

PROTECTING OUR WATER

AN ACTION PLAN FOR AN ENVIRONMENTALLY-FRIENDLY BUSINESS



Prepared by the Town of Patterson
in conjunction with the NYC
Department of Environmental
Protection

Before proceeding, please take a few minutes to complete the following questions.

	Yes	Not Sure	No
Do you live in a watershed?			
Does your facility have a stormwater drainage system?			
Only stormwater runoff enters the storm sewers.			
Does your parking lot affect water quality?			
Are your parking lots & other paved areas periodically swept to remove accumulated sediment and trash?			
Are your indoor drains connected only to the sanitary sewer?			
Has an emergency response plan for spills been prepared?			
Employees are trained on how to clean-up a spill.			
Guidelines or procedures for a spill response have been posted in an accessible area.			
Dumpsters or trash containers are kept in a fenced enclosure.			
Dumpsters and other containers are kept covered and regularly checked for leaks			
Litter is regularly cleaned up around the dumpster and any loading areas.			
All equipment is cleaned where washwater & residues cannot enter the storm drains.			
Fertilizers and pesticides are applied only when they are necessary and in a manner that minimizes exposure to stormwater.			
A suitable layer of mulch is placed over all landscaping each spring.			
TOTAL			

SCORING

For each “Yes” answer give yourself 3 points, for each “Not Sure” answer 2 points, and for each “No” answer give yourself 1 point.

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Do you consider your business to be environmentally friendly? Or are you conducting practices at your business that are actually harmful to the environment. The answer may surprise you. Although your business may not have huge smokestacks billowing thick, black smoke into the air, it does not mean that your business is not adversely affecting the environment around you, even though you may be completely unaware that it is happening. The information contained in this booklet may help you to answer that very important question.

What we are talking about is something that you have probably seen quite frequently and yet you have probably never realized that it may be severely damaging our lakes and streams around us, or that your business may in some small way be contributing to the pollution problem. What we are talking about is the surface water that is left after a rain storm, or as is more commonly known - storm water runoff.

The New York City Reservoir System serves as a source of drinking water for millions of people in the City and several upstate Towns. The good health of many of the reservoirs in the system must be protected from pollutant-laden stormwater running off of developed areas such as parking lots, buildings and roads. Right now the cost to reduce the amount of pollutants entering the Reservoir system is estimated in the millions of dollars, and these cleanup costs for a damaged environment continue to increase every year. Many of these costs are paid for by you - the business community. It is easier and less costly to prevent pollution at its source, than to try to clean it up. This is where you can play a big part.

For example, most people know that it is illegal to dump chemicals or other pollutants down a storm drain. But did you know that you are also polluting the watershed when you allow pollutants to be washed into a storm drain with rain or wash water. For instance you may be polluting if you

-  rinse washwater down a storm drain
-  spill materials or wastes in your parking lot without cleaning them up
-  allow materials or wastes stored outside to leak

The mission of this action plan is to prevent pollution from occurring in order to maintain a healthy environment and a safe drinking water supply. To assist you, we have put together this information which will help your business to reduce the amount of pollution from their operations. Preventing pollution at its source is better than cleaning it up after its entered a stream or river - its better for the environment and its better for your business. Each type of business has certain activities, that may contribute to pollution of the watershed. The following pages will give you, the business owner or manager, helpful tips on preventing pollution. Although much of the focus of this booklet is on stormwater runoff, it also provides information about other ways your business may impact water quality such as accidental spills. We hope you will join with other individuals and businesses in Patterson to protect this valuable resource.

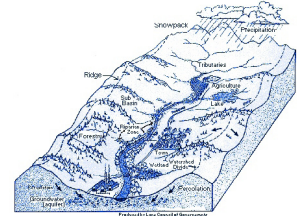
To find out more about the problem with our water or what you can do to help protect the Watershed please call the Patterson Planning Department at (845) 878-6500.

How Your Business Can Impact Water Quality

The Watershed we live in.

No matter where you live, or where you work, you live in a watershed. A watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. John Wesley Powell, scientist geographer, put it best when he said that a watershed is:

"that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community."¹



If you live or work in Patterson, you are in the watershed for the New York City Reservoir System. This means that our streams, the roadside ditches, and even the water that runs over your parking lot during and after a rain all end up in one of the several reservoir that make up the Croton Reservoir system. Almost all of the lakes and streams in Patterson flow to the East Branch Croton River which runs south through the heart of Patterson. Eventually this river runs through the Town of Southeast and into the East Branch Croton Reservoir. This Reservoir can be seen from Route 22 just at the beginning of I-684.

