.75	pipe material changes at this point to SDR 35		9a	2
	100.00	service connection, at 09 o'clock		10a, b	1
	101.20	pipe material changes at this point to clay tile		11a	2
	102.90	offset joint, slight		12a, b	2
	110.65	pipe Broken, from 02 to 09 o'clock		13a, b	5
	130.50 S2	Longitudinal Crack, at 12 o'clock, START		14a, b	3
	131.05 E2	Longitudinal Crack, at 12 o'clock, END		15a	3
	135.70	service connection capped, at 09 o'clock, REMARK: roots medium		16a, b	3
	136.85	Hole in pipe at 07 o'clock		17a, b	4
	146.95	Hole in pipe at 04 o'clock		18a, b	4
	153.40	Longitudinal Crack, at 12 o'clock		19a	3
	154.95	Longitudinal Crack, at 03 o'clock		20a	2
	161.50 S3	Multiple Cracks, from 07 to 03 o'clock, START		21a, b	4
	162.55 E3	Multiple Cracks, from 07 to 02 o'clock, END		22a, b	4
	172.90	Hole in pipe at 12 o'clock		23a, b	4

INSPECTION IMAGES

CITY:	STREET:	DATE:	SECTION NR:	SECTION NAME:
			1	

IMAGE: 11a, TAPE #: 11/29/2005
101.2FT, pipe material changes at this point to clay tile

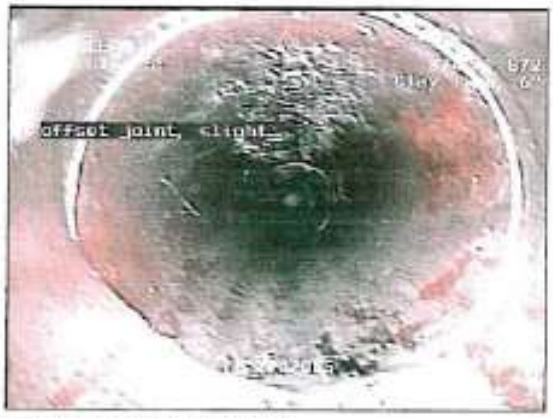


IMAGE: 12a, TAPE #: 11/29/2005
102.9FT, offset joint, slight

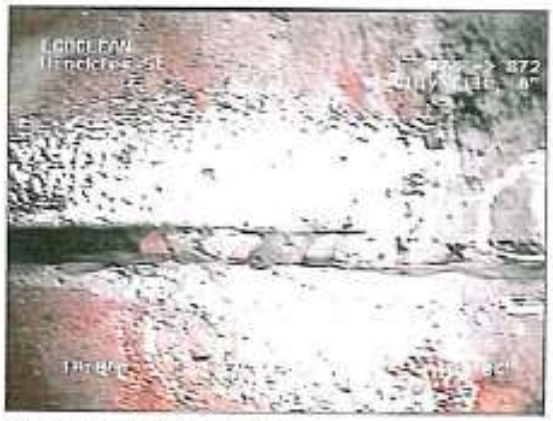


IMAGE: 12b, TAPE #: 11/29/2005
102.9FT, offset joint, slight

IMAGE: 13a, TAPE #: 11/29/2005
110.65FT, pipe Broken, from 02 to 09 o'clock

Erosion and Sediment Control

Purpose: To protect stormwater from pollution by reducing or eliminating pollutant loading from land disturbing activities.

Always:

- Use erosion control techniques or devices to stabilize disturbed areas.
- Use effective site planning to avoid sensitive areas.
- Keep land disturbance to a minimum.
- Inspect and maintain erosion control devices.
- Install erosion control devices properly.
- Remove sediment accumulated during construction from permanent BMPs once construction is completed.
- Minimize the amount of bare soil by scheduling phases of construction and stabilization.
- Minimize slope lengths.
- Monitor practices and adjust, maintain, and repair them periodically and after every storm.
- Reduce the velocity of stormwater runoff.
- Prevent erosion by covering bare soil with mulch or other cover.
- Protect existing stormwater structures from sediment by using temporary sediment traps, silt fence, hay bales, or perforated risers.
- Divert clean water around construction site.

Whenever Possible:

- Limit construction activities during months with higher runoff rates.
- Install erosion control blankets when seeding drainage ways.
- Protect natural vegetation, especially near waterbodies, wetlands, and steep slopes.
- Establish vegetative cover with good root systems prior to freeze/thaw cycles.

Never (Except During Life-Threatening, Flooding Conditions):

- Never divert runoff into a sensitive area.
- Never remove temporary measures before construction is complete.

Related Guidance:

NHDES BMPs to Control Nonpoint Source Pollution
NHDES/DOT BMPs for Routine Maintenance Activities in New Hampshire
Stormwater Management Erosion and Sediment Control Handbook for Urban and Developing Areas (The Green Book)

Landscape Design and Management

Purpose: To protect stormwater by designing and managing landscaping in ways that minimize polluted runoff.

Always:

- Design landscaping by taking into account soil types, light, drainage, desired maintenance level, and budget.
- Design for ease of maintenance.

Whenever Possible:

- Minimize erosion-prone steep slopes by using techniques such as terracing.
- Use native plants that are pest resistant. Plant the right plant in the right area.
- Manage water runoff by rerouting gutters away from storm drains and maintaining groundcovers between developed areas and waterways (ditches, swales, shorelines).
- Reduce or eliminate mown lawn in unused areas.
- Convert excess lawn to meadow or other natural area.
- Establish setback distances from pavement, storm drains, and waterbodies. Allow these areas to serve as buffers with disease-resistant plants and minimal mowing.

Never:

- Never develop a landscape design without assessing its impact on water quality.
- Never plant trees with a high water demand (such as weeping willow) near sanitary sewer pipes and storm sewer pipes.

Additional Recommendations:

- Never cause unintended consequences such as:
  - Planting large-variety trees beneath overhead wires.
  - Blocking site distance at intersections.

Related Guidance:

USEPA National Menu of BMPs
CWP Urban Forestry Manual

Storage and Disposal of Fertilizer and Pesticides

Purpose: To protect stormwater by properly storing and disposing of fertilizers and pesticides (herbicides and fungicides). Because storm drain water is not part of a wastewater treatment system, discharge of these chemicals flows untreated into ponds, creeks, rivers, streams, and lakes.

The EPA defines a pesticide as any substance intended for preventing, destroying, repelling, or mitigating any pest. Pest can include insects, animals, unwanted plants, fungi, bacteria, etc. The term applies to insecticides, herbicides, fungicides, etc.

Always:

- Store fertilizers and pesticides in high, dry locations, according to manufacturer's specifications and applicable regulations.
- Clearly label secondary containers.
- Properly dispose of fertilizers and pesticides according to manufacturer's specifications and applicable regulations.
- Regularly inspect fertilizer and pesticide storage areas for leaks or spills.
- Clean up spills and leaks of pesticides and fertilizers to prevent the chemicals from reaching the storm drain system. (See "Spill Cleanup" and "Petroleum and Chemical Disposal" SOPs.)

Whenever Possible:

- Store pesticides in enclosed areas or in covered impervious containment, preferably in a locked cabinet.
- Order fertilizers and pesticides for delivery as close to time of use as possible to reduce amount stored at facility.
- Order only the amount needed to minimize excess or obsolete materials requiring storage and disposal.
- Use ALL herbicides or pesticides appropriately to minimize the amount of chemicals requiring disposal.
- Do an annual review of storage area and dispose of old, unusable, or obsolete fertilizer or pesticides in accordance with applicable regulations (just before your local Household Hazardous Waste Day).

Never:

- Never dispose of fertilizers or pesticides in storm drains.
- Never leave unlabeled or unstable chemicals in uncontrolled locations.

Related Guidance:

USEPA National Menu of BMPs

Fertilizing and Turf Health Application

Purpose: To protect stormwater by properly storing, applying, and disposing of fertilizers and by maintaining turf health to reduce diseases.

Always:

- Store, use, and dispose of all fertilizers and contaminated wastes according to manufacturer's specifications and applicable regulations.
- Choose seed based on soil types, intended use of area, latest variety research, and/or assessment of past site performance.
- Check 5-day weather forecast to avoid fertilizing before heavy rain or during a drought.

Whenever Possible:

- Apply fertilizers based on a soil testing program, soil type, turf function, and assessment by qualified personnel (conservation commission or municipal arborist, etc.).
- Avoid fertilizing during a drought or when the soil is dry.
- Apply fertilizers during periods of maximum plant uptake (usually fall and spring).
- Avoid combined products such as weed and feed, which do not necessarily target specific problems at the appropriate time.
- Calibrate application equipment to ensure proper application.
- If phosphorus fertilizer is used when reseeding, mix phosphorus into the root zone.
- Use alternative or environmentally friendly products. (See the "Alternative Products Use/Storage/Disposal" SOP.)
- Use natural compost and organic fertilizers instead of synthetic fertilizers.
- Aerate grassed areas to improve drainage and bring more oxygen to the soil.

Never:

- Never fertilize before a forecasted heavy rainfall.
- Never apply phosphorus fertilizer on bare soil.
- Never deposit fertilizer in the water, into storm drains, or onto impervious surfaces (streets and sidewalks).
- Never apply fertilizer to frozen ground.
- Never clean up spilled fertilizer by rinsing it with water.

Related Guidance:

USEPA National Menu of BMPs

Weed and Pest Control Application

Purpose: To protect stormwater by properly applying pesticides (herbicides and insecticides).

Always:

- Ensure that pesticides are only applied by personnel certified by Texas Department of Agriculture to do so.
- Apply pesticides according to manufacturer's specifications, any requirements specified by the Texas Department of Agriculture, and any local requirements.
- Clean up any spilled chemicals. (See "Spill Cleanup" and "Petroleum and Chemical Disposal" SOPs.)
- Use pesticides only when necessary.
- Rinse equipment only when necessary and use rinse water to dilute the next mix as long as application rates are not exceeded.
- Follow best management practices for setback distances from pavement, storm drains, and waterbodies; allow these areas to serve as buffers with disease-resistant plants and minimal mowing.

Whenever Possible:

- Use alternative methods to control weeds and pests such as Integrated Pest Management strategies, biorational insecticides (natural soaps and oils) or biological controls. (See "Alternative Products Use/Storage/Disposal" SOP.)
- Mix/load pesticides in an area where spills can be contained.
- Pull weeds by hand or mechanically.
- Spot treat only affected areas instead of the entire location.
- Apply pest control at the life stage when the pest is most vulnerable.
- Choose the least toxic pesticides that still achieve results.
- Tolerate low levels of weeds.
- Allow grass to grow 2.5 to 3 inches high, reduce thatch buildup, and aerate soils.
- Reduce seed release of weeds by timing cutting at seed set.

Never:

- Never mix or prepare pesticides near storm drains.
- Never apply controlled pesticides unless certified to do so.
- Never apply pesticides before a heavy rainfall.
- Never discharge rinse water or excess chemicals to storm drain, sewer, or ground surface.

Related Guidance:

USEPA National Menu of BMPs
NHDES Environmental Fact Sheet:
--CO-15 Integrated Pest Management: Controlling Pests Safely
--SP-6 Minimum Shoreland Protection Standards

Mowing and Irrigation

Purpose: To protect stormwater by using proper mowing and watering techniques. Proper mowing and irrigation techniques will reduce organic matter and other pollutants from entering the storm drain system and waterbodies.

Always:

- Mow only as low as needed for the area's intended use.
- Vary mowing pattern to minimize ruts and promote even growth.
- Base irrigation amounts on monitoring for moisture content.
- Water at appropriate times (when no rain is forecasted and at cooler times of day).
- Manage leaves, clippings, and compost so that runoff does not enter the storm drain system or waterbodies.
- Conform to municipal restrictions on mowing in buffers of waterbodies.

Whenever Possible:

- Allow areas to go to meadow or field and mow once or twice per year rather than every week.
- Keep mower blades sharpened to avoid damaging grass leaf tissue.
- Mow when the grass is dry to prevent spread of turf diseases.
- Sweep lawn clippings and debris instead of using water.
- Mulch grass clippings using a mulching mower.
- Fill gas tanks in a controlled location.
- Use rain sensors for irrigation systems.
- Monitor for moisture content before irrigating; avoid irrigating based on timers/schedules.

Never:

- Never dump gas, wastes, or contaminated water down storm drains.
- Never refuel or change the mower oil near storm drains.
- Never leave the mower running in one location (to prevent burning and overcutting of vegetation).

Related Guidance:

USEPA National Menu of BMPs

Vehicle and Equipment Storage

Purpose: To protect stormwater from petroleum products that may drip or leak from vehicles and equipment being stored or from dirt and sediment that accumulate in the storage areas.

Always:

- Inspect parking areas for stains/leaks on a regular basis.
- Use drip pans or adsorbents for leaking vehicles. (Provide a labeled location to empty and store drip pans.)
- Address any known leaks or drips as soon as possible.
- Clean up spills.

Whenever Possible:

- Store vehicles inside where floor drains have been properly connected and registered.
- Store vehicles on paved areas, and street sweep on a regular basis to remove drips/leaks/dirt, and dispose of street sweepings properly.
- Maintain vehicles to prevent leaks.

Never:

- Never store leaking vehicles over a storm drain.

Related Guidance:

USEPA National Menu of BMPs
NHPPP Pitstops Manual

Vehicle and Equipment Washing

Purpose: To protect stormwater using proper washing techniques, proper washing locations, and proper disposal of wash water for heavy and light-duty vehicles and equipment.

Always:

- Operate a closed system with wastewater recycling (such as a floor drain discharge to a holding tank), or
- Discharge to a municipal sanitary sewer, or
- Obtain a groundwater discharge permit, or
- Wash fewer than 30 vehicles per week and discharge to the ground surface, if
  - vehicle washing BMPs are followed,
  - the discharge is registered, and
  - the wash water:
    - is not from power washing, steam cleaning, engine cleaning, or undercarriage cleaning,
    - does not contain soaps or other products that contain regulated contaminants, and
    - does not discharge to a surface water.

Whenever Possible:

- Use a commercial car wash for light-duty vehicles.
- Obtain and use drain guards (filter inserts) to catch sediments, petroleum products, etc., that might enter the storm drains as a result of vehicle washing.
- Minimize water and soap use when washing or rinsing vehicles.

Never:

- Never perform engine or undercarriage washing outside.
- Never wash vehicles over a storm drain or near drinking water wells.
- Never discharge wash water to a surface water.

Related Guidance:

NHDES Environmental Fact Sheet:
--WD-WSEB-22-10 Wastewater Discharges from Vehicle Washing
NHDES BMP Rules Env-Wq 401

Vehicle and Equipment Fueling

Purpose: To prevent stormwater contamination originating from vehicle and equipment fueling.

Always:

- Fuel carefully to minimize drips to the ground surface.
- Maintain clean fuel-dispensing areas using dry cleanup methods.
- Clearly label and tag all valves to reduce human error.
- Train employees and subcontractors on proper fueling methods and spill cleanup techniques.
- Maintain fuel storage tanks in accordance with local, state, and federal laws.
- Have absorbent spill cleanup kits and materials available at fueling areas.
- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.
- When fueling small equipment from portable containers, fuel in a designated area away from storm drains and waterbodies.

Whenever Possible:

- Install a canopy or roof over aboveground storage tanks and fuel transfer areas.
- Regularly inspect fueling equipment for corrosion and structural failure, cracks in foundations, and physical damage to container systems.
- Use designated fueling areas built upon a level impervious surface (hard cement is best). If the area is paved with asphalt, add a protective coating to create an impervious surface, inspect regularly, and street sweep quarterly at a minimum.
- Protect storm drains from fueling areas using berms and dikes.
- Use absorbent material or absorbent pads during fueling to collect leaks.

Never:

- Never “top off” fuel tanks. (Post signs to remind employees.)
- Never hose down or bury a fuel spill.

Related Guidance:

USEPA National Menu of BMPs
NHDES Fact Sheet:
--WD-WSEB-22-6 BMPs for Fueling and Maintenance of Excavation and Earthmoving Equipment

Spill Cleanup

Purpose**:** To protect stormwater by educating employees on proper spill cleanup procedures, state reporting requirements, and preventative actions.

Petroleum spills involve, but are not limited to, crude oil, gasoline, heating oil, various fuel oils, lubricating oil, hydraulic oil, asphaltic residuals. Hazardous materials spills involve non-oil spills that pose a threat to human health or the environment, such as chemical releases.

