

Water Works

A Newsletter Published by The City of Wilmington, Department of Public Works – Water Division

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Got sprinkles?



Water Protection Program Earns Regional and National Awards



Source Water Protection Remains Top Priority

Producing safe, clean and affordable drinking water involves using a multiple barrier approach comprised of three main interrelated steps: (1) protecting source water supply areas, (2) treating drinking water to standards, and (3) monitoring and maintaining the integrity of the drinking water distribution system to ensure successful delivery to customers. The most important of these continues to be source water protection for the following reasons:

- The emergence of new contaminants that suppliers may not be prepared to test or treat
- More frequent spikes in contaminant loads due to storms and flooding that make treatment more challenging
- Constantly changing standards and regulations regarding new contaminants, which are present in the water long before they are identified as threats to public health
- Increased treatment and capital costs due to higher pollutant loads and changing water quality standards
- The loss of natural lands to development impacts not only the quality and quantity of drinking water, but also the cost of treating it
- With the loss of natural barriers protecting the source water supply, man made or engineered barriers must be introduced in treatment

During the past few years, we have been keeping you updated on the City's continued initiative to protect the water supply serving our citizens and customers. This initiative, called the Source Water Protection Program, recently won a regional award from the Christina Basin Clean Water Partnership for outstanding leadership in water protection. In addition, the City's program has been recognized nationally by the American Water Works Association and was selected as the recipient of the Exemplary Source Water Protection Award for large-sized water systems. This award recognizes organizations in North America that have developed, and are implementing, exemplary source water protection programs.

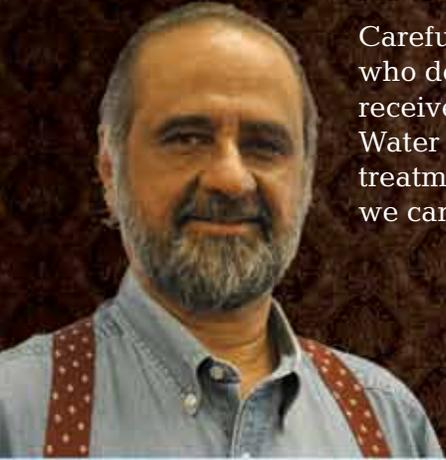
A Word from the Commissioner

Careful stewardship of our water resources is our continuing commitment to the people who depend on us for water. I am very happy to be able to report that our efforts have received regional (Christina Basin Clean Water Partnership) and national (American Water Works Association) attention. Later this year, we will also begin to make a major treatment technology upgrade to our older Brandywine filtration plant to assure that we can continue to provide safe drinking water through the foreseeable future.

Best Wishes,



Kash Srinivasan, Commissioner, Department of Public Works



Source Water...

The City of Wilmington developed the Source Water Protection Plan (SWP Plan) in order to better protect its water supply for future generations, reduce long term operating costs and carbon footprint, avoid future treatment requirements, improve planning and response to future spills and water quality events, and leverage upstream investments to protect its water supply.

Recognizing the efforts and input of the many dedicated stakeholders in the Brandywine Creek Watershed who have been involved with this SWP Plan is very important. The SWP Plan integrates the significant amount of information from their previous studies and plans. Without the involvement of these stakeholders and the benefit of their previous efforts, this plan would not have been possible.

You can download and read the SWP Plan at www.wilmingtonde.gov/departments/pubworks_waterprotection.htm.

If you have any questions please contact **Matt Miller**, Water Quality Manager, at **302-573-5522**.

Water Quality Lab Gets New Home

The City operates a certified drinking water laboratory and tests water from homes, businesses, and the treatment plants to ensure that the quality of the water provided meets or exceeds state and federal standards. Each year, the City performs over 70,000 tests on at least 30,000 water samples and this number continues to grow. In September 2005, the lab had to leave its location at 103 East 16th Street because of deteriorating building conditions, and relocated to a temporary facility at the Porter Filter Plant near Rock Manor golf course. On April 1, 2010 the lab moved into its new permanent home at 203 East 16th Street occupying the former, and now renovated, Waterworks Café building. The new facility contains three distinct labs for the variety of testing that is performed which include biological, chemical, and organic procedures. The new space also has a training room, which is used for safety and operational training for department staff. This new lab reinforces the City's commitment to water quality and its desire to provide clean and safe drinking water well into the future.