What is Stormwater Runoff?



When it rains, or during periods when snow melts, only a portion of the water infiltrates into the ground. The portion of the water which does not infiltrate into the ground ends up traveling overland till it reaches a stream or other body of water. This portion of precipitation that travels overland is called "stormwater runoff". As storm water runoff travels over the land, it picks up and carries many natural and human-made pollutants that impact water quality. In fact almost anything on the ground can become a source of contamination as stormwater washes over the ground or parking lot, into the storm drains and discharges into the surrounding watershed.

Some sources of water pollution are very easy to see, such as the discharge the pipe of a sewage treatment plant. Because pollution found in stormwater runoff comes from many poorly defined or indiscreet sources, it is also sometimes referred to as nonpoint source pollution.

Roads, Parking lots and Storm Drains

Much of the stormwater runoff that travels across our buildings, our roads and our parking lots flow into a drainage system comprised of pipes, gutters, catch basins and/or open channels. These drainage systems are very efficient at moving the stormwater runoff away from these publically traveled areas. However, they are not very good at removing the pollutants that are carried in the stormwater which

¹ EPA's Surf Your Watershed

generally end up being discharged to a stream or river.

These pollutants found in stormwater runoff come from a variety of sources such as:

- nutrient-rich particulate matters such as leaves, litter, and soil particles from exposed soil
- sand and salt from winter maintenance materials
- excess fertilizer, pesticides, and herbicides
- bacteria and nutrients from animal droppings and failed septic systems
- exposed soil, and oil and grease from parking lots and streets.
- atmospheric deposition
- car emissions

One of the largest source of pollution in the watershed is impervious surfaces such as roof tops, sidewalks and parking lots. In fact, these surfaces generate very little pollution. The real problem comes from pollutants which are carried onto these surfaces and then washed off during a rain event. These pollutants come from a variety of sources including wind-blown material, car emissions and leaks, and atmospheric deposition.

Best Management Practices(BMPs)

To minimize or prevent pollution we use a variety of methods called best management practices. Best Management Practices (BMPs) are methods, measures or practices to prevent or reduce water pollution. They can be divided into two types; structural BMPs which are *constructed* practices such as catch basins, grass swales or detention ponds, and cultural BMPs are methods, measures or practices that affect or change an individual's behavior. The following pages describe Best Management Practices (BMPs) for preventing pollution from the activities common to businesses. These BMPs show you how you can operate your business to reduce the amounts of substances that may enter storm drains.

So how did you score on the quiz. If you scored higher than 35 you are likely operating an environmentally friendly business. If you scored between 25 and 35 your business is in pretty good shape and maybe need just a little fine tuning to help protect our water quality. If you scored under 25 it is likely that one or more of your business practices are hurting the quality of our drinking water.

GENERAL HOUSEKEEPING

General Housekeeping are the maintenance activities and schedules that occur at the site. In order to prevent or reduce pollution, a business owner and their employees need to become familiar with the property and with maintenance activities that occur there. These maintenance practices and schedules should be modified to prevent pollution.

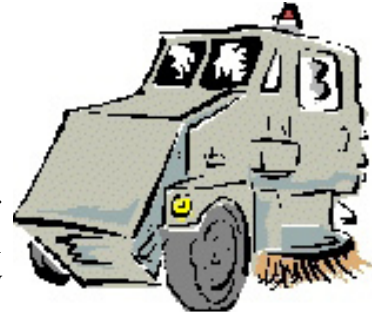


For example, how is your landscaping maintained? Simply by placing a layer of mulch around all landscape plants it helps to maintain healthier plants, thereby reducing the need for watering, fertilizers or pesticides.