Always:

- Stop the source of the spill, if possible to safely do so.
- Contain any liquids, if possible to safely do so.
- If the spill is reportable (see the table at www.tceq.texas.gov/response/spill_rq.html), report it as soon as possible and within 24 hours by phone to SERC/TCEQ. For more information, see www.tceq.texas.gov/response/spills.html.
    - State of Texas Spill-Reporting Hotline and the State Emergency Response Commission (SERC): 1-800-832-8224—24 hours a day
    - TCEQ Regional Office (Region 4, Dallas/Fort Worth), 1-817-588-5800—Monday-Friday, 8 a.m.–5 p.m.
- If the spill causes a fish kill, notify Texas Parks and Wildlife by calling 1-512-389-4848. (See http://tpwd.texas.gov/landwater/water/environconcerns/kills_and_spills/ for more information.)
- Cover the spill with absorbent material such as kitty litter, sawdust, or oil absorbent pads. Do not use straw or water. (See “Petroleum and Chemical Disposal” SOP for adsorbent disposal.)
- Report any discharge of hazardous waste immediately (within one hour) to local emergency officials [fire department], then contact TCEQ as described above.
- Contact the local fire department. Phone: _____.
- Develop and maintain a Spill Prevention, Control, and Countermeasure (SPCC) Plan if the facility stores more than 1,320 gallons of petroleum.
- Fit petroleum and chemical storage containers with secondary containment structures.
- Keep a spill kit in areas where petroleum or hazardous materials are stored.
- Train employees in spill response procedures and equipment.
- Deploy containment booms if the spill could potentially reach a storm drain or waterbody.
- Position mats to contain drips from equipment or vehicles until they can be repaired.

Whenever Possible:

- Seal the floor with paint to prevent absorption of fluids into concrete.
- Install low-level or low-pressure alarms and/or cut-off systems on hydraulic equipment.

Never:

- Never wash a spill into the storm drain or a water body.
- Never leave a spill without cleaning it up.

Related Guidance:

NHDES Fact Sheets:
WMD-REM-13 Requirements for Reporting Oil and Hazardous
Waste Spills and Groundwater Contamination to DES
NHPPP Pitstops Manual

Parts Cleaning

Purpose: To protect stormwater by practicing proper parts-cleaning techniques and disposing of waste cleaners properly.

Always:

- Perform all cleaning in a designated area to minimize the potential for spills.
- Store waste cleaners in properly labeled containers in accordance with regulations.
- Dispose of all waste cleaners properly with a licensed contractor on a regular basis.
- Close the parts-cleaner lid when the container is not in use.

Whenever Possible:

- The variety of cleaners should be minimized to make recycling and disposal simpler.
- Use citrus-based cleaners and dispose of properly.
- Use steam cleaning, pressure washing, or aqueous washers instead of solvents; however, wastewater must be discharged to an oil/water separator (notifying the wastewater treatment plant) or a TCEQ registered holding tank.

Never:

- Never dispose of spent cleaners down the floor drains, sinks, or storm drain, on the ground, or into the air. Disposal by evaporation is also a violation.
- Never dispose of solvents with used oil unless specifically authorized to do so. (Some solvents are compatible with used oil processing, but the solvent type and quantity are determining factors.)
- Never mix or add spent or fresh solvents to used oil.
- Never use gasoline as a cleaner or solvent.
- Never burn spent parts-cleaning fluids in a used oil burner.
- Never use a handheld cleaner in/near the parts cleaner.
- Never mix cleaners.

Related Guidance:

NHPPP Pitstops Manual

Spare Parts Storage

Purpose: To protect stormwater by properly storing spare parts. Improper storage of materials can result in pollutants and toxic materials entering groundwater and surface water supplies.

Always:

- Store spare parts in a designated area.
- Use drip pans for any parts that are dripping.

Whenever Possible:

- Store spare parts inside or under cover.
- Monitor storage areas for staining/leaks on a schedule decided on by the appropriate personnel.
- Clean the majority of petroleum products from the parts that are to be stored.

Related Guidance:

USEPA Manual of BMPs

Alternative Products Use/Storage/Disposal

Purpose: To protect stormwater by using alternative products that are more environmentally friendly.

Always:

- When ordering any product, ask product suppliers, peers, or regulatory agents if there is a more environmentally friendly alternative.

Whenever Possible:

- Use alternative products when deemed appropriate:
  - Instead of solvent-based parts cleaners, use citrus-based cleaners or steam/pressure wash to an oil/water separator or holding tank.
  - Instead of herbicides, use bark mulch.
  - Instead of fertilizer, use compost or manure.
  - Instead of pesticides, plant marigolds, onion, or garlic as deterrents; release or attract beneficial insects.
  - Instead of synthetic adsorbents, use corncob or cellulose products for petroleum spills that can be burned for energy recovery.
- Train employees on the benefits of using alternative products.
- Minimize waste by purchasing recyclable products that have minimal packaging.
- Use less harmful deicers such as calcium magnesium acetate, potassium acetate, or organic deicers.
- Use a "pre-mix" of 4 to 1 sodium chloride and calcium chloride, which is the most cost-effective alternative to straight salt.
- Substitute synthetic fertilizers with natural compost and organic fertilizers to improve soil pH, texture, and fertility, and to reduce leaching to groundwater.
- Use slow-release nitrogen fertilizers.
- Reduce or eliminate mown lawn in areas that are not actively used.
- Consider converting unused turf to a natural area such as a meadow or field.

Related Guidance:

USEPA National Menu of BMPs
NHPPP Pitstop Manual

Petroleum and Chemical Disposal

Purpose: To protect stormwater from petroleum and chemical products due to improper disposal practices.

Always:

- Maintain tracking and manifest, where necessary, of chemicals and petroleum products being disposed or recycled off site.
- Transport used petroleum and chemical products with a licensed transporter and maintain records for three years.
- Train employees on proper disposal practices.
- After draining used oil filters, dispose of the filters with a disposal/recycling company.
- Analyze floor drain solids from the sediment trap for TCEQ to determine if hazardous waste or not.
- Contaminated cloth wipe may be laundered on site or off site, liquid free, and stored in a closed, labeled container.

Whenever Possible:

- Minimize the number of solvents used to reduce the variety of waste generated and to make recycling easier.
- Use safer alternatives. (See the "Alternative Products Use/Storage/Disposal" SOP.)
- If burning used oil for energy recovery, determine whether the oil is regulated under the used oil recycling rules in 30 Texas Administrative Code (TAC) Chapter 324 or is hazardous waste that must be managed according to the regulations in 30 TAC Chapter 335.

Never:

- Never place hazardous waste in solid waste dumpsters.
- Never pour liquid waste down floor drains, sinks, or outdoor storm drain inlets.
- Never mix petroleum waste and chemical waste.
- Never dispose of any gasoline-contaminated waste in the regular trash. Dispose of it only as a hazardous waste.

Related Guidance:

NHDES Environmental Fact Sheets:

• WMD-HW-6 Contaminated Clothwipes for Laundering

• WMD-HW-5 Federal and State Regulations: Hazardous Materials and Waste

• WMD-HW-4 Waste Antifreeze

NHPPP Pitstop Manual

Petroleum and Chemical Handling

Purpose: To protect stormwater by properly managing petroleum products and chemicals used by municipalities.

Always:

- Train employees in hazardous material handling, safety, spill cleanup, and reporting on an annual basis.
- Train new employees as soon as possible; training is required prior to work if worksite has a Spill Prevention Control and Countermeasure (SPCC) Plan for petroleum.
- Handle petroleum products and chemicals according to manufacturer's specifications.
- Conduct oil changes indoors for equipment that fits indoors.
- Use proper protective equipment.
- Maintain Safety Data Sheets (SDSs) for all chemicals used.
- Make SDSs available for materials that require special handling, storage, and/or disposal.
- Create a sign-off sheet for employees stating that they know the location of the SDS(s).

Whenever Possible:

- Assess hazardous material needs to minimize the amount and variety of hazardous material in storage.
- Keep an inventory of hazardous materials on hand.
- Transfer materials from one container to another indoors in a well-ventilated area. Properly label containers.

Never:

- Never treat or dispose of hazardous materials unless licensed to do so.
- Never mix petroleum or chemicals unless directed by manufacturer's instructions.

Related Guidance:

USEPA National menu of BMPs
NHPPP Pitstops Manual

Petroleum and Chemical Storage – Bulk

Purpose: To protect stormwater by properly storing bulk petroleum products and chemicals (containers larger than 55 gallons).

Always:

- Store materials away from high-traffic areas, posted with appropriate signage.
- Store materials according to manufacturer's specifications in approved containers and conditions.
- Be prepared for possible spills by having a spill kit nearby.
- Register each aboveground storage tank (AST) and underground storage tank (UST) with TCEQ, even if empty or unused. (For more information, see www.tceq.texas.gov/permitting/registration/pst/Am_I_Regulated.html.)
- Develop and use a Spill Prevention Control and Countermeasure (SPCC) plan if storing more than 1,320 gallons of petroleum (required).
- Store incompatible hazardous materials in separate areas.
- Inspect storage areas for leaks or drips frequently.
- Store bulk items within secondary containment areas if bulk items are stored outside.
- Conduct annual employee training to reinforce proper storage techniques for petroleum and chemical products.

Whenever Possible:

- Store bulk chemicals and petroleum products inside or under cover.
- Provide secondary containment for interior storage.
- Cover transfer areas.

Never:

- Never store bulk chemicals or petroleum products near a storm drain.

Related Guidance:

NHDES Environmental Fact Sheet:
WMD-REM-3 Monthly Inspection Guidelines for ASTs
WMD-OIL-17 Registration of Aboveground Petroleum Storage Tanks

Petroleum and Chemical Storage – Small Quantity

Purpose: To protect stormwater from pollution by properly storing petroleum products or chemicals (containers 55 gallons and smaller).

Always:

- Store materials away from high-traffic areas.
- Store materials according to manufacturer's specifications (e.g., in a flammable materials storage cabinet).
- Dispose of unused or waste materials properly.
- Train employees on proper storage procedures for petroleum and chemical products.
- Store materials in their original containers to maintain appropriate labeling.
- Be prepared for spills by having a spill kit nearby.
- Frequently inspect the storage areas for leaks or spills.
- Conduct annual employee training to reinforce proper storage techniques for petroleum and chemical products.

Never:

- Never store petroleum or chemical products near a floor drain or stormwater inlet.

Related Guidance:

NHDES Environmental Fact Sheet:
WMD-SW-29 Best Management Practices for 55-Gallon Drums

Garbage Storage

Purpose: To protect stormwater from contamination by properly storing garbage. Garbage and leachate can be transported by stormwater and enter the storm drain system and receiving waterbodies.

Always:

- Cover rubbish bins to keep rubbish and leachate in and wind and rain out.

Whenever Possible:

- Store garbage containers beneath a covered structure or inside to prevent contact with stormwater.
- Install berms, curbing, or vegetation strips around storage areas to control water entering and leaving storage areas.
- Locate dumpsters on a flat concrete surface that does not slope or drain directly into the storm drain system.
- Locate dumpsters and trash cans in convenient, easily observable areas.
- Provide properly labeled recycling bins to reduce the amount of garbage disposed.
- Inspect garbage bins for leaks regularly, and have repairs made immediately by responsible party.
- Keep bins free of improperly discarded trash.
- Provide training to employees to prevent improper disposal of general trash.
- Minimize waste by purchasing recyclable products that have minimal packaging.
- Request and use dumpsters without drain holes.

Never:

- Never place hazardous wastes in a dumpster or trash bin.
- Never place gasoline-contaminated wastes in a rubbish bin. (Small quantities of adsorbents from virgin oil spills are acceptable.)
- Never place oil-contaminated materials that release free draining oil into a rubbish bin.

Related Guidance:

USEPA National Menu of BMPs

General Facility Housekeeping

Purpose: To protect stormwater by maintaining a clean, organized facility.

Always:

- Keep open areas clean and orderly.
- Pick up litter.
- Conduct regular employee training and public education to reinforce proper housekeeping.
- Remove unused scrap/junk materials.
- Store hazardous materials as specified by the manufacturer.

Whenever Possible:

- Store materials and wastes inside or under cover if outside.
- Substitute less toxic or nontoxic materials for toxic ones.
- Perform a routine cleaning of the facility.
- Inspect facility (interiors, exterior, parking areas, etc.) for stains.

Related Guidance:

USEPA National Menu of BMPs

Floor Drains

Purpose: To protect stormwater from pollution caused by discharges of hazardous materials to the subsurface, ground surface, waterway, or storm sewer through floor drains.

Always:

- Keep a spill kit in the vicinity of the floor drains.
- Obtain and use drain mats, adsorbent booms, or covers to keep larger spills out of drains.
- Use floor drains that are (1) connected to a holding tank or (2) connected to the sanitary sewer via an oil/water separator.
- If your floor drains lead to a storm drain, you must have an applicable Texas discharge permit.
- Register holding tanks with the TCEQ.

Whenever Possible:

- Minimize water use or run a dry shop.

Never:

- Never dump hazardous materials down the floor drains.
- Never use floor drains if you are unsure of their discharge location.
- Never store regulated contaminants near a floor drain that discharges directly to the environment.

Related Guidance:

NHDES Environmental Fact Sheets:
-WD-WSEB-22-8 Holding Tanks for Floor Drains
-WD-WSEB-22-9 Protecting Groundwater from Floor Drains and Other Typical Discharges
NHPPP Pit Stops Manual

Painting

Purpose: To protect stormwater by properly storing, using, and disposing of paint and preparation materials.

Always:

- Store waste paints, solvent, and rags in sealed containers.
- Perform abrasive blasting and spray painting in accordance with regulations.
- Properly clean, store, and dispose of paint and associated waste materials.
- Train employees on BMPs concerning painting activities, cleanup, and disposal.

Whenever Possible:

- Replace solvent-based paint with less toxic paints such as latex or water-based paints.
- Practice source reduction—buy only the amount of paint needed.
- Use up, donate, or recycle unused paint.
- Use drop cloths under any painting or preparation activity such as scraping or sandblasting.
- Use techniques such as brushing and rolling to avoid overspray.
- Use vacuum sanders to collect paint dust.
- Perform abrasive blasting and spray painting in an enclosed or covered area that is safe for personnel.

Never:

- Never dispose of paint or waste paint products into the storm drain system, a water body, or onto the ground.

Related Guidance:

NHPPP Pit Stops Manual
NHDES Environmental Fact Sheets:
- WMD-HW-14 Pollution Prevention Tips for Paint
- WMD-HW-6 Contaminated Cloth Wipes for Laundering

Street Sweeping

Purpose: To remove sediment, debris, and other pollutants from streets, parking areas, and paved surfaces through regular, properly timed sweeping schedules.

Always:

- Sweep all public paved streets and parking lots at least once per year. (Sweeping should also be done as soon as possible after snow/ice melt.)
- Dispose of street sweepings properly. (Reuse is unrestricted if visual evidence of litter, animal waste, and petroleum contamination is absent.)

Whenever Possible:

- Start at the "top" of town and work down.
- Sweep downtown areas more frequently (daily).
- Perform additional sweeping on a seasonal schedule and document areas swept.
- Sweep in locations that generate debris, such as construction entrances, sand/salt loading areas, vehicle fueling areas, and vehicle and equipment storage areas on an as-needed basis.
- Street sweep before a major rain event.
- Use dry vacuum assisted street sweepers (the most effective).
- Maintain street sweeping equipment for maximum effectiveness.
- Cover storage areas or locate storage areas where runoff discharges to a buffer.
- Clean catch basins after streets are swept.

Never:

- Never store street sweepings in areas where stormwater could transport fines to the storm drain system or a waterbody.
- Never purposely sweep into the storm drain system.

Related Guidance:

NHDES Environmental Fact Sheet: WMD-SW-32 Management of Street Wastes

Snow Disposal

Purpose: To protect stormwater by minimizing the impact of snow piles that contain sand, salt, and trash and that generate concentrated releases of pollutants during spring snowmelt conditions.

Always:

- Identify sensitive ecosystems prior to disposal and avoid snow disposal in these areas.
- Clear all debris in snow storage area and properly dispose of it immediately after snowmelt occurs each year that the storage area is in use.

Whenever Possible:

- Select storage locations that do not drain into surface waters and where environmental impacts of spring melt are minimal.
- Store snow on areas that are well above the groundwater table on a flat, vegetated slope.
- Store snow at least 25 feet from the high water mark of a surface water.
- Store snow at least 75 feet from any private water supply, at least 200 feet from any community water supply, and at least 400 feet from any municipal wells.
- Install a double row of silt fence or equivalent barrier securely between the snow storage area and the high water mark, and inspect periodically throughout the winter season.
- Clear debris in storage area each year prior to snow storage use.
- Avoid disposal on pavement, concrete, and other impervious surfaces.
- Do not pile snow in wooded areas, around trees, or in vegetative buffers.
- Divert run-on of water from areas outside the snow piles.
- Use less harmful deicers such as calcium magnesium acetate, potassium acetate, or organic deicers.