Waterworks Building viewed from Brandywine Creek (above), and from 16th St. (right).



A Continuing Series

Producing Your Drinking Water

Last year, we began our journey to follow your drinking water from its source to the tap. In Part 1 of this 3-part series, we focused on water treatment and our two filter plants. This year, Part 2 continues the process with a discussion on the testing of your water. We focus on transmission & distribution (T&D) on page 4. Next year's issue of WaterWorks will highlight customer service, especially our metering section and their vital role in providing water to our customers.



Water Treatment



FOCUS ON: Testing

Sample analysis does not stop once the water leaves the treatment plant and is on its way to our customers.

Several of our outside pump stations and storage tank sites have chlorine monitors which help to keep an eye on the disinfectant levels. At least 120 samples are collected each month at several locations in the water service area and are tested for bacteria, turbidity (cloudiness), temperature, pH, and chlorine. The bacteria tests look for total coliforms and e-coli using EPA approved methods and are performed by our state certified laboratory as is the turbidity test. The temperature, pH, and chlorine levels are collected right at the tap since those parameters need to be analyzed immediately. All of this information is reported to the Delaware Office of Drinking Water monthly and much of it is summarized in this report.

Byproducts of drinking water disinfection form in the water as chlorine reacts with organics. To meet EPA and State requirements which safeguard the public from consuming excess disinfection byproducts (DBPs), in addition to routine daily sampling of various potential water contaminants, the City collects DPB samples quarterly. See Table 2 on page 8 for DPB annual averages.

Finally, the City is required to monitor for lead and copper every three years and 2011 is a monitoring year. Beginning in July, we are asking residents of homes known to have lead service lines and/or pipe joints to supply water samples, since water must sit in the pipes for at least 6 hours before testing. All of this data is reported to the State, as well as to the resident. You can find a summary of the last sampling event performed in 2008 on Table 2, page 8.

This is only a subset of the vast amount of chemicals tested for in the water. A full list is included in the report section of this publication. Continuous testing of the water ensures that the water that we provide is of high quality and surpasses regulatory requirements. Testing is also important to help identify potential leaking water mains and to help solve any specific issues that customers may report to our Customer Service department

Other Stages:



Transmission and Distribution



Customer Service Meter Shop

If you would like to schedule a tour of the Brandywine or Porter treatment plant, visit the Waterworks lab, or if you would like more information regarding the specifics of the water treatment process, contact the Water Quality Manager, Matt Miller at 302-573-5522.

Producing Your Drinking Water

A Continuing Series

FOCUS ON: Transmission & Distribution



Treated water leaves the two filtration plants and flows by gravity or it's pumped through a system of water mains varying in diameter from two to forty-eight inches. At the present time the city has approximately 400 miles of water mains, 9,000 valves, 2,500 hydrants and 37,000 service connections servicing more than 140,000 people. In addition, the system also has two ground level storage facilities with a capacity of 47.5 million gallons, nine elevated tanks with a capacity of 4.5 million gallons and six booster pumping stations that help to maintain pressure and fill several tanks throughout the 9 pressure zones.

Maintaining the distribution system is vital to ensure that our customers continue to receive quality drinking water. Improvements to the distribution system are also important in maintaining compliance with new, stricter state and federal water quality regulations.

The Engineering department and Water Service section work hard to maintain and improve the distribution system through a variety of means. Water Services responds to main breaks and to reports of leaks. They fix and replace valves and hydrants, and work with the Water Quality Lab to ensure the water leaving the treatment plant maintains its high quality all the way to the tap.

The System has ten interconnections with neighboring water systems operated by United Water Company and Artesian Water Company. These interconnections are operated only when an emergency water supply is needed between the systems.