TIPS

- ★ Develop long term inspection and maintenance schedules for structural and nonstructural stormwater management structures. These structures when improperly maintained can release large quantities of stored pollutants to the watershed.
- ★ Complete regular inspection, testing and replacement or repair of equipment and operational systems. Check for any cracks, leaks, and other conditions that could cause breakdowns or failures.
- ★ Identify all storm drains on your property. Be sure that there are no floor drains or other non-stormwater connections to the storm sewer lines, as these types of connections can be releasing pollutants to your drainage system.
- ★ Do not wash vehicles on areas that are connected directly to the storm drains. Only wash vehicles on gravel, grass, or other permeable surfaces. Use biodegradable soaps only.
- ★ Keep storage and work areas clean and well organized, and keep all containers properly labeled and covered. This is the best method for avoiding an accidental spill.
- ★ Inspect all company vehicles and immediately repair all leaks.
- ★ Properly maintain and service all wastewater pretreatment equipment, including oil/water separators and grease traps.

PARKING LOTS AND OTHER PAVED SURFACES



Ask yourself, “When was the last time you swept your parking lot or cleaned the catch basins?” Better yet, do you know how much it will cost to clean out the drainage pipes under the parking lot when they fill up with sand because the catch basins were not cleaned on a regular basis.

Sediment, pollutants, winter maintenance materials and litter are all deposited on your parking lot. Regularly cleaning your parking lot, catch basins and other drainage structures can remove most of these materials before they enter the storm drainage system. Large areas of paved surfaces should be cleaned with a vacuum-assisted mechanical sweeper on a regular basis, but at least twice a year. Cleaning your parking lot will also help to present a cleaner, more attractive appearance for your business. Catch basins should be inspected annually and cleaned when the sumps, or storage area between the bottom of the basin and the lowest pipe is one-half full. Other drainage structures should be inspected regularly and cleaned as needed.

Every little bit helps.

TIPS

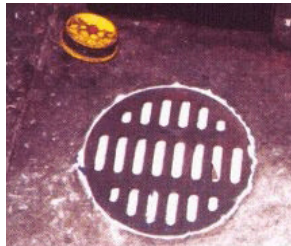
- ★ Use a vacuum-assisted mechanical sweeper to periodically clean the parking lots and paved areas around your facility. Do not wash the parking lots down with a hose as this just pushes the sediment and other pollutants into the catch basins and out into the watershed.
- ★ Sweep as early in the spring as possible after the snow has melted in order to capture winter maintenance material. A second sweeping should be completed in late June.
- ★ Catch basins should be inspected annually and cleaned when the sumps, or storage area between the bottom of the basin and the lowest pipe is one-half full. If you are not sure, it should be cleaned.
- ★ Properly dispose of the material swept from the parking lot.
- ★ Know who's responsibility it is to periodically inspect the drainage system for maintenance. Keep a log of when maintenance was last completed.

ILLICIT CONNECTIONS



An illicit connection is any connection to your storm drain system that results in a discharge that is not entirely composed of storm water. An example of an illicit connection is connecting a floor drain to the storm drain system, wash water from laundry, vehicle or other materials, non-contact cooling water, or sanitary wastewater. These connections may contain a variety of pollutants which may affect safety and surface water quality.

Many illicit discharges are the result of connections to the storm drain that are unknown to the business owner and may not appear on the architectural plans. Identifying and eliminating non-stormwater discharges to your storm sewer system is a very cost-effective way to improve runoff water quality. The simplest method for detecting non-stormwater connections in the stormwater collection system is to observe any catchbasins and points of discharge on your site during periods of dry weather. You should complete this survey three or four times during the dry weather time of the year. The most obvious symptom that you may have an illicit connection is if you observe water flowing in the drainage system when there has been no prior rain storm. Other symptoms include the presence of stains, smudges, odors and other abnormal conditions.



A common source of pollution from businesses is a floor drain that is improperly connected to a storm drain (Source: Petro-Marine Company, Inc., no date)

Another method for detecting improper connections to the storm water collection system is dye testing. A dye test can be performed by simply releasing a special non-toxic dye (either pellet or powder) into the sanitary system, the floor drain or any other water inlet of concern. The storm drain system is then observed for any color change in the water.

TIPS

- ★ Conduct an on-site evaluation to determine if you have any illicit connections.
- ★ If you find that you do have an illicit connection, before taking any corrective action please contact the Patterson Building Department. You may need a permit.

SPILLS AND LEAKS

Promptly cleaning up spills and leaks can significantly reduce pollution that reaches water bodies through storm drains. By following the suggestions below, you can help prevent pollution as well as keep a cleaner facility and save money.