Never:

- Never dispose of snow in wetlands, lakes, streams, rivers, shellfish beds, or mudflats, or near drinking water sources.
- Never store snow in well-head protection areas.

Related Guidance:

NHDES Environmental Fact Sheet: WMB-3 Snow Disposal Guideline
NHDES BMPs to Control Nonpoint Source Pollution

Deicing Material Storage

Purpose: To protect stormwater by properly storing deicing materials. Sand, salt, and other deicing materials used during winter can be transported by runoff into the storm drain system and eventually into waterbodies if not stored properly.

Always:

- Locate sand/salt piles and deicing fluid tanks on flat, impervious sites that are easily protected from overland runoff and away from surface waters.
- Cover sand/salt and salt piles with a polyethylene tarp when indoor storage facilities are not available.

Whenever Possible:

- Contain wash water from trucks used for salting and sanding in a holding tank for disposal or discharge into sanitary sewers.
- Allow rinse water/melt water to drain into vegetated buffers (away from storm drains).
- Locate deicing material stockpiles and tanks at least 100 feet from streams and floodplains.
- Contain stormwater runoff from areas where salt is stored by using buffers to diffuse runoff before entering waterbodies.
- Use diversion berms to minimize run-on to storage areas.
- Clean up “track out” after storm events.

Never:

- Never dispose of wash water from sanding and salting trucks into the storm drain system, a water body, or septic system drain fields.

Related Guidance:

NHDES Environmental Fact Sheet: WMB-4 Road Salt and Water Quality
NHDES BMPs to Control Nonpoint Source Pollution

Deicing Material Application

Purpose: To protect stormwater by improving application techniques of salt, sand, and other deicing materials.

Always:

- Apply sand, salt, or other deicer materials at the minimum amount necessary to ensure safe driving and walking conditions, per manufacturer's instructions.
- Street sweep accumulated salt and sand at the end of the season.

Whenever Possible:

- Inform salt applicators of sensitive areas, such as public water supplies, lakes, ponds, etc., by installing permanent signs.
- Use deicing alternatives such as calcium magnesium acetate, sand, etc., in sensitive areas.
- Use the minimum amount of salt and sand needed to get the job done.
- Use coarse, clean, "washed" sand, which is free of fine particles and dust and easier to clean in the spring.
- Equip all spreaders with ground-speed controllers.
- Train drivers to improve application techniques and reduce losses.
- Consider applying salt in a 4–8 foot strip along the centerline of a two-lane road (for less traveled roads).
- Know when to plow and reapply salt. Allow maximum melting by salt before plowing.
- Remove snow manually from driveways and sidewalks.
- Remove deicing materials from the roadway as soon as feasible.

Related Guidance:

NHDES Environment Fact Sheet: WMB-4 Road Salt and Water Quality
NHDES BMPs to Control Nonpoint Source Pollution
NHDOT Winter Maintenance Snow Removal and Ice Control Policy

Standard Operating Procedures from Partners for a Clean Environment (PACE), Boulder County

Available online at www.pacepartners.com/index.php/municipal-stormwater-operations.
Provided courtesy of Partners for a Clean Environment, Boulder County, Colorado.
Revised with North Central Texas–specific information.
Note: Cross-references to other SOPs and forms in this set are highlighted so that people writing their procedures can easily spot and remove or otherwise revise these references if they won't be included in their documentation.
All "References and Related Procedures" sections remain as published in the source document.

Facilities and Building Maintenance

Purpose: Stormwater pollution procedures for the maintenance of buildings, facilities, and fixed structures operated or owned by a municipality or county.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Inlet protection devices (wattles, drain covers, berms, and/or filter fabric).
- Containers for collecting paint wastes.
- Tarps or ground cloths.

Standard Operating Procedures

Building and Landscape Maintenance

- Maintain the storm drain system (ditches, inlets, catch basins, culverts, drainage channels, or underground lines) on your property. Clean at least twice a year, late in the fall and in the spring. This is done ____times per ____.
- Do not pressure-wash or hose-off surfaces with soap or chemicals unless wastewater is collected. Do not let wastewater enter storm drains.
- If only cleaning surfaces of ambient dust (with water only), the wastewater can be drained to nearby landscaped/vegetated areas or allowed to pool on-site and evaporate.
- Maintain sprinkler systems as to not over-irrigate. Never water at rates that exceed the infiltration rate of the soil.
- Overflow drains from fountains or decorative ponds should be discharged to the sanitary sewer, drained to a vegetated area, or reused for irrigation. If fountains or decorative ponds are treated with algaecides or other chemicals, the discharge must be approved by the local wastewater treatment facility.
- If paving or sealing a roof, sidewalk, or parking lot, prevent the sealant from reaching the gutters or drains. Use absorbent booms or "pigs" to protect storm drains.
- Use storm drain markers on your property with the message *"This Drain for Rain; Don't Dump."*

Heat Transfer Equipment and HVAC Equipment Cleaning

- Do not allow cooling towers to discharge, leak, or mist-out into roof drains if they drain empty onto pavement, streets, or storm drains. Cooling towers should discharge to the sanitary sewer, if permitted by your local wastewater facility.
- Blow-down from utility boilers may not be discharged outside to pavement or to storm drains. Wastewater should be sent to the sanitary sewer.
- Air conditioner (HVAC) condensate that has been treated with algae inhibitors must be discharged to the sanitary sewer as allowed by the local wastewater treatment facility and not discharged to storm drains.
- Liquid from flushing HVAC or chiller condenser tubes must be captured and disposed of properly. Comply with your city ordinance.

Fire Suppression (Sprinkler) System Testing

- Discharges from chemical suppression systems must be disposed of properly, either in the sanitary sewer or other appropriate disposal methods, and must not be allowed to flow outside to paved surfaces that may lead to storm drains.
- For discharges from underground flush tests, fire pump tests, and hydrant flushing, appropriate BMPs should be utilized. (See the Colorado Department of Public Health and Environment's document "Low Risk Discharge Guidance: Discharges of Potable Water" for examples.)
  - No chemicals are added.
  - Discharge water has not been used for another process (washing, heat exchange, manufacturing, and hydrostatic testing of pipelines or not associated with treated water distribution systems).
  - Discharge shall not cause erosion.
  - Discharge shall not contain solid materials.
  - Discharge shall comply with lawful requirements of applicable local agencies regarding discharges to storm sewer systems.
  - Discharge must not contain residual chlorine at the point where it discharges to surface water in the state.*
  - Removal of any residual chlorine may be achieved by allowing water to stand or pool until no chlorine is detected or by de-chlorination using a potable de-chlorinator.
  - Water should not cause toxicity to vegetation.
  - Promote infiltration to the extent possible.
  - Obtain permission if discharge is to sanitary sewer.
- Discharges from inspector tests, main drain tests, and full flow (back flow) tests are subject to a Hydrostatic Test Water General Permit. The application can be found at www.tceq.texas.gov/permitting/wastewater/general/TXG67_steps.html.
- Discharges disposed of to the sanitary sewer need permission from the local wastewater treatment facility.

Floor Drains and Elevator Shaft Pumps

- Ensure that elevator sump pumps, interior floor drains, and parking garage floor drains are plumbed to the sanitary sewer (not to storm drains).
  Note: A Texas discharge permit (see www.tceq.texas.gov/permitting/wastewater/general) may be required if these drains do not go to a sanitary sewer.
- If there are any hydraulic fluid leaks from elevators, ensure proper cleanup.

Janitorial Practices

- Never dump mop water or cleaning wastewater outside in parking lots or storm drains. Dispose of wastewater in a mop sink or other sanitary sewer drain. (This also includes wastewater from automated floor or carpet cleaning equipment.)
- Do not pour, transfer, or dispose of any material outdoors or near a storm drain.

Painting, Staining, and Sandblasting

- 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, as possible, to minimize wind drift and to contain overspray.
- Clean paintbrushes and tools used to apply water-based paints in sinks plumbed to a sanitary sewer or in portable containers that can be emptied into sanitary sewer drains. Never clean tools over a storm drain or outside.
- Brushes and tools used for oil-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 hazardous waste facility. Never clean tools over a storm drain or outside.
- Promptly clean up any spills of paints, cleaners, or other maintenance chemicals or supplies. Follow spill cleanup BMPs.
- When sand blasting exterior surfaces, place tarps or ground cloths beneath the work area to capture sand blasting media and debris. Enclose the sand blasting area with tarps or plastic to protect from wind and to capture airborne particles (dust).
- Cease all sand blasting operations on windy days.

Waste Management

- All waste receptacles must be leak-tight with tight-fitting lids or covers. This includes dumpsters and compactors.
- Keep all container lids closed at all times unless adding or removing material.
- If possible, store waste receptacles (dumpsters) indoors, under a roof or roof overhang, or inside a shed or covered structure.
- Sweep up around outdoor waste containers regularly.
- Ensure proper disposal of grease bins or tallow bins. Clean up any spills or leaks.
- Do not hose-out dumpsters outdoors. Return dumpsters to the disposal company for cleaning at its facility. If dumpsters must be washed, do so in a wash bay or in an area where wastewater will drain to the sanitary sewer.

Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution and know who to contact in case of a spill.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention—including how to recognize and report illegal connections or discharges. If an employee is at a facility permitted under General Permit TXR050000, annual training is required.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention Binder.
- Keep copies of all contracts for building services or other maintenance.
- Which department is responsible for cleaning of storm drains, ditches, or culverts for your municipality? Contact Name: _____Department: _____Phone #: _____
- Keep records of any routine cleaning of parking lots, storm drains, or culverts.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
BMPs: *Building Maintenance*
BMPs: *Contracts and Property Leasing*
BMPs: *Good Housekeeping and Spill Prevention*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Waste Management, Storage, and Disposal*
SOPs: *Pressure Washing and Exterior Cleaning*

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Fleet and Vehicle Maintenance

Purpose: Stormwater pollution prevention procedures for fleet and vehicle maintenance operations including emergency repair operations.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Weatherproof containers.
- Polly or plastic pallets.
- Drum covers.
- Tarps.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Drip pans.

Standard Operating Procedures

Vehicle and Equipment Maintenance

- Move leaking vehicles or equipment indoors or under cover.
- Use drip pans for leaking vehicles that need to be stored outside.
- Contain leaking fluids and tag the vehicle to alert drivers that vehicle is nonoperational.
- Perform all maintenance activities involving fluids indoors only (except in emergency cases).
- Appropriately dispose of wastewater from tire leak check (to a sanitary sewer or interior drain).
- Clean all parts indoors using the appropriate parts washer.
- Wash vehicles in dedicated wash bays that drain to sanitary sewer.

Emergency Maintenance Operations

- Use drip pans underneath vehicles to catch leaks and drips.
- Have spill kits on all response vehicles.
- Move vehicle to an impervious surface if possible (for better spill cleanup).
- Notify your supervisor of spills. (See the "Spill Prevention, Cleanup, and Reporting" SOP.)

Good Housekeeping and Waste Disposal

- Clean up all spills promptly.
- Transfer fluids from drip pans to the appropriate waste containers immediately.
- Routinely check any equipment stored outside for leaks.
- Maintain oil/water separators according to municipal ordinance or manufacturer's instructions as appropriate.
- Keep lids on dumpsters closed when not in use.
- Develop and maintain a maintenance schedule to check outdoor parking and storage areas for spills and or debris accumulation.
- Inspect parking and fueling areas daily. Designate employee(s) to perform these inspections.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained annually or biannually in stormwater pollution prevention, including how to recognize and report illegal connections or discharges. If an employee is at a facility permitted under General Permit TXR050000, annual training is required.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder, computer file, or other location: _____.
- Maintain a current copy of Spill Response Plan in the SWPPP. Maintain a map of storm drain locations on the property. This is located at: _____.
- Keep a map, including the location of storm drain inlets, in the facility's Stormwater Pollution Prevention binder.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Dewatering of Secondary Containment Structures*
BMPs: *Illicit Discharge Reporting*
BMPs: *Outdoor Container Storage*
BMPs: *Liquid Bulk Material Loading and Unloading*
BMPs: *Material Loading and Unloading*
BMPs: *Spill Cleanup*
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Vehicle Maintenance and Storage*
BMPs: *Waste Management and Disposal*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Vehicle and Equipment Fueling*
SOPs: *Outdoor Materials Storage*
SOPs: *Waste Management and Disposal*

Fueling and Fuel Spill Cleanup

Purpose: Stormwater pollution prevention procedures for municipal operations where vehicles and/or equipment are fueled with gasoline or diesel fuel. These SOPs also apply to fueling from stationary tanks (above- or underground) and from portable tanks and containers in the field.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill Response Plan with contact information. (This is located at: _____.)
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Container for dirty absorbent.
- Storm drain covers.

Standard Operating Procedures

Fueling

- Fuel carefully to minimize drips on the ground.
- Post signage prohibiting "topping off" and describing spill response procedures.
- Require that the person doing the fueling remain present during entire fueling operation. ("Don't walk away!")
- Locate the emergency shut-off switch near the fuel island, and use it if necessary.
- Keep a spill kit at or near each fueling area.
- Train employees to clean up spills and dirty absorbent.
- Assign employee(s) to inspect the fueling island and equipment daily. Clean up any dirty absorbent daily.
- Inspect fueling equipment for cracks, leaks corrosion, or failure.
- (Name) _____is responsible for inspecting the fuel pumps and area ____ times per week.
- When fueling small equipment in the field like lawn mowers, small sweepers, weed whackers, blowers, portable generators, etc., do so over a paved or concrete area, well away from any storm drains or ditches. When pouring fuel from a portable can, use a funnel.
- If possible, install a roof or canopy over the fueling island. (This is a requirement for new construction.)

Locate Storm Drains

- Locate and block any storm drains on site and ensure that any spilled fuel does not reach drains or waterways.

Fuel Spill Cleanup

- Clean up spills thoroughly and promptly.
- Always use dry methods for cleanup of fuel spills (gas, diesel, or kerosene).
  - Spread absorbents (kitty litter or loose absorbents, sheets, pillows, "pigs," or socks) on the spill.
  - Sweep up or pick up the absorbed materials.
  - Dispose of wastes properly.
- If fluids are leaking or have spilled on an impermeable surface, such as a road or parking lot, locate the nearest down gradient storm drain and use a dike or berm to block the drain in order to prevent fluids from entering it.

- Put down absorbent on the spill area. Sweep up the contaminated absorbent and remove the berm or dike from the storm drain. If fluids are leaking or have spilled on a permeable surface, such as gravel, soil, or grass, mark the area then call the State of Texas Spill-Reporting Hotline and the State Emergency Response Commission (SERC) at 1-800-832-8224 (24 hours a day). (See www.tceq.texas.gov/response/spill_rq.html and www.tceq.texas.gov/response/spills.html for more information.)

Report Spills

- Any spill or discharge of any pollutant (e.g., oil, fuels, sediment, paints, hazardous liquids, or super-chlorinated water) that reaches storm drains or enters surface water in the state* must be reported as soon as possible and within 24 hours to:
  - The State of Texas Spill-Reporting Hotline and the SERC at 1-800-832-8224 (24 hours a day) or
  - TCEQ Regional Office (Region 4, Dallas/Fort Worth), 1-817-588-5800—Monday-Friday, 8 a.m.–5 p.m.
    (See www.tceq.texas.gov/response/spill_rq.html and www.tceq.texas.gov/response/spills.html for more information.)
- If the spill causes a fish kill, notify Texas Parks and Wildlife by calling 1-512-389-4848. (See http://tpwd.texas.gov/landwater/water/environconcerns/kills_and_spills/ for more information.)
- Report spills to the facility supervisor. Name:_____Phone: _____
- Report spills that reach storm drains or waterways to your municipal stormwater coordinator. Name:_____Phone: _____

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention including how to recognize and report illegal connections or discharges. If an employee is at a facility permitted under General Permit TXR050000, annual training is required.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or computer file.
- Keep a map of the facility, including storm drain inlets, in the Facility's Stormwater Pollution Prevention binder.
- Maintain a current copy of the Spill Response Plan in_____.
- Post signs as to whom to report spills to (Facility Supervisor, Stormwater Coordinator, Fire Department, TCEQ, etc.).
- Keep copies of all fuel analyses and delivery invoices.