In 2010-2011 we are scheduled to continue the cleaning and lining program. This time we will be addressing: the remainder of Windsor Hills (Cambridge / Warwick Dr.), all roads between Fairfax Blvd. and Sandra Rd., Brookvalley Rd., Shipley Rd. between Weldin Rd. and I-95, Malden Dr., Coleman St., McLane St. and Sycamore St.—all for a total of approximately 25,000 linear feet.

Hydrant inspection, testing and flow measurement continues through 2010-2011. This program is designed to improve the operability of fire hydrants and isolation valves on the system. Additionally, water flow is being measured and the hydrants banded with color coded reflective material according to flow rates. This flow information will help fire companies when preparing strategies for a specific incident. To the present, more than 1,000 hydrants have been inspected and banded.

The rehabilitation of Rockford Tower is completed. This year we are going to concentrate on the Monroe Park elevated tank. A complete maintenance and painting is to be scheduled.

Questions regarding these upcoming projects should be directed to the **City Engineer's office** by calling **302-576-3065** or **302-576-3064**.



Solar Panels Reflect Energy Savings at Porter

Over 2,200 solar panels, installed at the Porter Filer Plant in April, 2009, are heating up the City's green solutions initiative and saving the City an estimated \$60,000 a year in electricity costs at Porter. The project is the first completed portion of a City-wide \$14.5 million program to decrease energy consumption across City government.

During the operation period, the panels have generated 745 megawatt hours of electricity. This is equal to the energy gained by burning over 200 gallons of gas and is enough to power 56 homes over that same timeframe.

Plans call for construction of a booster pumping station at Porter to further reduce operating costs, and a second array of 1,100 photovoltaic cells at the Turner Municipal Complex. The City is also converting all City traffic lights to high-efficiency light-emitting diodes (LEDs), and installing energy-efficient lighting and HVAC equipment in City-owned properties.

City of Wilmington

2010 Water Quality Report

Your Wilmington water quality lab staff. Front (left to right): Vijaya Charya, Christiana Oh, Alison Boyer; Rear (left to right): Matt Miller, Bill Janicki

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in public water systems.



How We Test Our Drinking Water

The Wilmington Water Division monitors for over 100 contaminants, including herbicides, pesticides, *Cryptosporidia*, *Giardia*, and coliform bacteria. We collect samples from the Brandywine Creek, Hoopes Reservoir, Porter Reservoir, Cool Spring Reservoir, the filtration plants, and at customers' taps in the distribution system.

Last year, over 30,000 water samples were drawn from the City's fresh water supply treatment plants, and distribution system. Our laboratory performed over 70,000 water analyses on those samples. This data supports the conclusion that Wilmington's water system complies with all applicable EPA drinking water regulations.

During disinfection, certain by-products form as a result of chemical reactions between chlorine and naturally occurring organic matter in water. These are carefully controlled to keep disinfection effective and by-product levels low.



The Environmental Protection Agency (EPA) requires the City of Wilmington, and all other water suppliers in the US, to report yearly on specific details about testing for a number of contaminants in our water. Chemical and biological monitoring provides the data that helps suppliers such as the City of Wilmington make key water quality management decisions to ensure freshness and purity.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulates bottled water, which must provide the same protection to the public's health.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline – 800-426-4791.

Protecting the Public from Disease



The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Microbiological testing of water helps protect the public from waterborne diseases such as polio, diphtheria, typhoid, and cholera. Chlorine is very effective at killing or disinfecting most of these organisms in drinking water. However, *Cryptosporidium*, a microbial pathogen found in surface waters throughout the US, is resistant to chlorine. Optimized water treatment, including filtration, provides an effective barrier against passage of *Cryptosporidium* into drinking water. One commonly used measure of this treatment effectiveness is turbidity removal. Turbidity is the cloudiness of the water that is caused by particles that are generally invisible to the naked eye. As shown in Table 1 on page 7, the City continues to provide water that is well within State and Federal turbidity requirements.