TIPS



- ★ Emergency spill containment and cleanup kits should be located at the facility site. The contents of the kit should be appropriate to the type and quantities of chemicals or goods stored at the facility. In areas where spills are likely to occur keep absorbent materials packaged in small bags for convenient use. Keep a “hazardous waste drum” at the site which can be used to store and transport spilled material.
- ★ Purchase, maintain and use the proper absorbent for clean up of different spills (absorbent materials). These absorbents should be easily accessible anywhere in the facility.
 - ▶ Use rags for small spills
 - ▶ Use absorbents for large spills
- ★ Keep handy and use drain mats or plugs to cover or temporarily block the inlet to the storm drains in order to prevent spilled fluids from entering storm drains, and to help contain spilled fluids for clean up.
- ★ Know the type of material that is kept at your facility and the procedures that are necessary to clean the material up if a spill should occur.
- ★ Conduct regular training for your employees on how to respond to a spill.
- ★ Prepare a clean up plan. The plan should be posted in a very visible place.
- ★ Clean up spills with dry absorbent materials (i.e. kitty litter) to soak up the liquids. Use absorbent “snakes” as temporary booms to contain a liquid while you clean it up. Sweep up the used absorbent and snakes and dispose of them properly as hazardous wastes. Or, use a wet/dry shop vacuum cleaner to collect spills and dispose of the liquid with the hazardous wastes. Do not use vacuums for gasoline, solvents, or other volatile fluids because of the explosive hazards.
- ★ Keep spill booms or other containment devices near facility openings such as loading docks to divert liquids and/confine spills.

STORING & DISPOSING OF WASTES



Solid waste or garbage, hazardous wastes and other materials that will be disposed of, if exposed to rain and/or runoff can pollute stormwater. The following tips on storage and disposal of waste can help you eliminate or reduce pollutants that may otherwise contaminate stormwater.

- ★ Place all waste in containers that are clearly labeled, rigid, durable, water tight, rodent-proof and compatible with the waste.
- ★ Inspect your waste containers regularly for spills and leaks; if they leak they should be replaced or repaired. Keep the container lid tightly closed to keep the rain out and prevent leakage.
- ★ Waste storage areas should not be exposed to rainwater. Achieve this by covering the area with a roof, cover or tarp; surrounding it with a berm of curbing, and eliminating all drains.
- ★ Never mix waste types, i.e., hazardous waste with solid waste or different hazardous waste types.
- ★ Do not pour liquid waste to floor drains, sinks, outdoor storm drains, or sewers. Post signs at sinks and paint stencils at drains to tell people not to pour wastes down drains.
- ★ Choose materials that can be recycled.

DUMPSTER & LOADING DOCK MAINTENANCE

Materials that have been disposed of in a dumpster or trash container can contain a variety of pollutants harmful to water quality. Trash can be spread by wind creating an unattractive appearance to your business as well as polluting the watershed. Leaking dumpsters can release unwanted pollutants to surface waters. Cluttered and disorganized loading docks increase the possibility of an accidental spill occurring.

- ★ Cover dumpsters and other waste containers to keep out rainwater. Dumpsters should be kept in a fenced enclosure and on a hard surface. Never keep a dumpster on a permeable surface.
- ★ Never place liquid waste or leaky garbage bags into a dumpster.
- ★ Keep dumpsters and/or dumpster enclosure locked to prevent illegal dumping.
- ★ Do not hose out dumpster interior. Apply absorbent over any fluids spilled in the dumpster. Absorbent and fluid mixture will usually be knocked out when the dumpster is emptied.
- ★ Leaking dumpsters and compactors, and dumpsters that need to be cleaned out, should be reported to the management and replaced by the dumpster leasing company.
- ★ Keep your loading docks free of materials. Deliveries should be immediately taken to an appropriate storage area. If materials must be left on the loading dock for any period of time, make sure that the materials are properly covered.
- ★ Never keep trash or waste on the loading docks.
- ★ Prevent a spill incident in your loading dock area by covering the storm drain or converting the storm drain to a blind sump.
- ★ Keep litter from accumulating around the loading docks by providing trash receptacles. Sweep up litter, do not hose down the area.

CLEANING EQUIPMENT

If washwater from cleaning equipment is dumped onto streets, parking lots or into the drainage system, it will ultimately end up in the Reservoir, our groundwater and our wells. Washwater often contains harmful ingredients that are toxic to aquatic life. Consider the following suggestions to help reduce pollution entering the watershed.

