City of Wilmington
Water Works

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

Volume 5 Summer, 2007

Inside this Issue...

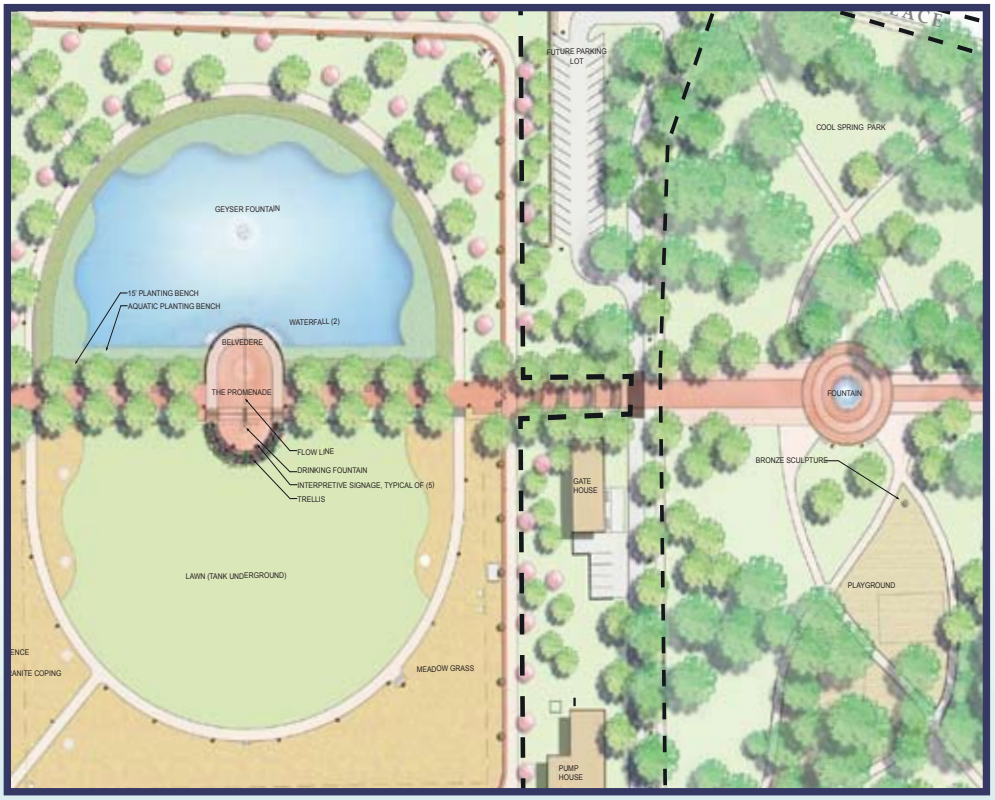
Progress Report...

Cool Spring Reservoir to Feature Promenade, Waterfalls and More

The Cool Spring Reservoir is undergoing a 26-month renovation. Part of this make over includes a new landscape design that will transform the area back to an open green space featuring two small waterfalls. The newly landscaped area around Cool Spring will allow the park to once again be used for recreational purposes by neighbors.

The unique design, shown in the rendering to the right, is a result of a collaborative effort between the City and a stakeholder group of neighbors and other interested parties.

This renovation project involves replacing the open reservoir with a hidden underground water storage tank. Once the underground water storage facility is built and placed in service, the additional landscaping will be completed and the transformation of the site to a park-like setting will be finalized.



The selected design features a walking promenade that extends across the center of the site from Franklin Street to Van Buren Street. Other features include a belvedere, a semi-circular trellis, and two small waterfalls, as well as interpretive signage. The area will have a walking path with ornamental lighting and benches and will be surrounded by an ornamental fence. The design also leaves in place the existing granite coping, which outlines the footprint of the open 1875 reservoir. It is expected the landscaping work will begin in 2008.