References and Related Procedures

CDPHE *Spill Reporting Brochure:* https://www.colorado.gov/pacific/cdphe/wq-environmental-spills
PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Vehicle and Equipment Fueling*
BMPs: *Spill Cleanup*
SOPs: *Spill Cleanup and Reporting*

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

New Construction of Buildings and Structures

Purpose: Stormwater pollution prevention procedures for new building design, construction, or renovation processes.

Prerequisites

- Employees should attend general stormwater pollution prevention training.
- Texas Construction General Permit for construction activity (if over an acre) www.tceq.texas.gov/permitting/stormwater/TXR15_AIR.html
- Reference the *Preventing Stormwater Pollution at Construction Sites* brochure (see www.nctcog.org/envir/SEEclean/stormwater/pubs/documents/constructionguide_final.pdf).

Stormwater Protection Equipment and Materials

- Storm drain inlet protection (drain covers, berms, rock wattles, sand bags, filter fabric, or plastic).
- Weatherproof containers and drum covers.
- Secondary containment (pallets, containers, and tarps).
- Erosion control BMPs (wattles, stakes, straw bales, berms, and vegetated material).

Standard Operating Procedures

General Construction SOPs

- All construction and renovation activities must use BMPs to the maximum extent practicable regardless of the size of the project or the permits required.
  - Identify storm drains near work zone.
  - Install inlet protection within 25 feet and down gradient of work.
  - Place covers, rock waddles, sand bags, filter fabric, or plastic around or over inlets.
  - Inspect site at the beginning and end of the day to ensure that operations are not contributing sediment or other pollutants to the flow line or storm drain.
  - Clean right-of-ways (streets, medians, and roadways) with brooms or street sweepers as needed.
- Chemicals stored outdoors must be in properly sealed containers. Secondary containment may be necessary if spill potential is high or the containers are located at or near a sensitive area.
  - Cover dumpsters and/or roll-offs to prevent them from becoming full of water and leaking.

Erosion Control During Construction

- Utilize BMPs to control and reduce erosion from the site to the maximum extent possible. If needed, construct or install permanent BMPs.
- Inspect and maintain all erosion or sediment control devices or equipment installed in erosion-prone areas of construction projects.
- Block storm drain inlets (within 25 feet and down gradient) during construction work. Place covers, rock wattles, sand bags, filter fabric, or plastic around or over inlets to protect them from entry of wastes, dusts, overspray, or slurry.
- Store supplies including cement bags, sand, sealants, and tar under cover (such as a tarp) and away from drainage areas.
- Ensure that temporary stockpiles of soil, sand, and other materials are stored to minimize stormwater pollution. (Do not store piles of materials in the street, near storm drains or gutters unless BMPs are used to protect storm drains from sediment runoff.)

Design Standards Buildings and Structures

- Design buildings to ensure that runoff from cooling tower wastewater, fueling spills, material handling and storage spills and vehicle or equipment washing or repairs do not pollute any waterways.
- If it is expected that a building or structure will be pressure washed regularly, design the landscaping and paving to allow wastewater to be channeled for on-site irrigation or collected in pits for collection and disposal.
- Design downspouts to allow rooftop runoff to flow over landscaped areas or porous surfaces.
- Design trash and recycling receptacle areas to be under cover.

Parking Lots

- Consider pervious pavement.
- Consider sheet flow to a grass swale.
- Consider porous, landscaped detention areas.

Storm Drainage Systems

- Consider designing the site with infiltration structures (i.e., rain gardens, downspouts, swales).
- Do not install storm drains near (or at a lower elevation than) fuel or material loading, unloading, or handling areas unless they are equipped with shut-off valves.
- Review the potential stormwater runoff issues and design the storm drainage systems with appropriate BMPs to improve water quality.
- Use storm drain markers with the message *"This Drain for Rain; Don't Dump."*
- All new buildings, renovations, or remodels must have proper sanitary connections for wastewater. Any illicit connections discovered during a remodel, renovation, remodel, or addition must be immediately disconnected and reported.

Material Handling and Storage Areas

- If possible, design new or remodeled facilities so that all work involving industrial materials, chemicals, or wastes will be conducted indoors, under a roof or inside of containment.
- Design outdoor storage areas to have impervious, secondary containment and cover. Secondary containment should be of sufficient capacity to hold the contents of the largest single container plus 4 inches of rainfall. Design the containment so that it contains a blind sump (no outlet) to facilitate pumping out or draining.
- If possible, pave material loading, unloading, and handling areas and locate these areas under a roof, canopy, or overhang to avoid exposure. Concrete should be used rather than asphalt and provided with impervious secondary containment.
- If possible, grade and slope material loading, unloading, and handling areas to avoid stormwater run-on.
- Do not install storm drains downstream of material loading or unloading areas unless they are equipped with shut-off valves.
- Design salt/sand storage facilities to be totally enclosed such as under salt domes or inside of fabricated buildings.
- Design new or renovated facilities with waste or recycling accumulation areas indoors or under a roof.
- If food and grease waste containers must be stored outdoors, design a bermed or dyked area where food and grease wastes can be stored and stormwater run-on will be diverted.

Vehicle and Equipment Maintenance Areas

- Design all vehicle and equipment washing and repair facilities indoors. Plumb wastewater to a sanitary sewer.
- Design vehicle wash bays that drain wastewater to a sanitary sewer. Consider recycling wash water.

Fueling Areas

- Construct impervious berms or secondary containment around fueling stations or tanks to contain leaks or drips.
- Install impervious pavement around fueling stations to divert run-on stormwater away from fueling stations.
- Install covers or canopies over permanent fueling stations to avoid exposure to stormwater.
- Install oil/water separators in any storm drain inlet that might receive runoff from a fueling area.

Landscape, Lawns, and Vegetated Areas

- Design the vegetated areas to improve the stormwater quality to the maximum extent practicable.
- If possible, design new or re-landscaped facilities with xeriscaping rather than conventional landscaping.
- Use native plants.
- Incorporate Low Impact Development (LID) techniques into all landscape designs.

Swimming Pools

- Always connect swimming pools to the sanitary sewer for pool water discharge. Note: Filter media capture equipment may be required by code to connect a diatomaceous earth pool filter to the sanitary sewer. Consult your plumbing code.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees must be trained in general stormwater pollution prevention and how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in Stormwater Pollution Prevention.
- If the site is over an acre, maintain Stormwater Management Plans (SWMPs) and inspection logs.
- Keep copies of inspection reports during construction.
- Keep copies of Texas discharge permits and SWMPs.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
SOPs: *Street Construction and Utility Installation*
SOPs: *Street Maintenance and Repair*
SOPs: *Fueling and Cleanup of Fuel Spills*
SOPs: Outdoor *Materials Storage*
SOPs: *Parking Lot Maintenance*
SOPs*: Pressure Washing and Exterior Cleaning*

SOPs*: Spill Prevention, Cleanup, and Reporting*
SOPs: *Waste Management and Disposal*
BMPs: *Dewatering of Secondary Containment Structures*
BMPs: *Facilities and Building Maintenance*
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Illicit Discharge Reporting*
BMPs: *Liquid Bulk Material Loading and Unloading*
State of Colorado Permit Information: Water quality: commerce and industry permits | Department of Public Health and Environment
Urban Drainage and Flood Control District, Urban Stormwater Drainage Criteria Manual, Volume 3: http://www.udfcd.org/
KICP's Erosion Control Field Manual

Outdoor Special Events and Festivals

Purpose: Stormwater pollution prevention procedures for outdoor special events to prevent wastes or wastewater from entering storm drains and waterways.

Prerequisites

- Employees and contractors should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Covered trash and recycling containers.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Storm drain inlet protection (wattles, berms, and drain covers).
- Wet vac.
- Porto-Potties (staked down).
- Containers for wastewater collection.

Standard Operating Procedures

General Stormwater Protection

- Do not dump any liquids or other material outside.
- Have spill cleanup material on hand and clean up spills immediately.
- Distribute an informational sheet to event coordinators. (An example is available at www.keepitcleanpartnership.org/wp-content/uploads/pdfs/Events%20Resource%20Sheet.pdf.)
- Service portable toilets frequently and have contractor securely stake them down prevent them from blowing or tipping over.
- Ensure that vendors dispose of their wastewater appropriately. Provide a connection to a sanitary sewer or other container for vendors to dispose of their wastewater.

Waste Management and Disposal

- Provide an adequate number of receptacles to prevent litter.
- Empty waste and recycling containers as needed to prevent overflow.
- Waste and recycling receptacles should be leak tight and have a lid or cover.
- Contact a local solid waste disposal company to help determine the receptacle need for the event.

Pressure Washing After the Event

- If hiring a company to pressure wash, be sure they are capable of collecting all wash water and preventing it from entering the stormwater system.
- Dry clean area as needed. Use absorbents (kitty litter, rags, sand, etc.) to clean up spills, sweeping, vacuuming, and scrapping off dried debris. The waste material should be disposed of as solid waste.
- Pressure wash with minimal water.
- If you do not use any chemicals or detergents and are only cleaning surfaces of ambient dust with water, then you may direct the wastewater to nearby landscaping or vegetated area or contain it on site and allow it to evaporate.
- When discharging wash water to landscaping, make sure water is absorbed into vegetated or permeable surfaces (gravel, porous pavement) and does not cause erosion or run off into a storm drain or paved area.
- All other wash water must be captured for proper disposal.

- Solids should be removed from the area prior to pressure washing, and a filter bag or similar filtration device should be used to remove suspended solids from the wastewater.
- Use a wet vacuum to collect wastewater for disposal to the sanitary sewer.
- Contact the municipal Public Works department to street sweep the festival area following the event.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.
- Pressure washing companies should fill out the Pressure Washing Service Agreement to ensure that the location of disposal is identified.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in stormwater pollution prevention.
- Provide event participants with resource materials and information on waste disposal during the event.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Spill Cleanup*
SOPs: *Pressure Washing and Exterior Cleaning*
SOPs: *Waste Management and Disposal*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Outdoor Materials Storage*
Resource Sheet: *Outdoor Special Events for Vendors*
Resource Sheet: *Outdoor Special Events for Event Organizers*
Boulder County Public Health, Temporary Event Application:
http://www.bouldercounty.org/family/food/pages/foodsafetyprogrammain.aspx.

Outdoor Materials Storage

Purpose: Stormwater pollution prevention procedures for the prevention of accidental releases of liquid or solid materials stored outdoors in containers, totes, drums, cartons, bulk tanks, bags, or stockpiles.

Prerequisites

- Employees should attend general stormwater pollution prevention training.
- Designate personnel to conduct inspections of outdoor storage areas on a regular basis.

Stormwater Protection Equipment and Materials

- Weatherproof containers.
- Poly or plastic containment pallets.
- Drum covers.
- Tarps.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Storm drain inlet protection (wattles, berms, and drain covers).

Standard Operating Procedures

Outdoor Storage Areas

- Store all containers indoors whenever possible. If they must be stored outdoors, place them in a shed or under a roof if possible.
- Chemicals stored outdoors must be in properly sealed containers. Secondary containment may be necessary if spill potential is high or the containers are located at or near a sensitive area.
- If possible, place all containers on a plastic pallet or other device that elevates them off the ground or pavement and provides containment. This avoids contact with stormwater run-on/runoff.
- Place containers on paved or impervious surfaces and as far from (or at a lower elevation than) storm drain inlets and drainage ditches as possible.
- Provide a spill kit near storage areas.
- Clean up any spills, leaks, or discharges promptly.
- Inspect all containers stored outdoors regularly.
- If a container is found to be leaking, either empty the contents into a leak-tight container or place the entire leaking container inside of a larger leak-tight container. Clean up any spills or leaks promptly.
- Do not drain accumulated water from secondary containment structures unless approved by a supervisor.
- Inspect all containers stored outdoors regularly. Any containers that are leaking must be moved indoors immediately or placed in a leak-tight, “over-pack” container.

Sand, Salt, Dirt, or Gravel Stockpiles

- Store sand/salt inside a building or under a roof.
- If no building is available, cover sand/salt piles with a tarp.
- Contain stormwater runoff from dirt and gravel stockpiles by using barriers or berms.

Bulk Liquid Materials Storage

- Provide impervious secondary containment for all aboveground storage tanks (ASTs), except double-walled tanks, that is sufficient to contain the entire contents of the largest single tank plus

an additional 4 inches of rainfall or 110 percent of the capacity of the potentially stored volume (not just the largest tank).
- Keep drain valves in secondary containment at ASTs locked in the closed position at all times. Open for draining only under supervision.
- Make sure an adequate spill kit with sufficient equipment and supplies is located near storage areas where spills are possible. Clean up any spills, leaks, or discharges immediately.

Contracts and Contractors
- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training
- All applicable employees should be trained in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation
- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or other location: _____.
- Provide a written inspection and maintenance schedule of all areas. This is recorded in: _____.
- Keep a map of the facility, including storm drain inlets, in the Stormwater Pollution Prevention binder.
- Keep copies of current Safety Data Sheets for all materials stored outdoors.

References and Related Procedures
PACE Municipal Operations website: http://pacepartners.com/municipal-operations
BMPs: *Dewatering of Secondary Containment Structures*
BMPs: *Outdoor Container Storage*
BMPs: *Spill Cleanup*
BMPs: *Good Housekeeping and Spill Prevention*
SOPs: *Snow Plowing, Storage, and Deicer Application*
SOPs: *Spill Prevention, Cleanup and Reporting*
SOPs: *Waste Management, Storage, and Disposal*

Parking Lot Maintenance

Purpose: Stormwater pollution prevention procedures for the general maintenance of municipal parking lots, parking garages, or elevated parking structures.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Inlet protection devices (wattles, drain covers, berms, and/or filter fabric).

Standard Operating Procedures

General Maintenance

- Designate staff to conduct inspections and maintenance of parking lots and garages including stormwater conveyance systems on a regular basis. (Suggested frequency: weekly.)
- Clean leaves, trash, sand, and other debris from parking lots regularly to prevent debris from reaching any storm drain inlet or storm detention area.
- The parking lots are inspected: _____times per _____ (week/month/year). (Please provide a copy of your schedule here or fill in the blanks.)
- Sweep parking lots with a street sweeper regularly. Sweep parking lots after winter storms, sanding events, and after leaf season in the fall.
- The parking lots are swept or cleaned: _____times per _____ (week/month/year). (Please provide a copy of your schedule here or fill in the blanks.)
- Sweep after special events or construction projects.
- List which events require cleanup: (Examples: farmers markets, festivals, fairs, and concerts)
  _____
  _____
- Use storm drain markers to mark any storm drain inlets in or near the parking lot with the message *"This Drain for Rain; Don't Dump."*
- Any automotive spills and/or drips must be cleaned up with dry cleanup methods (absorbents) and disposed of properly.
- For parking garages, ensure that elevator sump pumps and interior floor drains are plumbed to the sanitary sewer (not to storm drains).
- Inspect all dumpster or waste disposal areas regularly. Clean up any trash, spills, or leaks and report leaking dumpsters to the disposal company.

Maintenance of Storm Drains, Culverts, and Detention Areas

- Inspect storm structures, culverts, detention areas, or structural BMPs regularly for debris accumulation. (Suggested frequency: weekly.) Clean out as needed.
- Contact the appropriate municipal department to clean out any storm drains, structures, or detention/infiltration areas.
  Department: _____
  Contact name: _____
  Phone: _____
- The cleaning frequency is: _____ times per _____ (week/month/year).

Asphalt Paving, Resurfacing, and Concrete Projects

- Reseal or pave on dry days when no rain is expected, and stop paving activities well before rainfall is expected.
- Pre-heat, transfer, or load hot asphalt far away from storm drain inlets.
- Protect or block nearby, downstream, storm drain inlets from debris from maintenance work (asphalt cap, chip sealing, concrete breaking, or saw cutting). Leave inlet protection in place until the job is complete. Clean up debris from around inlets and dispose of properly.
- Designate a concrete wash out area on the job site in a grassy or graveled area where pooled water can soak into the ground. If no wash out area is available, wash out into a container (pool, bucket, or wheelbarrow) and dispose of material properly.

Painting and Striping

- Schedule painting, marking, and striping projects during dry weather only. Cease all activities when rain threatens.
- Use thermoplastic markings in place of paint whenever possible.
- Block nearby storm drain inlets (within 25 feet and down gradient of project) when painting or striping.
- Promptly clean up any spills of paints, cleaners, or other chemicals.