The most commonly-used filtration methods, such as those used by Wilmington, cannot guarantee 100% removal. The City of Wilmington began monitoring for *Cryptosporidium* in source water for its two plants beginning in November of 2005. In 2008, average levels of *Cryptosporidium* were 4 and 2 per 100 L of raw water at Brandywine and Porter Filter plants, respectively. Based on research conducted on the removal of *Cryptosporidium* by common filtration methods, the level detected in the source water should have been removed by the filters at the City's treatment plant. *Cryptosporidium* has never been detected in the treated water supply.

Important Health Note for “At Risk” Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as those with cancer undergoing chemotherapy, organ transplant recipients, people with HIV/AIDS or other immune system disorders, the elderly, and infants can be particularly vulnerable to infections. These people should seek advice from their health care providers. EPA/CDC guidelines on appropriate ways to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline ([800-426-4791](tel:800-426-4791)).



Potential Contaminants

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic Contaminants, such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.

Radioactive Contaminants, which can occur naturally or as a result of oil and gas production and mining activities.



Contacts

In addition, during this time of heightened watchfulness, you can help us ensure the safety of our water supply by reporting any unusual or suspicious activity either on our waterways, or near our reservoirs, water filtration plants, water towers or pumping stations.

To report an incident, or general water quality concerns, call the City Call Center, [\(302\) 576-3877](tel:302-576-3877). If you have questions about this report, call the Water Quality Laboratory at [\(302\) 573-5522](tel:302-573-5522) or [\(302\) 571-4158](tel:302-571-4158). Weekends or after 5 P.M. – [\(302\) 571-4150](tel:302-571-4150).

Water Quality Statistics

Table 1: Water Quality Results–Detected Primary^[1] Parameters at Entry Points to Distribution System

Contaminant	Units	MCLG ^[2]	MCL ^[3] or TT ^{[4][5]}	Brandywine Filter Plant				Porter Filter Plant				Source
				Average	Lowest Detected Level	Highest Detected Level	Violation	Average	Lowest Detected Level	Highest Detected Level	Violation	
Microbiological Indicators												
Turbidity - Percentile	% of samples below 0.3	Not Applicable	95% of monthly samples must be less than 0.3.	99.9	98.9	100	No	100	100	100	No	Soil runoff
Turbidity - Values	NTU		No sample must ever exceed 1.0.			0.43	No			0.15	No	Soil runoff
Inorganic Chemicals (Metals and Nutrients)												
Arsenic	ppm	0	0.01	<0.0005	<0.0005	<0.0005	No	<0.0005	<0.0005	<0.0005	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium	ppm	2	2	0.0338	0.0338	0.0338	No	0.0351	0.0351	0.0351	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	ppm	0.1	0.1	0.0029	0.0029	0.0029	No	0.0024	0.0024	0.0024	No	Discharge from steel and pulp mills; Erosion of natural deposits
Nickel	ppm	0.1	0.1	0.024	0.024	0.024	No	0.0018	0.0018	0.0018	No	Discharge from steel mills, metal refineries and electronic industries.
Fluoride	ppm	4	2/4 ^[6]	0.84	0.33	1.8	No	0.95	0.34	1.2	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	ppm	10	10	2.1	1.1	2.9	No	1.6	0.8	2.6	No	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Nitrite	ppm	1	1	0.003	0.0001	0.005	No	0.003	0.001	0.005	No	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Disinfectants												
Chlorine	ppm		At least 0.3 residual entering Distribution System		0.9		No		1.3		No	Water additive used to control microbes.
Disinfection Byproduct Precursors												
Total Organic Carbon	ppm			1.55	0.84	2.28	n/a	1.39	0.94	1.81	n/a	Naturally present in the environment. Total organic carbon (TOC) has no health effects. However TOC provides a medium for the formation of disinfection byproducts.
Total Organic Carbon	% Removal (Raw to Treated)		Must exceed 35% (25% in certain instances)	43%	26%	62%	No	42%	32%	67%	No	
Total Organic Carbon	Compliance Ratio		Ratio of Actual to Required Removal - must be greater than or equal to 1.	1.00 ^[7]			No	1.08 ^[7]			No	
Radionuclides												
Gross Alpha Particle Activity (2009 sample)	pCi/L		15	1.03	0.75	1.3	No	n/a	n/a	n/a	No	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation

Water Quality Statistics (continued)

Table 2: Water Quality Results–Detected Primary^[1] Parameters in Distribution System

Contaminant	Units	MCLG ^[2]	"MCL ^[3] or TT ^{[4][5]M} "	Average	Lowest Detected Level	Highest Detected Level	Violation	Source
Microbiological Indicators								
Total Coliform	% of samples positive each month	0%	5%	0.62	0	2.5	No	Bacteria that are naturally present in the environment. Used as an indicator of the presence of other potentially harmful bacteria.
Lead and Copper (based on 2008 sampling - testing is done every 3 years)								
Lead	ppb	0	90% of tap water samples must be less than the Action Level of 15.	5.0 ^[9]	2	16	No	Corrosion of household plumbing systems.
Copper	ppm	1.3	90% of tap water samples must be less than the Action Level of 1.3.	0.44 ^[9]	0.027	0.719	No	Corrosion of household plumbing systems.
Disinfectants								
Chlorine	ppm	MRDLG = 4.0 ^[11]	MRDL = 4.0 ^[10]	1.07	0.75 ^[12]	1.30 ^[12]	No	Water additive used to control microbes.
Disinfection Byproducts								
Total Trihalomethanes	ppb	Not Applicable	80: Based on Running Annual Average of Quarterly Samples	48.0 ^[8]	12.0	73.5	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon. Health effects: Some people who drink water containing THMs in excess of the MCL over many years could experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Haloacetic Acids	ppb	Not Applicable	60: Based on Running Annual Average of Quarterly Samples	29.9 ^[8]	6.9	68.2	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.
Bromochloroacetic Acid	ppb	Not Applicable	None	3.3	1.0	5.7	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.



Table 3: Secondary^[13] Parameters and Other Parameters of Interest Detected in Water as it Enters Distribution System

Contaminant	Units	SMCL ^[14]	Brandywine Filter Plant			Porter Filter Plant			Source
			Average	Lowest	Highest	Average	Lowest	Highest	
Conventional Physical and Chemical Parameters									
pH	pH units	6.5 - 8.5	7.1	6.2	7.9	7.1	6.7	7.6	Waters with pH = 7.0 are neutral
Alkalinity	ppm as CaCO ₃	None	54	37	75	52	37	83	Measure of buffering capacity of water or ability to neutralize an acid.
Hardness	ppm as CaCO ₃	None	123	94	146	122	100	152	Naturally occurring; Measures Calcium and Magnesium
Conductivity	µmhos/cm	None	384	307	505	367	268	490	General measure of mineral content.
Total Dissolved Solids (TDS)	ppm	500	180	180	180	206	206	206	Metals and salts naturally occurring in the soil; organic matter
Chloride	ppm	250	67	52	111	64	49	106	Naturally occurring; Chemical Additive to treat the water; Road salt application and run-off.
Metals									
Iron	ppm	0.3	0.02	<0.01	0.06	0.02	<0.01	0.1	Naturally occurring; Chemical Additive to treat the water; Corrosion of pipes; Can cause discoloration in water
Manganese	ppm	0.05	0.01	<0.006	0.025	0.013	<0.006	0.02	Naturally occurring; can cause discoloration and objectionable taste in water
Zinc	ppm	5	0.25	0.02	0.8	0.12	0.02	0.7	Naturally occurring; Chemical Additive to treat the water