Improving Our Water Distribution System

Although maintaining a quality water distribution system has always been fundamental at Wilmington's Department of Public Works, recent changes to water quality regulations governing issues such as disinfection by-products makes maintaining water quality in the distribution system more than a priority; it is a critical challenge.

As a result, the City of Wilmington has increased its focus on improving the condition of its water distribution infrastructure to comply with these new regulations and to improve customer service. Our goal is to provide an even higher quality product that continues to exceed customer expectations by making renovations to reservoirs and elevated storage tanks, and implementing annual water main replacement and cleaning and lining programs.

Water Main Replacement

Focus in 2006: Browntown, Colonial Heights

During 2006, the City of Wilmington reinstated its water main replacement program. The replacement program resulted in the removal of approximately 4,850 linear feet of water main that was well past its useful life. This year's program focused on locations within the Browntown neighborhood of Wilmington and the Colonial Heights neighborhood in New Castle County.

These areas were chosen based on criteria such as age and history of breaks. Replacement improves water quality by removing pipes that have deteriorated to the point where they can no longer prevent outside contamination by way of groundwater infiltration.

Cleaning and Lining

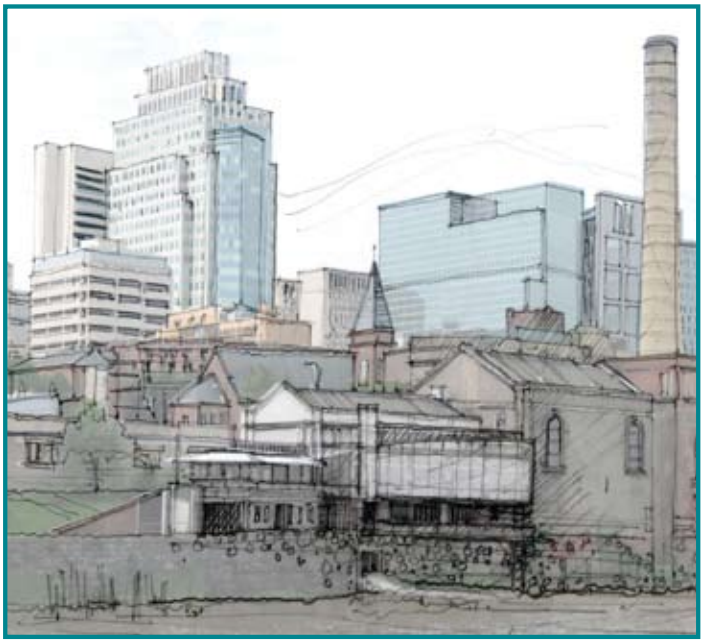
Focus in 2006: Areas with history of water quality concerns

During 2006, the City of Wilmington reinstated its cleaning and lining program which resulted in the rehabilitation of approximately 10,239 linear feet of additional water main. This year's program focused on locations chosen based on their extensive history of water quality complaints, including areas in Bellefonte, Edgemoor Terrace, Penny Hill, Hillcrest, Elsmere, Alapocas, Brandywine Hills, and Twin Oaks along Imperial Drive south of Lancaster Pike.

The cleaning and lining process helps improve water quality by removing corrosion that can contribute to the occurrence of discolored water, as well as cause a reduction in chlorine residuals that can lead to taste and odor problems or a re-growth of bacteria. It also prolongs the lifespan of the pipes by reducing the rate of additional corrosion.

Future Plans

The City of Wilmington has plans to build on achievements of the past year with its 2007 cleaning and lining programs, water main replacement and renovations to an additional elevated storage tank. Cleaning and lining efforts are scheduled to take place at several locations in the Union Park Gardens and Browntown neighborhoods of Wilmington in the next year. The New Castle Avenue Elevated Storage Tank will be re-painted and several needed renovations will be made to the tank in the coming months. Also, the City is currently evaluating locations for its 2007 Water Main Replacement Program. Information regarding this program will be available sometime after July 1, 2007. Questions regarding these upcoming projects and programs should be directed to the City Engineer's Office by calling either (302) 576-3064 or (302) 576-3065.