Salt, Sand, or Deicer Application

- Hand-apply deicer or sidewalk salt. Use sparingly.
- If truck-applying salt, sand, or deicer, use the lowest application rate that will be effective. Ensure that the equipment is calibrated to optimum levels according to manufacturer's instructions.
- Avoid applying liquid or solid salt products near storm drain inlets, creeks, drainage ditches, or other waterbodies.

Snow Plowing and Snow Storage

- Do not plow or store excess snow or other debris near creeks or storm drainage systems.
- Snow disposal areas should be located at least_____* feet from or down gradient from any storm drain inlets, drainage ditches, ponds, creeks, or wetlands.
  (*500 feet or stricter limit is recommended.)
- If possible, store excess snow in a pervious (gravel) area where melt water can infiltrate into the ground and not flow into the storm drain system.
- If snow storage is on a paved area, sweep up the remaining debris after snow melt.
- Excess snow is stored at: _____.
- If stored on a paved area, how often is the area swept?_____times per_____(week/month)

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a log of inspection and maintenance records. Located in: _____
- Keep a log of all employees trained in facility's Stormwater Pollution Prevention binder or computer file. Log is located at: _____

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
SOPs: *Snow Plowing, Storage, and Deicer Application*
SOPs: *Street Sweeping, Cleaning, and Waste Disposal*
SOPs: *Waste Management and Disposal*
SOPs: *Street Maintenance and Repair*
SOPs: *Storm Drain System Maintenance*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Pressure Washing and Exterior Surface Cleaning*
BMPs: *Facility and Building Maintenance*
BMPs: *Dry Material Loading and Unloading*

Parks, Golf Course, and Open Space Maintenance

Purpose: Stormwater pollution prevention procedures for maintenance of parks, golf courses, and open space properties.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Inlet protection devices (wattles, drain covers, berms, sand bags, and/or filter fabric).
- Mulching mowers.
- Automatic timers.
- Rainfall sensors.
- Evapotranspiration (ET) controllers.
- Manufacturer's recommendations for application and storage of pesticides.

Standard Operating Procedures

General

- Never dump any liquids or other materials outside. Dispose of all liquids and materials appropriately (generally in a sanitary sewer).
- Ensure that the storm drains, ditches, inlets, catch basins, drainage channels, or underground lines on the property are properly maintained.
- Catch basins, inlets, and culverts are scheduled to be cleaned ____times per year. If additional cleaning or maintenance is needed, notify: : Name _____ Phone _____
- Keep all outdoor work areas neat and tidy. Sweep around work areas after each shift and properly dispose of all wastes.
- If possible, do not hose down outdoor work areas or trash/waste container storage areas. If these areas must be washed, ensure that the wash water will enter the sanitary sewer or a landscaped area. Do not use soap. (See the "Pressure Washing and Exterior Cleaning" SOP.)

Irrigation Systems

- Set sprinklers to water at rates less than the infiltration rate of the soil, to water evenly over the vegetated area, and to minimize the amount of water falling on impervious surfaces.
- Automatic timers should be used on all irrigation equipment to minimize runoff and over irrigation. Monitor soil moisture content and adjust timer settings appropriately.
- Always replace or repair broken or leaking sprinkler heads as soon as possible.
- To report an irrigation problem or concern, contact: Name _____ Phone _____

Landscaping, Lawn, Vegetation Maintenance

- Whenever possible, mulch-mow grasses.
- Sweep grass clippings and other vegetation debris from sidewalks or streets back onto grassy areas.
- Dispose of lawn clippings, leaves, tree trimmings, or other landscape waste appropriately. Grass clippings are stored at _____or taken to _____ for disposal.
- If possible, dispose of organic wastes by composting. If composting is not possible, dispose of organic wastes at an approved disposal facility. Organic waste is composted at_____.

- If possible, control soil erosion by seeding, sod, mats, mulching, terracing, or other effective methods. Use mulch or other erosion control methods to prevent erosion of exposed soils and flowerbeds.
- Do not apply bark or mulch on top of plastic sheeting unless the area is enclosed by a barrier-like lawn edging or it is far from a storm drain inlet. (Bark on plastic is easily washed off by heavy rainfall.)
- Design new or re-landscaped areas using xeriscape and Low Impact Development (LID) techniques to the maximum extent possible. Use hardy plant materials appropriate to the climate.
- Always follow the Integrated Pest Management Plan.
- Always follow the "Fertilizer, Herbicide, and Pesticide Application" SOP.

Buildings and Structures

- Do not discharge waste and/or wastewater from cleaning and repair of exterior surfaces into the Municipal Separate Storm Sewer System (MS4). If you do not use any chemicals or detergents and are only cleaning surfaces of ambient dust, then you may direct the wastewater to nearby landscaping or vegetated area or contain it onsite and allow it to evaporate.
- Always follow the "Pressure Washing and Exterior Cleaning" SOP when power washing buildings or structures.
- Use inlet protection devices such as wattles, berms, or drain covers when constructing or repairing paved sidewalks, driveways, or other structures to protect any storm drain inlets or ditches that are within 25 feet or are at the same or lower elevation than the work area.
- If possible, use rub-on techniques for graffiti removal or repaint over the affected areas.
- If pressure washing graffiti, capture any wastewater, debris, solvent wastes, or solid wastes from graffiti removal with tarps or wet vacs and dispose of in sanitary sewer.

Vehicle and Equipment Washing and Storage

- Vehicles, equipment, and mowers are washed at _____, which drains to the sanitary sewer or an approved holding tank or infiltration area.
- Vehicles and mowers may also be washed at a commercial or other designated car washing facility.
- If possible, perform all maintenance and repair work inside shop. (Only emergency repairs and maintenance activities that do not involve fluids may be performed outdoors.)
- Do not store leaking vehicles or equipment outdoors. Contain the leak, repair immediately, or move indoors and repair.
- Notify shop supervisor (Name: _____ Phone: _____) when leaving a leaking vehicle at Fleet Services or at your shop.

Painting and Staining

- Do not clean tools and brushes over or near a storm drain.
- Use a ground cloth or oversized tub for paint mixing and tool cleaning. Properly dispose of the wastes. Avoid performing activities near storm drains.
- Enclose spray-painting operations with tarps or other means to minimize wind drift and to contain overspray.
- Clean paint brushes and tools used to apply water-based paints in sinks plumbed to a sanitary sewer or in portable containers that can be emptied into sanitary sewer drains.
- Clean brushes and tools used for oil-based paints, finishes, thinners, solvents, or other materials over a tub or container and dispose of the cleaning wastes at an approved hazardous waste facility.
- Immediately clean up any spills of paints, cleaners or other maintenance chemicals or supplies. (See the "Spill Prevention, Cleanup, and Reporting" SOP.)

- Store paints, stains, and solvents inside, or under cover and with secondary containment (as per manufacturer's recommendations).

Swimming Pool Maintenance

- Do not discharge pool water to a street or storm drain when draining pools or hot tubs. Discharge water to vegetated landscape or the sanitary sewer if permitted to do so. If using the storm drain system to discharge de-chlorinated pool water, be sure that the discharge does not violate Texas Surface Water Quality Standards. Never clean pool filters in the parking lot or near a storm drain.
- Do not hose down pool decks or sidewalks if the wash water will flow to pavement, the street, or the storm sewer system.
- Direct wash water to landscaped or grassy areas or to sanitary sewer.
- Store all pool chemicals indoors and under cover.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in the department's Stormwater Pollution Prevention binder or computer file.
- Records of all maintenance activities are kept at: _____.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
SOPs: *Pesticide and Fertilizer Application*
SOPs: *Fueling and Cleanup of Fuel Spills*
SOPs: *Outdoor Materials Storage*
SOPs: *Parking Lot Maintenance*
SOPs: *Pressure Washing and Exterior Cleaning*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Waste Management and Disposal*
BMPs: *Facilities and Building Maintenance*
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Illicit Discharge Reporting*
BMPs: *Landscape and Lawn Maintenance*
BMPs: *Outdoor Container Storage*
BMPs: *Spill Cleanup*
CDPHE: Low Risk Guidance: Discharges of pools, hot tubs, decorative fountains and other facilities

Pesticide, Fertilizer, and Herbicide Application

Purpose: Stormwater pollution prevention procedures for storage, mixing, disposal, and application of fertilizers, herbicides, and pesticides.

Prerequisites

- Employees should attend general stormwater pollution prevention training.
- Ensure compliance with Texas Pesticide Regulations and EPA's Pesticide Container and Containment Rule.
- Pesticide application must be done only under the supervision of a certified pesticide applicator or qualified supervisor.
- All employees who handle or apply fertilizers, herbicides, or pesticides should be trained on the most recent Safety Data Sheets (SDSs).

Stormwater Protection Equipment and Materials

- ANSI approved sprayers.
- Poly-pallets or plastic containment pallets and pails for secondary containment.
- Proper personal protective equipment (rubber gloves and protective eyewear).
- Spill kits and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- All pesticide application equipment must be capable of immediate shut-off in the event of an emergency.
- Manufacturer's instructions for use and disposal of material.
- SDSs for all chemicals.
- EPA or State General Pesticide Permit: www.tceq.texas.gov/permitting/wastewater/general/pestgpair

Standard Operating Procedures

General

- Always follow the manufacturer's recommendations for mixing, application, and disposal.
- Follow the IPM 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 and are protective of water quality. Beneficial organisms should be promoted and protected whenever/wherever possible.
- When chemicals are used, use the most biodegradable product that will accomplish the desired goal.

Mixing

- Follow all manufacturer's recommendations for mixing, applying, and handling of fertilizers, herbicides, and pesticides.
- Mix fertilizers, herbicides, or pesticides inside a protected area with impervious secondary containment (preferably indoors) so that spills or leaks will not contact soils.
- Fertilizers, herbicides, or pesticides are mixed at these locations:_____.
- Label all containers.
- Always mix only the minimum amount of fertilizers, herbicides, or pesticides that will be needed for the immediate job.
- If possible, use rinse water from the cleaning of containers and application equipment as a dilution for the next batch.

Application

- Always follow all federal and state regulations governing use, storage, and disposal of fertilizers, herbicides, or pesticides and training of pesticide applicators ("Read the Label").
- Time the application of fertilizers, herbicides, or pesticides to coincide with the manufacturer's recommendation for best results. (For example, do not apply during a heavy rainfall or if a heavy rainfall is expected, and do not apply immediately before an irrigation cycle.)
- If possible, avoid broadcast spraying of pesticides. Choose an appropriate method of application such that application does not exceed the problem area. (Fertilizer may be broadcast sprayed.)
- Spot spray pesticides on infested areas whenever possible rather than treating a larger area. Do not use pesticides on a regular (preventive) basis. Apply only when there is an actual pest problem.
- Avoid applying fertilizers, herbicides, or pesticides in or near any drainage ditch, creek, pond, or seasonal streambed.
- Designate "no spray zones" and/or buffer areas around water features (ponds, lakes, or streams).
- Buffer zone =_____feet.
- If possible, avoid applying fertilizers, herbicides, or pesticides within___(50)* feet of any surface water or storm drainage structure. (*50 ft. unless stricter limits apply.)
- Whenever possible, use granular fertilizers, herbicides, or pesticides, as they result in lower application losses.

Cleanup

- Always follow all federal and state regulations governing use, storage, and disposal of fertilizers, herbicides, or pesticides and training of pesticide applicators ("Read the Label").
- Always follow all manufacturer's recommendations for cleaning up and handling of fertilizers, herbicides, or pesticides.
- Sweep pavements or sidewalks where fertilizers or other solid chemicals have fallen, sweeping them back onto grassy areas.
- Promptly clean up any spills or leaks of fertilizers, herbicides, or pesticides.
- Make sure all containers are clearly labeled.
- Try to use the entire batch on target areas. Use up excess chemicals on the target pest or vegetated area or dispose of as hazardous waste.
- Dispose of excess and leftover chemicals and empty expired fertilizers, herbicides, or pesticides according to the instructions on the label. If possible, use the triple rinsate from empty containers and/or rinsate from sprayer cleaning as dilution for the next batch.
- Never pour triple rinsate from empty containers and/or rinsate from sprayer cleaning onto ground or into any drainage system.

Storage

- Always follow all federal and state regulations governing use, storage, and disposal of fertilizers, herbicides, or pesticides and training of pesticide applicators ("Read the Label").
- Store fertilizers, herbicides, or pesticides inside a protected area with impervious secondary containment (preferably indoors) so that spills or leaks will not contact soils.
- Chemicals and pesticides are stored at:_____.
  (This area should be indoors or have secondary containment so that spills or leaks will not contact soils.)
- All containers must be clearly and correctly labeled.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained annually or biannually in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges. If an employee is at a facility permitted under General Permit TXR050000, annual training is required.
- Pesticide application must be done only under the supervision of a certified pesticide applicator or qualified supervisor.
- All employees who handle or apply pesticides or herbicides should be trained on the most recent SDSs.
- Train employees on the proper methods for cleaning up spills or leaks of pesticides, herbicides, and fertilizers. (Refer to the "Spill Prevention, Cleanup, and Response" SOP for more details.)

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or computer file.
- Records of pesticide application activities are kept at: _____.
- An inventory of fertilizers, herbicides, and pesticides including expiration dates are kept at: _____.
- A copy of the Integrated Pest Management Plan is kept at: _____.
- Copies of SDSs for all pesticides, fertilizers, and other hazardous products are kept at: _____.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
SOPs: *Parks, Golf Course, and Open Space Maintenance*
SOPs: *Fueling and Fuel Spills*
SOPs: *Outdoor Material Storage*
SOPs: *Parking Lot Maintenance*
SOPs: *Pressure Washing and Exterior Cleaning*
SOPs: *Spill Prevention, Cleanup, and Response*
SOPs: *Waste Management and Disposal*
BMPs: *Facilities and Building Maintenance*
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Illicit Discharge Reporting*
BMPs: *Landscape and Lawn Maintenance*
BMPs: *Outdoor Container Storage*
BMPs: *Spill Cleanup*

Pressure Washing and Exterior Surface Cleaning

Purpose: Stormwater pollution procedures for the cleaning of exterior surfaces such as sidewalks, building exteriors, and graffiti removal.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Wet vacuum and holding tank.
- Storm drain inlet protection devices (drain covers, wattles, booms, and berms).

Standard Operating Procedures

General Surface Cleaning and Pressure Washing

- Use dry cleanup methods prior to any pressure washing. Use absorbents (kitty litter, rags, sand, etc.) to clean up spills, sweeping, vacuuming, and scrapping off dried debris. The waste material should be disposed of as solid waste.
- Solids should be removed from the area prior to pressure washing and a filter bag or similar filtration device should be used to remove suspended solids from the wastewater.
- Discharge of any wash water from mobile power washers, directly or via a storm sewer, to surface water in the state* is not authorized under any stormwater permit, either industrial or municipal, and is a violation of the Texas Surface Water Quality Standards.
- If you do not use any chemicals or detergents and are only cleaning surfaces of ambient dust, then you may direct the wastewater to nearby landscaping or vegetated area or contain it onsite and allow it to evaporate. When discharging wash water to landscaping, make sure water is absorbed into vegetated or permeable surfaces (gravel, porous pavement) and does not cause erosion or run off into a storm drain or paved area.
- All other wash water must be captured for proper disposal.
- Pressure wash with minimal water.
- A visible sheen must not be evident in the discharge. Use an absorbent pad or boom to eliminate any oil from the discharge.
- Do not pressure wash an entire building. Spot clean, steam clean, or scrape dirty areas rather than pressure washing the entire structure.

Heat Transfer Equipment and HVAC Equipment Cleaning

- HVAC or chiller condenser tube flushing liquid must be captured and disposed of properly.
- Clean equipment in designated areas and dispose of wash water properly, usually by pouring down a sanitary sewer drain.

Storm Drain Protection

- Prior to pressure washing, identify where all storm drains are located; wash water must not be allowed to flow down gutters or enter storm drains.
- Block or cover all storm drains with booms and weighted storm drain covers before pressure washing.
- Determine where water will pool for collection. Use a wet vac to vacuum up the wastewater or allow water to evaporate.

Disposal of Wash Water

- Use a wet vacuum to collect water for disposal to the sanitary sewer.
- Once water is collected, dispose of it properly. Collected wash water may be disposed of into a sanitary sewer drain at the job site or at the contractor's place of business. (First ask for permission from the property owner and the local wastewater treatment plant. A permit may be required prior to disposal to the sanitary sewer. Check with your local wastewater treatment plant for authorization.)
    - DO NOT dispose wastewater to a septic (on-site wastewater) system.

Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution and know whom to contact in case of spill.
- Contractors should fill out the Pressure Washing Service Agreement to ensure that the location of disposal is identified.

Employee Training

- All applicable employees should be trained in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or computer file.
- If contracting out pressure washing, have the contractor fill out the Pressure Washing Service Agreement to ensure that the location of disposal is identified.

References and Related Procedures

- PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
- BMPs: *Building Maintenance*
- BMPs: *Contracts and Property Leasing*
- BMPs: *Good Housekeeping and Spill Prevention*
- SOPs: *Spill Prevention, Cleanup, and Reporting*
- CDPHE Low Risk Discharge Guidance: *Discharges from Surface Cosmetic Power Washing Operations to Land*

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Pressure Washing Service Agreement

Non-stormwater discharges to the storm drainage system are illegal. Both property owner and contractor are responsible for complying. This service agreement is a voluntary tool to ensure that contracted cleaning companies use responsible methods in their cleaning and disposal methods in order to comply with all local regulations. This agreement should be filled out prior to commencement of work, and both parties should retain copies.

Contractor: Name of Company	**Address (Street, City, ZIP)**	**Phone**	**Contact**

The above contractor agrees to follow all necessary practices **to ensure compliance with local stormwater regulations** at the following address:
Business:_____Address:_____
Date of service: _____

Check all boxes that apply to surfaces to be cleaned:

- ☐ Building exterior
- ☐ Sidewalk, plaza, patio
- ☐ Parking area/drive-through
- ☐ Dumpster area
- ☐ Paint/graffiti removal
- ☐ Other (describe): _____

Note:
The removal of manhole covers is prohibited.

Cleaning methods to be used:

- ☐ Water only
- ☐ Water and soap
- ☐ Wet sand blast
- ☐ Other chemicals: _____
- ☐ Other methods: _____

Precautions to be taken:

- ☐ Dry cleanup (e.g., absorb spilled oil, sweep, vacuum, etc.)
- ☐ Block storm drain
- ☐ Collect wash water for disposal
- ☐ Other precautions: _____

Wash water disposal:

- ☐ Dispose of wash water into indoor sanitary sewer drain (e.g., floor drain, utility sink). Use a drain that has a grease trap, if available. Location of drain to be used: _____

When only using water to clean ambient dust, the following disposal method may be used:

- ☐ Discharge to landscaped area
- ☐ Evaporate on site

Contractor Signature:_____Date: _____

Go to www.pacepartners.com for more information and an electronic copy of this agreement.

This form was developed by Partners for A Clean Environment (PACE), which has been contracted by the Keep it Clean Partnership (KICP) to provide pollution prevention assistance to local businesses so we can all "keep it clean"!

Snow Plowing, Snow Storage, and Deicer Application

Purpose: Stormwater pollution prevention procedures for snow plowing, snow storage and disposal, and salt, sand or liquid deicer application on roadways.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Equipment manufacturer's manuals and operation instructions.
- Inlet protection devices (wattles, drain covers, and berms).

Standard Operating Procedures

Snow Plowing

- Avoid plowing, pushing, blowing, or storing excess snow, deicer, or other debris in or near creeks, watercourses, or storm drainage systems.
- Reduce plowing speed in sensitive areas (near creeks, wetlands, or other water courses) to prevent snow and deicing materials from entering waterways.
- What is the standard plowing speed?_____mph.
- Follow your city's prioritized plowing route or schedule. This schedule is located at: _____.

Snow Storage and Disposal

- Do not dispose of snow in wetlands, lakes, creeks, rivers, and ditches or directly on top of storm drains.
- If central snow disposal areas are used, they should be located at least 500 feet from and down gradient from any waterways, drainage ditches, ponds, creeks, or wetlands.
- Select storage areas that do not drain directly to surface waters and where environmental impacts from spring melt are minimal.
- If possible, store excess snow in a pervious area where melt water can infiltrate into the ground and not into the storm drain system.
- Excess snow is stored at: _____
- Clean up or sweep any sediment or debris from paved surfaces after snowmelt.
- How often is the area swept? _____

Salt, Sand, and Liquid Deicer Application

- If truck-applying sand/salt mixture or liquid magnesium chloride, use the lowest application rate that will be effective.
- The application rate is: _____
- The optimal speed for applying deicer products is:_____mph.
- Ensure that the equipment is calibrated to optimum levels according to manufacturer's instructions.
- Establish "low salt or sand areas" near sensitive areas such as wetlands, creeks, rivers, or lakes or directly over waterways and on bridges.
- Use less harmful deicers such as calcium magnesium acetate, potassium acetate, or organic deicers.

Salt and Sand Storage and Loading Areas

- Salt, sand, or other solid products (*"Ice Slicer"*) should be stored in a covered structure or building or covered with a tarp.
- Salt/sand or other solid product piles should be stored on impervious surfaces with berms or other diversion devices to minimize stormwater run-on and runoff.
- Liquid magnesium chloride tanks shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering surface water in the state.*
- When loading salt/sand mix or liquid deicer, care should be taken not to overfill the truck or tank.
- Loading areas and yards should be swept frequently to prevent salt or sand buildup and runoff.
- Place berms or wattles where runoff leaves the yard to contain any salt waste.

Vehicle Washing

- Always wash sand trucks, snowplows and magnesium chloride tanks in a wash bay or area where wash water drains to the sanitary sewer.
- The wash area is located at: _____.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained in general stormwater pollution prevention; this includes how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Maintain a master schedule of prioritized snow and sanding routes and the miles or roads plowed or sanded. (Place a copy here or describe location of file/document: _____).
- Keep copies of manufacturer's recommendations for equipment calibration, plowing speed, and salt/sand application rates. (Place a copy here or describe location of file/document: _____).
- Keep records of the amounts of salt/sand, *Ice Slicer*, and/or liquid deicer applied per season. (Place a copy here or describe location of file/document: _____).
- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or computer file.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
BMPs: *Salt Storage and Snow Disposal*
BMPs: *Street Sweeping and Road Maintenance*
BMPs: *Spill Cleanup*
BMPs: *Street Sweeping and Road Maintenance*
BMPs: *Vehicle Maintenance and Storage*
BMPs: *Vehicle Washing*
SOPs: *Street Sweeping, Cleaning, and Waste Disposal*
SOPs: *Parking Lot Maintenance*
SOPs: *Fleet and Vehicle Maintenance*

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Spill Prevention, Cleanup, and Reporting

Purpose: Stormwater pollution prevention procedures for spill prevention and cleanup and for reporting spills at municipal yards or facilities.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Spill Response Plan with contact information.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, container for dirty absorbent, and dustpan).
- Storm drain inlet protection (drain covers, booms, and wattles).
- Secondary containment (over pack containers or pallets).

Standard Operating Procedures

Spill Prevention—Materials and Waste Handling and Storage

- If possible, liquid or hazardous materials should be handled, used, stored, repackaged, and transferred indoors or under cover.
- Deliveries of bulk liquids should be supervised. Down gradient storm drain inlets should be covered during deliveries.
- Cover and contain containers, materials, and wastes.
- Keep all containers closed unless adding or removing materials.

Spill Kit Maintenance

- Spill kits are located at the following locations: _____
- (Name)_____is responsible for spill kit(s) inventory and reordering supplies.
- Inspection and resupplying of spill kit is done_____times per_____(month/year).

Spill Cleanup and Storm Drain Protection

- Clean up minor spills immediately.
- Block any down gradient storm drains with berms, covers, absorbent socks or “pigs.”
- Never hose down spills or leaks.
- Always use dry cleanup methods for cleanup of fuel spills (gas, diesel, motor oil, or kerosene).
  - Spread absorbents (kitty litter or loose absorbents, sheets, pillows, “pigs,” or socks) on the spill.
  - Sweep up or pick up the absorbed materials.
  - Dispose of wastes properly.
- If fluids are leaking or have spilled on an impermeable surface such as a roadway, locate the nearest down gradient storm drain and dike or berm the drain to prevent fluids from entering it.
- Put down absorbent on the spill area.
- After cleanup, be sure to sweep up the contaminated absorbent and remove the berm or dike at the storm drain.
- If fluids are leaking or have spilled on a permeable surface such as gravel, soil, or grass, mark the area and report the spill to 911 or SERC/TCEQ (see numbers in following section).

Reporting Spills

- Any spill or discharge of any pollutant (e.g., oil, paints, fuels, hazardous liquids, sediment, or super-

chlorinated water) that reaches storm drains or enters surface waters in the state* must be reported. Report the spill as soon as possible and within 24 hours by phone to SERC/TCEQ. (See www.tceq.texas.gov/response/spill_rq.html and www.tceq.texas.gov/response/spills.html for more information.)
    - State of Texas Spill-Reporting Hotline and the State Emergency Response Commission (SERC): **1-800-832-8224**—24 hours a day
    - TCEQ Regional Office (Region 4, Dallas/Fort Worth), 1-817-588-5800—Monday-Friday, 8 a.m.–5 p.m.
- If the spill causes a fish kill, notify Texas Parks and Wildlife by calling 1-512-389-4848. (See http://tpwd.texas.gov/landwater/water/environconcerns/kills_and_spills/ for more information.)
- Report spills to the facility supervisor:
  Name: _____ Phone: _____
- Report spills that reach storm drains or waterways to your municipal stormwater coordinator:
  Name: _____ Phone: _____

Contractors
- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution and know who to contact in case of spill.

Employee Training
- All applicable employees should be trained in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges. If a facility stores liquids in underground tanks, specific training is also required for spill prevention and response for those products.

Record Keeping and Documentation
- Keep a Spill Response Plan on site. The plan is located at: _____ (facility SWPPP or separate document).
- Post signs as to whom to report spills to (Facility Supervisor, Stormwater Coordinator, Fire Department, TCEQ, etc.).
- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or other location.
- Keep copies of any correspondence with TCEQ if a spill reaches surface waters in the state*.

References and Related Procedures
PACE Municipal Operations website: http://pacepartners.com/municipal-operations
SOPs: *Fueling and Fuel Spill Cleanup*
BMPs: *Good Housekeeping and Spill Prevention*
BMPs: *Spill Cleanup*
BMPs: *Liquid Bulk Material Storage, Loading, and Unloading*
BMPs: *Materials Loading and Unloading*
BMPs: *Outdoor Container Storage*
BMPs: *Waste Management and Disposal*
CDPHE Spill Guidance: https://www.colorado.gov/pacific/cdphe/wq-environmental-spills
Keep It Clean Partnership, Stormwater Coordinators list:
http://www.keepitcleanpartnership.org/about-us/contact-us/

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Storm Drain System Maintenance

Purpose: Stormwater pollution prevention procedures for the maintenance of storm drain systems and disposal of the wastes produced from the activity.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Storm drain maintenance schedule.
- Storm drain system map.
- Vacuum (vac) truck.
- Cameras and/or remotely operated vehicles.

Standard Operating Procedures

Stormwater System Inspection and Maintenance

- Stormwater system should be inspected for structural integrity, evidence of illicit discharges, and to determine areas prone to fast sediment accumulation or confirmed contamination.
- Stormwater system (including inlets, lines, manholes, ditches, detention ponds, and permanent BMPs) should be cleaned and maintained according to an established schedule (_____times per year).
- This schedule is located:_____.
- Report any areas needing attention and schedule repairs ASAP.
- Keep records of "hot spot" areas (areas prone to excessive sediment accumulation).
  - Locations of hot spots: _____
  - How often are storm drain inlets cleaned or maintained?_____times per year.
  - Time of year cleaned: _____
- Ensure that water from jetting and flushing inlets and lines is not discharged into the storm system. Use a vac truck to vacuum up flush water downstream while jetting and flushing inlets and lines upstream.
- Report any suspected illegal connections or dumping to the municipal stormwater coordinator:
  Name: _____
  Phone: _____

Decanting Wastewater from Vac Trucks

- Always decant wastewater from vac trucks into the sanitary sewer.
- Decant areas are located at: _____.

Debris Disposal and Storage

- Store debris from cleaning storm drains in an area that has an impervious surface or liner or in a temporary storage area or container. The debris storage area is located at: _____
- Always inspect and maintain the debris storage area. Check area for run-on or runoff or debris scattering.
- Debris should be removed and taken to the permanent disposal site regularly.
- How often is debris disposed of?_____times per week/____times per month
  Other: _____
- The permanent disposal site is at: _____.
  If debris is suspected to be contaminated, it should be tested to determine the proper disposal

method.
- The hazardous waste testing and disposal company is: _____.

Ditches and Detention Ponds

- Inspect ditches for signs of erosion.
- Track ditches prone to erosion and set maintenance schedule accordingly.
- Do not apply pesticides or fertilizers in drainage ditches, roadways, or curbs.
- Do not disturb creeks, wetlands, or sensitive wildlife habitat areas without a permit from Army Corps of Engineers (if applicable).
- Inspect detention ponds regularly to ensure proper functioning. Clean and maintain as needed.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained in stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a written Storm Drain System Inspection and Maintenance Schedule. This schedule is located at _____.
- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder (or other location:_____).
- Debris removal records are kept at:_____.
- The inventory of hot spot areas where contamination has been confirmed and require frequent inspections is recorded here: _____.
- Records of any testing done on debris removed from catch basins is located: _____

References and Related Procedures

PACE Government Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Storm Drain System Maintenance*
BMPs: *Dewatering of Secondary Containment Structures*
BMPs: *Illicit Discharge Reporting*
BMPs: *Outdoor Materials Storage*
BMPs: *Contractor and Lease Language*
BMPs: *Vehicle and Equipment Fueling*
BMPs: *Vehicle Maintenance and Storage*
BMPs: *Vehicle and Equipment Washing*
SOPs: *Parking Lot Maintenance*
SOPs: *Spill Prevention, Cleanup, and Reporting*

Street and Road Maintenance and Repair

Purpose: Stormwater pollution prevention procedures for street maintenance and repair projects including concrete curb and gutter work, concrete pouring, asphalt resurfacing, paving, chip sealing, and striping and marking.

Prerequisites

- Employees should attend general stormwater pollution prevention training.
- Obtain a Texas discharge permit (see www.tceq.texas.gov/permitting/wastewater/general) if water will enter storm drainage system or surface waters in the state.

Equipment and Materials

- Inlet protection devices (wattles, drain covers, berms, sand bags, and/or filter fabric).
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Large shop (wet) vacuum.
- Secondary containment (containers and tarps).
- Storm drainage system map.
- Appropriate personal protective equipment.

Standard Operating Procedures

Storm Drain Protection

- Locate and block storm drain inlets (within 25 feet and/or down gradient from) during maintenance work such as concrete curb and gutter work, resurfacing, paving, striping/marking, or saw cutting.
- Place covers, rock wattles, sand bags, or filter fabric around inlets to protect them from entry of wastes, dusts, overspray, or slurry.
- Inspect site at the beginning and end of the day to ensure that operations are not contributing sediment or other pollutants to the flow line or storm drain.
- Clean right-of-ways (roadways) with brooms or street sweepers—as needed.

Concrete Work

- When saw cutting concrete, use the minimum amount of water. Let the waste slurry dry and then sweep it up before leaving the location. A wet vacuum may also be used to pick up the waste slurry immediately after cutting is complete. Do not allow slurry to reach storm drains.
- Designate a concrete wash out area that is as far as possible from any surface waters, storm drain inlets, or drainage ditches and that is located in a low area where wash water will pool and soak into the ground.
- Concrete trucks must wash out in the wash out area or into a container such as a kiddy pool or wheelbarrow.
- Maintain the wash out area, inspect it for clean out needs, and check for run-on and runoff. The debris from the wash out area must be taken to a permanent disposal site when the wash out is full and when the project is complete.

Erosion Control and Storage of Materials

- Cover and contain all liquid and solid materials to prevent runoff.
  - Avoid storing piles of materials (soil, sand, gravel) in the street and near storm drains or gutters. If dirt piles must be stored in the street, they must have berms or wattles surrounding them to prevent runoff. Rock wattles should be placed around all down gradient storm drains to prevent sediment from reaching the inlets.
- Excavated material should be placed on the uphill side of trenches to minimize sediment runoff.
- Control erosion to the maximum extent possible. (See the project's SWPPP, the municipality's erosion control code, iSWM guidelines, EPA's menu of BMPs, and the Texas Department of Transportation's erosion/sediment control BMP guidelines. Some helpful links:
  http://iswm.nctcog.org/Documents/technical_manual/Construction%20Controls_9-2014.pdf
  http://water.epa.gov/polwaste/npdes/swbmp/
  http://ftp.dot.state.tx.us/pub/txdot-info/env/storm/5.0sedimentationcontrol.pdf
  http://ftp.dot.state.tx.us/pub/txdot-info/mnt/erosion/product_evaluation/introduction.pdf)
- Inspect and maintain all erosion or sediment control devices or equipment installed in erosion-prone areas in road construction projects as per the Stormwater Management Plan (SWMP) or SWPPP.
- Ensure that projects over 1 acre have the proper Texas discharge permits. (See www.tceq.texas.gov/permitting/stormwater/TXR15_AIR.html.)