Primary Contaminants Tested, But Not Detected

Radioactive	Volatile Organic Chemicals
Uranium-238	Benzene
	Carbon Tetrachloride
Synthetic Organic Chemicals	O-Dichlorobenzene
2,4,5-TP	P-Dichlorobenzene
2,4-D	1,2-Dichloroethane
Alachlor	1,1-Dichloroethylene
Atrazine	cis-1,2-Dichloroethylene
Benzo(a)pyrene	Dichloromethane
Carbofuran	1,2-Dichloropropane
Chlordane	Ethylbenzene
Dalapon	Methyl Tert Butyl Ether
Di(2-ethylhexyl)-adipate	Monochlorobenzene
Di(2-ethylhexyl)-phthalate	Styrene
Dibromochloropropane	Tetrachloroethylene
Dinoseb	1,2,4-Trichlorobenzene
Endrin	1,1,1-Trichloroethane
Ethylene Dibromide	1,1,2-Trichloroethane
Heptachlor	Toluene
Heptachlor Epoxide	Trichloroethylene
Hexachlorobenzene	Vinyl Chloride
Hexachlorocyclopentadiene	Xylenes
Lindane	Inorganic Chemicals
Methoxychlor	Antimony
Oxamyl(Vydate)	Beryllium
Pentachlorophenol	Cadmium
Picloram	Mercury
Polychlorinated Biphenyls	Selenium
Simazine	Thallium
Toxaphene	

Key to Tables

- [1] Primary parameters are contaminants that are regulated by a maximum contaminant level (MCL), because above this level consumption may adversely affect the health of a consumer.
- [2] MCLG—Maximum Contaminant Level Goal is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow no margin of safety.
- [3] MCL—Maximum Contaminant Level is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- [4] TT—Treatment Technique refers to the required process intended to reduce the level of a contaminant in drinking water. EPA's surface water treatment rules require systems to (1) disinfect their water and (2) filter their water such that the specific contaminant levels cited are met. Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. Total organic carbon is regulated by a Treatment Technique that requires systems operate with enhanced coagulation or enhanced softening to meet specified percent removals.
- [5] Unless otherwise indicated value given is a MCL.
- [6] State limit is to not exceed 2.0 mg/L. Federal MCL is 4.0 mg/L.
- [7] Cited average is the lowest running annual average calculated from monthly samples in 2010.
- [8] Cited average is highest running annual average calculated from quarterly samples in 2010.
- [9] Value given is not an average, but the 90th percentile action level.
- [10] MRDL—Maximum Residual Disinfectant Level is the highest level of a disinfectant allowed in drinking water.
- [11] MRDLG—Maximum Residual Disinfectant Level Goal is the level of drinking water disinfectant below which there is no known or expected health risk.
- [12] Cited value is the lowest and/or highest average of a minimum of 120 routine samples per month.
- [13] Secondary parameters are contaminants that are regulated by non-enforceable guidelines because the contaminants may cause non-health related cosmetic effects, such as taste, odor, or color.
- [14] SMCL: Secondary Maximum Contaminant Level is the level of a physical, chemical or biological contaminant in drinking water above which the taste, odor, color or appearance (aesthetics) of the water may be adversely affected. This is a non-enforceable guideline which is not directly related to public health.

City of Wilmington Water Division presents
the 2010-2011 Kids' Supplement, featuring...

ENVIROSCAPE



Students scatter "pollutants," in the form of colored sprinkles, over the EnviroScape.

To celebrate the 40th Anniversary of Earth Day, on April 22, 2010, City of Wilmington employees Mary Neutz and Alison Boyer presented a 20-minute educational program at the Wilmington Library, focusing on watershed protection.



Mary and Alison used the EnviroScape (as seen in the pictures here) as a representation of the Brandywine Creek Watershed. The EnviroScape is an educational model designed to show the path of water through a watershed and how the combined effect of pollution from many small sources can have a real impact on the quality of our water in the entire watershed.

The watershed protection presentation is an interactive teaching tool allowing each student to participate in the hypothetical "contaminating" of the Brandywine Creek Watershed. The students were asked to cover the EnviroScape with chocolate sprinkles and other fun food decorations, to represent four different pollutants in the watershed. While each "pollutant" was sprinkled onto the EnviroScape, a description of its harmful effects on the watershed was then discussed. The students used spray bottles filled with water to make it "rain," showing how storm water and runoff carries the pollutants into our waterways.