- ★ Clean equipment (i.e., floor mats, tray racks, garbage cans, carts, or exhaust filters) in a designated indoor area such as a mop sink, pot sink, or floor area connected to a sanitary sewer.
- ★ If necessary, clean equipment outdoors within a designated cleaning area where cleaning water will not flow to the street, the gutter, storm drain, or a waterbody. This area should be isolated from the storm drains with a berm or other barrier such as curbing.
- ★ Pour washwater into the mop sink - never out the back door or into a gutter or storm drain.
- ★ If possible, use floor mats that are small enough to be cleaned inside a mop sink or near a floor drain connected to the sanitary sewer.
- ★ Remember - your facility may be liable for the behavior of contractors that you hire. Be sure you know how any contractor will be cleaning your equipment and disposing of washwater.

MAINTAINING LANDSCAPED AREAS

Maintaining landscaped areas properly can help prevent fertilizers, pesticides, soil and grass clippings from polluting the watershed. Improper landscape practices can result in excess amounts of nitrogen, phosphorous and other nutrients, pesticides and herbicides discharging to the area's surface water. By following one or more of the suggestions below you can minimize or even eliminate the amount of chemicals and other material that enters the storm drains.

- ★ Landscape only with plants that native to the area, are hardy and disease resistant.
- ★ Water lightly and frequently to reduce the potential for disease and insect damage. A 15 to 20 minute watering during dry weather after sunset or before sunrise is usually sufficient.
- ★ Use fertilizers sparingly. Over fertilizing can actually encourage certain insects and diseases. Avoid chemical fertilizers. Read directions carefully and follow them.
- ★ Place four to six inches of mulch on all landscape areas to maintain healthy plants. A healthy plant is more resistant to attack from diseases and insects.
- ★ Use compost as an alternative to fertilizer. Compost contributes organic matter and gradually releases nutrients to the soil.
- ★ Minimize the use of pesticides in order to keep your lawn safe for earthworms and other “good insects”. Read and follow the instructions on the label carefully, do not over apply pesticides.
- ★ Store all fertilizer and pesticide containers safely to prevent spills and dispose of the empty containers properly in the garbage.
- ★ Use a mulching mower whenever possible to leave grass clippings on the grass for added nutrients. Sweep all excess clippings onto the grassy area or into your compost pile if applicable.

EMPLOYEE TRAINING/EDUCATION



Employees as well as employers are often not aware that their actions can affect our water quality, and the New York City's water supply. Making a commitment to pollution prevention is crucial to the success of any program. This commitment must start at the top, with the owner or manager, and extend to every employee. Employers need to educate themselves and their employees in order to understand the various sources of potential contaminants that can be found at their business location, and how those contaminants may impact water quality. Employee training and education should accomplish four objectives:

- ☞ Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater;
- ☞ Identify solutions (BMPs)
- ☞ Promote employee ownership of the problems and the solutions; and
- ☞ Integrate employee feedback into training and BMP implementation.

TIPS

- ★ Instill in your employees the importance of protecting our watershed
- ★ Train all employees on the processes and materials they are working with, and safety hazards, practices for preventing discharges and procedures for responding quickly and properly to toxic and hazardous materials incidents.
- ★ Post instructional/informational signs around your shop as reminders for customers and employees, such as:
 - ▶ Post “Do not pour liquid wastes into sinks and floor drains” signs.
 - ▶ Post “Don't Top Off” signs at gas pumps
 - ▶ Stencil “No Dumping” signs on storm drains
- ★ Develop a routine to inspect facility equipment and procedures regularly; a once-a-week walk through can help identify potential difficulties before they become major problems.
- ★ Join trade organizations, subscribe to trade journals, and participate in workshops and seminars to help keep yourself informed about regulations and pollution control technology.

ADDITIONAL INFORMATION

You can find additional information on what your business can do to protect water quality at the following locations:

<http://www.dec.state.ny.us/>

<http://www.epa.gov/owow/nps/>

<http://www.cwp.org/>

<http://www.stormwatercenter.net/>

<http://www.ci.nyc.ny.us/html/dep/home.html>

<http://www.pattersonny.org>

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“National Menu of Best Management Practices for Stormwater Phase II”

“Rouge Friendly Business Program for Businesses” Wayne County Department of Environment,
December 1996