Painting and Striping

- Schedule painting, marking, and striping projects during dry weather only. Cease all activities when rain threatens.
- Use thermoplastic markings in place of paint whenever feasible.
- Block nearby storm drain inlets (within 25 feet and/or down gradient of project).
- Promptly clean up any spills of paints, cleaners, or other chemicals.

Resurfacing or Paving

- Reseal or pave only on dry days when no rain is expected. Cease all activities when rain threatens.
- If possible, transfer, store, pre-heat, and load hot asphalt far away from storm drain inlets.
- Protect or block downstream storm drain inlets (within 25 feet) from debris from maintenance work (asphalt cap, chip sealing, concrete breaking, or saw cutting). Leave covers or berms in place until the job is complete.

Bridge Repair Work

- When working on bridges, transport and store paint and materials in containers with secure lids.
- Do not transfer, store, or load paint on a bridge.
- Capture waste, scraps, rust, or paint from sanding or painting projects. It may be necessary to suspend nets or tarps below the bridge to catch falling debris. If sanding or sand blasting, use a vacuum bag attachment.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- If the site is over 1 acre, obtain the proper Texas discharge permit.
- Prepare and use a Stormwater Management Plan (SWMP) and keep copies of all inspection logs.
- Keep a list of all employees trained in Stormwater Pollution Prevention.
- Keep copies of Safety Data Sheets of all products used.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Concrete Pouring*
BMPs: *Contracts and Property Leasing*
BMPs: *Street Sweeping and Maintenance*
BMPs: *Outdoor Materials Storage*
BMPs: *Utility Installation in Roadway*
SOPs: *Street Construction and Utility Installation*
UDFCD Volume 3 and KICP's Erosion Control Field Manual for erosion control BMP installation
Project's Stormwater Management Plan (SWMP)

Street Sweeping, Sweeper Cleaning, and Waste Disposal

Purpose: Stormwater pollution prevention procedures for the operation of street sweepers, frequency of sweeping, disposal of debris, and cleaning of sweeper.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- List sweepers or other street cleaning equipment:

  _____

  _____

Standard Operating Procedures

Operation of Street Sweepers

- Operate all sweepers according to the manufacturer's recommended procedures.
- While sweeping, drive between ____ and ____ mph.
- Make sure brushes and water spray hoses are functional before leaving the shop.
- Fill the water tank daily or as needed.
- Replace brushes when bristle length is less than ____ inches.

Sweeping Frequency

- Streets should be swept according to an established schedule. The schedule is located at: _____
  (Please fill out the table below or place a copy of your schedule here.)

Area	Minimum Frequency (suggested)	Actual Frequency
Main arterials	Every 2 weeks	
Commercial areas	Every 2 months	
Industrial areas	Monthly	
Downtown area	Every 2 weeks	
Municipal parking	Monthly	
Residential areas	2 times per year	
"Hot spots"	Every 2 weeks	
Seasonal sweeping	After leaf pickup in the fall or debris pickup in the spring	
Winter sand	Within 4 days of snow/sanding event	
Outdoor special event	After each event	

- List any "hot spot" areas that have been identified for extra sweeping: _____

  How often are they swept?_____ times per _____.
- Sweep after outdoor special events (fairs, festivals, and parades).

Disposal of Sweeper Wastewater and Debris

- Always decant sweeper wastewater into the sanitary sewer.
- Decant areas are located at: _____.

- Dispose of debris at the designated, temporary, storage area. The debris storage areas should be on an impervious surface and bermed. The temporary storage area is located at: _____
- Inspect and maintain the temporary storage area daily for run-on or runoff or debris scattering.
- Debris should be disposed of regularly or as needed.
- How often is debris disposed of? ___ times per week/___ times per month. Other: _____
- The permanent disposal site is located at: _____.

Cleaning the Sweeper

- Clean out solid debris and store in an impervious area or in a temporary disposal area such as a truck or dumpster.
- Scrape out leftover debris from the hopper after the last dump of the day. Dispose of waste in trash or dumpster or temporary storage area.
- Always wash sweepers in a wash area or wash bay that drains to sanitary sewer.
- The wash area is located at: _____.

Other SOPs

- Do not wash down any streets or curbs for routine cleaning.
- If spills or illegal discharges are seen report them immediately to the stormwater coordinator for [City/Town] of_____. Name:_____ Phone: _____

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained in stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a written street sweeping schedule or prioritized routes. This is located: _____
- The number of loads or cubic yards removed per area (or per week) is recorded in: _____ (facility SWPPP manual or separate document).
- The number of miles driven per area or route is recorded in: _____ (facility SWPPP manual or separate document).
- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention Plan.

References and Related Procedures

Street sweeper manufacturer's instructions, operating manual, or video
Individual municipality's street sweeping scheduling and routing manual
PACE Stormwater Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Street Sweeping and Road Maintenance*
BMPs: *Vehicle and Equipment Washing*
BMPs: *Contracts and Property Leasing*
SOPs: *Fueling and Cleanup of Fuel Spills*
SOPs: *New Construction*
SOPs: *Outdoor Events and Festivals*
SOPs: *Parking Lot Maintenance*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Waste Management and Disposal*
SOPs: *Outdoor Materials Storage*

Utility Installation Projects

Purpose: Stormwater pollution prevention procedures for street repairs, construction, and the installation of utilities in the roadway.

Prerequisites

- Employees, project managers, and contractors should attend general stormwater pollution prevention training and/or erosion control training.
- Permits for construction activity (if over 1 acre) and/or permits for dewatering (if water will enter storm drainage system or surface waters in the state). See www.tceq.texas.gov/permitting/wastewater/general.

Stormwater Protection Equipment and Materials

- Inlet protection devices (wattles, drain covers, berms, sand bags, and/or filter fabric).
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Secondary containment (berms, containers, and tarps).
- Port-a-Potties (staked down).

Standard Operating Procedures

Storm Drain Protection

- Identify storm drains near work zone.
- Install inlet protection within 25 feet and/or down gradient of work.
- Place covers, rock wattles, sand bags, or filter fabric around or over inlets.
- Inspect site at the beginning and end of the day to ensure that operations are not contributing sediment or other pollutants to the flow line or storm drain.
- Clean dirt and mud in right-of-ways and public roadways with brooms or street sweepers as needed.

Concrete Work, Wash Out, and Disposal

- When saw cutting concrete, use the minimum amount of water possible. Let the waste slurry dry and then sweep it up before leaving the site. A wet vacuum may also be used to pick up the waste slurry immediately after cutting is complete. Do not allow slurry to reach the storm drain.
- Designate a concrete wash out area at each job site that is as far as possible from any surface waters, storm drain inlets, or drainage ditches, and that is located in a low area where wash water will pool and soak into the ground.
- Concrete trucks must wash out in the wash out area or into a container such as a kiddy pool or wheelbarrow.
- Maintain the wash out area, inspect it for clean out needs, and check for run-on and runoff.
- The debris from the wash out area must be taken to a permanent disposal site when the project is complete.

Erosion Control and Storage of Materials

- Cover and contain all liquid and solid materials to prevent runoff.
- Avoid storing piles of materials (soil, sand, gravel) in the street or in the flow line. If dirt piles must be stored in the street, they must have berms or wattles surrounding them to prevent runoff. Rock wattles or socks should be placed in front of all down gradient storm drains to prevent sediment from reaching the inlets.

- Excavated materials should be placed on the uphill side of trenches to minimize sediment runoff.
- Control erosion to the maximum extent possible. Provide permanent erosion control that will remain effective for the life of the street. (See the municipality's erosion control code, iSWM guidelines, EPA's menu of BMPs, and the Texas Department of Transportation's erosion/sediment control BMP guidelines. Some helpful links:
  http://iswm.nctcog.org/Documents/technical_manual/Construction%20Controls_9-2014.pdf
  http://water.epa.gov/polwaste/npdes/swbmp/
  http://ftp.dot.state.tx.us/pub/txdot-info/env/storm/5.0sedimentationcontrol.pdf
  http://ftp.dot.state.tx.us/pub/txdot-info/mnt/erosion/product_evaluation/introduction.pdf)
- Inspect and maintain all erosion or sediment control devices or equipment installed in erosion-prone areas as per the Stormwater Management Plan or SWPPP.
- Ensure that projects over 1 acre have the proper Texas discharge permits (see www.tceq.texas.gov/permitting/stormwater/TXR15_AIR.html) and Stormwater Management Plans.

Dewatering

- Dewatering activities are prohibited unless managed by appropriate site controls.

Spill Response and Reporting

- Any spill or discharge of any pollutant (e.g., oil, sediment, paints, fuels, hazardous liquids, or super-chlorinated water) that reaches storm drains or enters surface waters in the state* must be reported. Report the spill as soon as possible and within 24 hours by phone to SERC/TCEQ. (See www.tceq.texas.gov/response/spill_rq.html and www.tceq.texas.gov/response/spills.html for more information.)
  - State of Texas Spill-Reporting Hotline and the State Emergency Response Commission (SERC): **1-800-832-8224**—24 hours a day
  - TCEQ Regional Office (Region 4, Dallas/Fort Worth), 1-817-588-5800—Monday-Friday, 8 a.m.–5 p.m.
- If the spill causes a fish kill, notify Texas Parks and Wildlife by calling 1-512-389-4848. (See http://tpwd.texas.gov/landwater/water/environconcerns/kills_and_spills/ for more information.)
- Report spills to the facility supervisor. Name: _____ Phone: _____
- Report spills that reach storm drains or waterways to your municipal stormwater coordinator: Name: _____ Phone: _____

Waste Management

- Any saw cut slurry or concrete waste must be contained and disposed of as solid waste.
- All containers and dumpsters must be kept closed unless adding or removing materials.
- If applicable, make sure portable toilets are in good working order and are serviced regularly. Check frequently for leaks and ensure that they are adequately anchored to prevent them from tipping over.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained in stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder.
- If the site is over 1 acre, follow permit conditions and the Stormwater Management Plan (SWMP) and keep copies of inspections.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
BMPs: *Street Sweeping and Road Maintenance*
BMPs: *Potable Water Line Discharge*
BMPs: *Utility Installation*
BMPs: *Dewatering of Secondary Containment Structures*
BMPs: *Sanitary Sewer Backup*
BMPs: *Street Maintenance and Repair*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Storm Drain System Maintenance*
Urban Drainage and Flood Control District UDFCD Volume 3
KICP's Erosion Control Field Manual for erosion control BMP installation.

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Waste Management, Storage, and Disposal

Purpose: Stormwater pollution prevention procedures for proper management, handling and storage of waste, trash, or garbage to prevent the discharge of pollutants to stormwater from waste handling and disposal.

Prerequisites

- Employees should attend general stormwater pollution prevention training.
- Employees should be trained in the procedures in this SOP and should refer to the materials in the *References and Related Procedures* section of this SOP.

Stormwater Protection Equipment and Materials

- Dumpster covers or lids.
- Tarps.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Berms.

Standard Operating Procedures

Waste Management, Storage and Disposal

- All waste receptacles should be leak-tight with tight-fitting lids or covers. Plastic liners can be used to ensure leak tightness.
- Keep lids on dumpsters closed at all times unless adding or removing material.
- Place waste receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and, if possible, install berms or curbs around the storage area to prevent run-on and runoff.
- Sweep up around outdoor waste containers regularly.
- Arrange for wastes to be picked up regularly and disposed of at approved disposal facilities.
- Waste disposal company:_____Phone: _____
- Never place hazardous materials, liquids or liquid-containing wastes in a dumpster or trash receptacle. If liquid wastes must be disposed in the trash, absorb them with kitty litter or other absorbents before disposal.
- Nonhazardous liquid waste must be disposed in the sanitary sewer (if approved) or transported to a disposal site that will accept that type of wastewater.
- Do not wash out waste containers or dumpsters outdoors unless the wastewater drains to sanitary sewer or wash containers/dumpsters in a wash bay or floor drain that goes to the sanitary sewer.
- When working in the field, place all wastes in appropriate containers near the work site. If no public containers are available, containerize or bag the wastes and bring them back the shop for proper disposal.
- Minimize waste by purchasing recyclable products that have minimal packaging. Recycle cardboard, plastics, and paper products as accepted by your local recycling agency.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees should be trained _____annually or biannually in general stormwater pollution prevention, including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or other location: _____.
- Keep records on all wastes disposed of including: hazardous waste manifests, trash removal statements (bills), receipts, or invoices from recyclers.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/stormwater/municipal-operations
BMPs: *Waste Management and Disposal*
BMPs: *Good Housekeeping*
BMPs: *Outdoor Materials Storage*
BMPs: *Spill Cleanup*
BMPs: *Facilities and Building Maintenance*
BMPs: *Good Housekeeping and Spill Prevention*
SOPs: *Spill Prevention, Cleanup, and Reporting*
SOPs: *Pressure Washing and Exterior Surface Cleaning*

Waste Transfer Stations and Recycling Collection Centers

Purpose: Stormwater pollution prevention procedures for proper management and storage of waste, trash, and recycling materials at residential waste transfer stations and recycling drop-off collection centers.

Prerequisites

- Employees should attend general stormwater pollution prevention training.

Stormwater Protection Equipment and Materials

- Dumpster covers.
- Tarps.
- Spill kit and equipment for dry cleanup (socks, absorbent pads, kitty litter, broom, and dustpan).
- Berms.

Standard Operating Procedures

Waste Management, Storage and Disposal

- All waste and recycle receptacles must be leak-tight with tight-fitting lids or covers. Plastic liners can be used to ensure leak tightness.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material.
- Place waste or recycle receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and install berms or curbs around the storage area to prevent run-on and runoff.
- Sweep up around outdoor waste containers regularly.
- Clean up any liquid leaks or spills with dry cleanup methods. (See the "Spill Prevention, Cleanup, and Reporting" SOP.)
- Arrange for wastes or recyclables to be picked up regularly and disposed at approved disposal facilities.
- Waste/recycle disposal company: _____ Phone: _____
- Never place hazardous materials, liquids, or liquid-containing wastes in a dumpster, recycling, or trash receptacle.
- If any liquid, nonhazardous waste is generated, it must be disposed in the sanitary sewer (if approved) or transported to a disposal site that will accept that type of wastewater.
- Do not wash out waste or recycling containers or dumpsters outdoors or in a parking lot.
- Containers, compactors, and dumpsters must be washed in a wash bay or over a floor drain that goes to the sanitary sewer or return dumpsters to the waste disposal contractor for cleaning at the contractor's facility.

Contracts and Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper BMPs to prevent stormwater pollution.

Employee Training

- All applicable employees must be trained in general stormwater pollution prevention including how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

- Keep a list of all employees trained in the facility's Stormwater Pollution Prevention Plan binder or other location.
- Keep records on all wastes disposed of, including hazardous waste manifests, trash removal statements (bills), receipts, or invoices from recyclers.

References and Related Procedures

PACE Municipal Operations website: http://pacepartners.com/municipal-operations
BMPs: *Facilities and Building Maintenance*
BMPs: *Waste Management and Disposal*
BMPs: *Good Housekeeping*
BMPs: *Outdoor Container Storage*
BMPs: *Spill Cleanup*
SOPs: *Waste Management and Disposal*
SOPs: *Pressure Washing and Exterior Surface Cleaning*
SOPs: *Spill Prevention, Cleanup, and Reporting*

Other SOPs

Disposal of Horizontal Directional Drilling Wastes for Utility Line Installation

Available online at
www.epa.state.oh.us/Portals/0/general%20pdfs/HorizontalDirectionalDrillingforUtilityLineInstallation.pdf.
Provided courtesy of Ohio EPA, Surface Water Division.
Modified with North Central Texas–specific information.

Purpose: To properly manage drill cuttings and spent drilling fluids from horizontal directional drilling activity using measures to prevent stormwater erosion and runoff from entering a stream, waterbody, or wetland.

Prerequisites

- A Texas discharge permit (see www.tceq.texas.gov/permitting/wastewater/general) may be required if water will enter storm drainage system or surface waters in the state.