The students learned the important concept that each action has an effect, no matter how small. Afterwards, the students were asked to come up with solutions for the four contaminants, one of them being picking up pet waste. To wrap up the program, Mary and Alison gave the kids tips on how to conserve water.

Since last April, Alison has traveled to several schools helping to spread the importance of watershed protection. If your youth group is interested in experiencing the Watershed Protection Presentation, please contact Alison directly at **302-571-4158**.



The watershed protection program focuses on four main everyday pollutants. Each pollutant is represented by a food:

PET WASTE



chocolate sprinkles

FERTILIZERS



green sprinkles

TRASH



rainbow sprinkles

PESTICIDES



red sprinkles

Pet Waste

Pet waste left on the ground can be harmful to our watersheds. When it rains, the waste gets washed into our rivers and streams, causing an increase in bacteria and excessive plant growth. This sucks up all the oxygen needed for aquatic life, making it difficult for fish to breathe.



Fertilizers

Overuse of fertilizers or fertilizing the lawn before a rain storm can be harmful to our watershed. Over fertilizing can also reduce the amount of oxygen in the water, making it difficult for fish to breathe. When using fertilizer products, following the directions on the package can help keep our watershed healthy.

Trash

Trash pollutes and clogs our waterways, and it eventually ends up in the sea. Aquatic life can swallow or get caught in the trash and die. Everyone lives downstream of someone.

Pesticides

Not following the directions on pesticide products can cause millions of fish to die. Protection of wildlife and water quality is possible when using pesticides. If pesticides are selected wisely, used in combination with other pest control measures, and applied safely, the pollution of our surface waters and contamination of aquatic life can be avoided.

To find more information about good practices for applying pesticides, go to: <http://pubs.ext.vt.edu/420/420-013/420-013.html>.

Bottled Water Myth Versus Reality

Myth: Bottled water tastes better than tap water.

Reality: In taste test after taste test, people can't tell the difference. Between 10 and 15 percent of the price of a bottle of water goes to cover advertising costs. We not only buy their myths, it turns out we pay extra for them.

Myth: Bottled water is cheap.

Reality: Bottled water costs about 2000 times more than tap water. Can you imagine paying 2000 times the price of anything else?

Myth: Bottled water is safer than tap water.

Reality: Unlike tap water, which is tested annually, bottled water companies are not required to disclose where the water comes from, how it was treated, or what contaminants it contains.



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Henry W. Supinski
City Treasurer

City Council Members

The Honorable Norman D. Griffiths
President of City Council

The Honorable Paul Ignudo, Jr.
City Council Member, 7th District

The Honorable Charles Potter, Jr.
City Council Member, 1st District

The Honorable Stephen L. Martelli
City Council Member, 8th District

The Honorable Ernest Congo II
City Council Member, 2nd District

The Honorable Michael A. Brown, Sr.
City Council Member-at-Large

The Honorable Eric D. Robinson
City Council Member, 3rd District

The Honorable Charles M. Freel
City Council Member-at-Large

The Honorable Hanifa G. N. Shabazz
City Council Member, 4th District

The Honorable Loretta Walsh
City Council Member-at-Large

The Honorable Samuel Prado
City Council Member, 5th District

The Honorable Justen A. Wright
City Council Member-at-Large

The Honorable Kevin F. Kelley, Sr.
City Council Member, 6th District

In accordance with Title VI of the Civil Rights Act of 1964, state and federal law, "no person or group shall be excluded from participation, denied any benefits, or subjected to discrimination on the basis of race, color, national origin, age, sex, religion, handicap, and/or disability." General complaints or inquiries should be directed to (302) 576-2460, City of Wilmington, Personnel Department, 4th Floor, 800 French Street, Wilmington, Delaware 19801. TDD is available at (302) 571-4546.