Managing Drill Cuttings and Spent Drilling Fluids

- Spent drilling fluids containing solely bentonite clay are considered "earthen material" and may be buried or land applied on location within the right-of-way of the drilling operation or at a designated property.
- Drill cuttings resulting from horizontal directional drilling using solely bentonite clay and water are also considered "earthen material" and may be managed similarly.
- Spent drilling fluids containing refined oil-based substances or other commercially produced additives are defined as an industrial waste and must be disposed at a municipal solid waste landfill or other location authorized by TCEQ to accept this type of waste. Prior to landfill disposal, these spent drilling fluids may require solidification in order to pass the paint-filter test.
- Ensure burial and land application activities prevent runoff, transport of material to surface water, or contamination of ground water resources by employing the below BMPs.

BMPs for Burial of Drill Cuttings and/or Spent Drilling Fluids on Location or at a Designated Property

- For an on-location burial option, the site should be fully contained within the right-of-way of the utility or transmission line being installed.
- The spent drilling fluids and drill cuttings should be buried in either an excavated pit or mixed with top soil removed from the utility right-of-way during utility line construction/installation purposes, if appropriate, at a ratio of one to one.
- The material should be buried in a manner to prevent ponding or transport of stormwater through the material (for example, crested in the middle and a slope to edge of disposal area).
- The burial location should not be in sensitive hydrogeological areas (for example, shallow ground water, shallow sand and gravel lenses or fractured bedrock, etc.).
- The burial location should be at least 100 feet from any permanent surface water.
- The burial location should be a minimum of 100 feet from any potable water supply well and 300 feet from any large supply public water supply well.
- The burial location should be managed and have BMPs applied similarly to any construction site regulated through the construction stormwater program, which includes seeding, stabilization, and the installation of sediment controls. The main goal of this action is to ensure that sediment-laden water is not discharged to a water resource.

BMPs for Land Application of Drill Cuttings or Spent Drilling Fluids

- The material should not be land applied during a precipitation event or when a significant rain event is forecast within 24 hours.
- The material should not be land applied in a fashion that would result in ponding on the surface of the ground.
- The material should not be land applied on property with a slope greater than 15 percent.
- The material should not be land applied on frozen or snow covered ground.
- The material should not be land applied within 50 feet of any surface waters of the state (for example, river, stream, ditch, swale, pond, etc.).
- The land application area should not be located in sensitive hydrogeological areas (for example, shallow groundwater, shallow sand and gravel lenses or fractured bedrock, etc.).
- The material should not be land applied within 100 feet of any private or public potable water source.

Related Guidance

ODNR's Best Management Practices for Oil and Gas Well Site Construction (www.dnr.state.oh.us/Portals/11/oil/pdf/BMP_OIL_GAS_WELL_SITE_CONST.pdf)

ODNR's Rainwater and Land Development Manual (www.dnr.state.oh.us/water/rainwater/default/tabid/9186/Default.aspx)

Debris Removal from Rivers and Streams

Available online at www.dec.ny.gov/docs/permits_ej_operations_pdf/woodydebrisfact.pdf.
Provided courtesy of New York State's Department of Environmental Conservation.
Modified with North Central Texas–specific information.

Purpose: To protect stormwater by retaining woody debris that helps stabilize the stream and slow down highly erosive storm-induced stream flows. Best management practices should be used for properly removing debris.

Prerequisites

- A Texas construction general permit and/or a 404d permit with the Corps of Engineers may be required if the project requires disturbance of the stream bed or banks, such as installation/repair/replacements of culverts or bridges, excavating sand and gravel, digging embedded debris from the streambed or the use of motorized equipment such as a tractor, backhoe, bulldozer, four-wheel drive truck, etc., in the stream channel or anywhere below the top of the banks.

General Guidance

- Leave in place any woody debris that does not pose a hazard. Woody debris helps stabilize the stream, reduce erosion, and slow down highly erosive storm-induced stream flows. Brush and fallen trees in a creek also provide food, shelter, and other benefits to fish and wildlife.
- Woody debris posing a risk to infrastructure (such as blocking bridge and culvert openings) and homes should be removed.
- Without a permit, fallen trees and debris may be pulled from the stream by motorized equipment operating from the top of the banks using winches, chains, and or cables. Equipment may not be operated in the water and any increase in stream turbidity from the removal must be avoided.
- Handheld tools, such as chainsaws, axes, hand-saws, etc., may be used to cut up the debris into manageable sized pieces.
- Downed trees that are still attached to the banks should be cut off near the stump. Do not grub (pull out) tree stumps from the bank. Stumps hold the bank from eroding.
- All trees, brush, and trash that is removed from the channel should not be left on the floodplain. Trash should be properly disposed of at a waste management facility.

Streambank Stabilization

Available online at http://klamathrestoration.gov/Draft-EIS-EIR/download-draft-eis-eir (Appendix B).
Provided courtesy of U.S. Department of the Interior, Klamath River EIS 2012.
Modified with North Central Texas–specific information.

Purpose: To minimize disturbance from instream construction and minimize degradation of water quality during deconstruction, construction, and restoration activities.

Prerequisites

Consultation with TCEQ and Texas Parks & Wildlife may be necessary. Consultation with the U.S. Army Corps of Engineers is required for most soil-disturbing work in or near a stream as required by the 404(d) permit program.

Measures to Minimize Disturbance from Instream Construction

- If the stream channel is seasonally dry, construction should occur during this dry period.
- Debris, soil, silt, excessive bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life should be prevented from contaminating the soil and/or entering surface waters in the state. Any of these materials, placed within or where they may enter a stream or lake, by the applicant or any party working under contract, or with permission of the applicant, shall be removed immediately. During project activities, trash will be properly contained, removed from the work site, and disposed of daily.
- Where feasible, the construction shall occur from the bank or on a temporary pad underlain with filter fabric.
- No mechanized equipment (e.g., internal combustion hand tools) will enter wetted channels.
- Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires crossing a rocky or cobbled substrate, a rubber tire loader/backhoe is the preferred vehicle. Only after this option has been determined infeasible will the use of tracked vehicles be considered. The amount of time this equipment is stationed, working, or traveling within the creek bed shall be minimized. When heavy equipment is used, woody debris and vegetation on banks and in the channel shall not be disturbed if outside of the project's scope.
- All mechanized equipment working in the stream channel or within 25 feet of a wetted channel shall have a double containment system for diesel and oil fluids. Hydraulic fluids in mechanical equipment working within the stream channel shall not contain organophosphate esters. Vegetable-based hydraulic fluids are preferred.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into surface waters in the state.
- Areas for fuel storage, refueling, and servicing of construction equipment must be located in an upland location.
- Prior to equipment use, clean all equipment to remove external oil, grease, dirt, or mud. Wash sites must be located in upland locations so wash water does not flow into the stream channel or adjacent wetlands.
- All construction equipment must be in good working condition, showing no signs of fuel or oil leaks. Prior to construction, all mechanical equipment shall be thoroughly inspected and evaluated for the potential of fluid leakage. All questionable motor oil, coolant, transmission fluid, and hydraulic fluid hoses, fitting, and seals shall be replaced. The contractor shall document in writing all hoses, fittings,

and seals replaced and shall keep this documentation until the completion of operations. All mechanical equipment shall be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, or coolant leaks. All leaks shall be repaired in the equipment staging area or other suitable location prior to resumption of construction activity.

- Oil absorbent and spill containment materials shall be located on site when mechanical equipment is in operation with 100 feet of the proposed watercourse crossings. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor and the leak has been repaired, (2) the spill has been contained, and (3) appropriate authorities are contacted and have evaluated the impacts of the spill.
  If the spill is reportable (see the table at www.tceq.texas.gov/response/spill_rq.html), report it as soon as possible and within 24 hours by phone to SERC/TCEQ. For more information, see www.tceq.texas.gov/response/spills.html.
    - State of Texas Spill-Reporting Hotline and the State Emergency Response Commission (SERC):
      1-800-832-8224—24 hours a day
    - TCEQ Regional Office (Region 4, Dallas/Fort Worth), 1-817-588-5800—Monday-Friday, 8 a.m.–5 p.m.

  If the spill causes a fish kill, notify Texas Parks and Wildlife by calling 1-512-389-4848. (See http://tpwd.texas.gov/landwater/water/environconcerns/kills_and_spills/ for more information.)

Measures to Minimize Degradation of Water Quality During Deconstruction, Construction, and Restoration Activities

General Erosion Control During Construction

- When appropriate, isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
- Effective erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (silt fences, bales of sterile, weed-free straw, etc.) are in place downslope or downstream of project site within the riparian area. The devices shall be properly installed at all location where the likelihood of sediment input exists. These devices shall be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water and of detaining sediment-laden water on site. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles and amphibians.
- Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 12 cm and only sterile, weed free straw shall be utilized. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.
- Sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area.
- The contractor/project applicant is required to inspect and repair/maintain all practices prior to and after any storm event, at 24-hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures have been completed.

Guidelines for Temporary Stockpiling

- Minimize temporary stockpiling of material. Stockpile excavated material in areas where it cannot enter the stream channel. Prior to start of construction, determine if such sites are available at or near the project location. If nearby sites are unavailable, determine location where material will be deposited. Establish locations to deposit spoils well away from watercourses with the potential to delivery sediment into streams. Spoils shall be contoured to disperse runoff and stabilized with mulch and native vegetation. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms to minimize movement of exposed or stockpiled soils.
- If feasible, conserve topsoil for reuse at project location or use in other areas. End haul spoils away from watercourses as soon as possible to minimize potential sediment delivery.

Minimizing Potential Scour

- When needed, utilize instream grade control structures to control channel scour, sediment routing, and headwall cutting.
- For relief culverts or structures, if a pipe or structure that empties into a stream is installed, an energy dissipater shall be installed to reduce bed and bank scour. This does not apply to culverts in fish-bearing streams.
- The toe of rock slope protection used for streambank stabilization shall be placed below bed scour to ensure stability.

Post-Construction Erosion Control

- Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets. Remove all artificial erosion control devices after the project area has fully stabilized. All exposed soil present in and around the project site shall be stabilized within 7 days. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles and amphibians.
- All bare and/or disturbed slopes (> 10’ x 10’ of bare mineral soil) will be treated with erosion control measures such as hay bales, netting, fiber rolls, and hydroseed as permanent erosion control measures.
- Where straw, mulch, or slash is used as erosion control on bare mineral soil, the minimum coverage shall be 95 percent with a minimum depth of two inches.
- When seeding is used as an erosion control measure, only natives will be used. Sterile, weed-free straw is required when hay bales are used as an erosion control measure.

***surface water in the state:** Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark [MHWM] out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all water courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Post-Flood Stream Construction

Available online at www.dec.ny.gov/docs/administration_pdf/postfloodguid.pdf.
Provided courtesy of New York State's Department of Environmental Conservation.
Modified with North Central Texas–specific information.

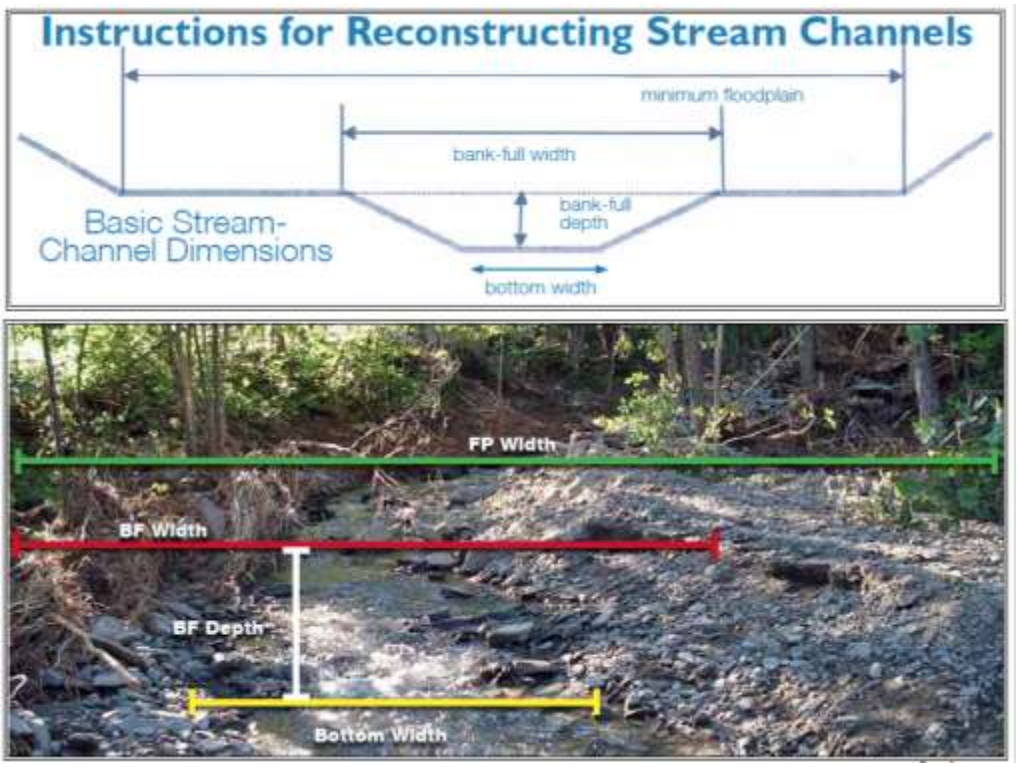
Purpose: To provide guidelines for post-flood stream repairs that assist in minimizing adverse impacts and the need for subsequent repairs.

Emergency Repairs

- Handle repairs in a timely manner, considering long-term effects such as fish habitat protection, and avoid contributing to future flooding problems.
- To properly repair streams:
  1. Clear debris and log jams at bridges and culverts.
     - Remove only the debris necessary to reestablish original stream-channel dimensions.
     - Do not use cleared debris to build berms on top of streambanks.
  2. Clear gravel deposits clogging the stream.
     - Remove gravel deposits to pre-flood grade level only.
     - When possible, relocate gravel deposits to areas where gravel was scoured away.
  3. Reconstruct the stream channel.
     - Do not build permanent berms on top of streambanks. If you need to temporarily pile material on banks, be sure to remove it when you are done. Berms block streams from spilling into their natural floodplains and may result in increased flooding, channel scouring, or erosion caused by higher streamflow velocities and flood elevations. Also, berms are generally not engineered to withstand flood forces and will likely blow out during the next flood, increasing damage and erosion in adjacent areas.
     - Do not attempt to deepen or widen the channel. Over-excavating the stream channel will have the same effects as berms, increasing flood risks to the site or downstream areas by increasing streamflow velocities and bank erosion, or sediment deposits in the channel.
     - Only remove the amount of debris necessary to reestablish original stream-channel dimensions. See "Reconstruct the stream channel to pre-flood, bank-full dimensions" in the next section.

Post-Emergency Repairs

After the emergency response, more measured and deliberate stream repair work should begin in order to return the channel to pre-flood conditions. The best model for managing high volumes of floodwater in a stream channel is one that slows the flow of floodwaters and increases their retention over an entire watershed, spreading them out instead of concentrating them in one area.



Source: New York State's Department of Environmental Conservation.

1. Reconstruct the stream channel to pre-flood, bank-full dimensions.
    - Proper stream-channel dimensions can be obtained by measuring an undamaged or "reference" stream reach immediately upstream or downstream of the planned worksite. (If an undamaged stream reach comparable to the damaged section is difficult to find, you may need to determine proper channel/bank-full dimensions using other methods.)
2. Avoid creating a head cut (an abrupt vertical drop).
    - Installing rock cross-vanes or another similar in-stream structure may be required.
    - Seek technical assistance from your county's soil and water conservation district or TCEQ.
3. Avoid scouring/down-cutting (increasing channel depth).
    - Reconstructing the channel to bank-full dimensions, the appropriate grade, and with as much floodplain access or bench as available room allows should minimize channel scouring and bank erosion afterward.
4. Repair eroded banks.
    - If space allows, slope eroding banks to a stable slope, such as 3:1 (units of width to units of elevation) or flatter. Slope protection or erosion-control methods may be required. Slopes of as much as 2:1 may be considered when using rocks or other stable materials.
    - To prevent future erosion on a river bend, incorporate rock vanes to deflect current away from the bank.

Important Notes on Water Quality

- All actions that cause erosion or affect water quality should be minimized to the greatest extent practicable, including the release of turbid (muddy) water.
- Machinery should be operated from the streambanks, avoiding use in flowing water to the greatest extent practicable.

Related Guidance

Delaware County Soil and Water Conservation District's (DCSWCD) *Post-Flood Emergency Stream Intervention Training Manual*
(www.dec.ny.gov/lands/86450.html)