A rendering of the Waterworks Center.

Water Quality Laboratory Will Move to Permanent Home

Instead of steaks and a glass of wine, pure water will be the only item on the menu at the historic building on the Brandywine that formerly housed the restaurant known as the Water Works Café. That's because, with a little renovation, the building will soon become the City's Water Quality Laboratory.

Although this Waterworks Center building was originally constructed in 1908, parts of the building date back to the mid-19th century. The rear portion of the building, which fronts the Brandywine Creek, sits on the quay wall of the original Price Mills and dates back to 1847. Over the years, the building has had a number of Public Works uses, including a plumbing shop and storage, before it was converted to the café.

The Waterworks Center will be renovated to accommodate the new laboratory. The existing north addition to the building, which faces the river, will be removed and a new addition enclosed in a glass curtain wall façade will be built in its place. The glass wall will define a graceful and reflective element along the river, contrasting, but complementing the historical façades of the existing buildings. The historical windows and doors on the building will be retained. Paint on the current masonry and limestone façade will be removed, with the goal of restoring the original look of the building.

The laboratory itself will house separate areas for testing the City's drinking water for organic, inorganic and microbial contaminants. The building will also house a new mezzanine level with a Training/Meeting Room.

It is anticipated that renovation work will go to bid by late summer and project start-up will be late 2007 or early 2008, depending upon available funding.

What's New? "GIS" Programs

Screen capture of GIS program showing water distribution service area.

The City of Wilmington's new Geographic Information System (GIS) program will make it easier to efficiently track customer complaints, as well as follow maintenance and capital projects performed city-wide. GIS will also improve access to infrastructure information for members of the Department of Public Works.

In developing the GIS program, staff first collected information to ensure that the current maps of the system correctly represent the infrastructure in the City. Then an Intranet application was developed that gives the Department of Public Works staff the ability to access system maps and information from any Internet connection. Historically, this information was available only in hardcopy format.

Delaware's Source Water Assessment Program

Vigilance is vital to assure the safety of our water supply. Keeping public drinking water supplies safe is the shared responsibility of federal, state and local agencies, water suppliers, and now more than ever – consumers. The Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources, takes the lead in this effort. The public can participate in a Citizen and Technical Advisory Committee to learn more and stay involved with efforts to keep our water safe.

As mandated in the Safe Water Drinking Act (amended in 1996), the Delaware Source Water Assessment Program (SWAP) analyzes existing and potential threats to the quality of public drinking water supplies. Protecting source water is an important step in Wilmington's multiple barrier approach to protecting the drinking water supply.

Wilmington's assessment included review of approximately 319 square miles of the watershed, located upstream of the two intakes on the Brandywine Creek and within two miles of the Hoopes Reservoir watershed.

The City of Wilmington's source water on the Brandywine Creek was determined to have the highest susceptibility to contamination from pathogens and metals, based on monitoring data. It is also highly susceptible to nutrients, petroleum hydrocarbons and other organics.

In the Delaware portion of the watershed, the assessment identified 24 discrete sources of contamination in the land areas closest to the Brandywine Creek which could potentially have the greatest impact on water quality. The majority of these sources were underground storage tanks. In Pennsylvania, 72 sources were identified, the majority of which were associated with wastewater and storm water discharges. Non-point sources or storm water runoff can also potentially contribute to contamination. Wooded areas and agriculture were identified as the predominant land uses in the Wilmington SWA and were determined to be low sources of contaminants.

More detailed information is available in the City of Wilmington Source Water Assessment Report, which can be found on the Delaware SWAP website (http://www.wr.udel.edu/swaphome/index.html). More information is also available from Delaware Department of Natural Resources and Environmental Control at 302-739-9945.

Wilmington takes a multiple barrier approach to protecting our drinking water

The next step after the Source Water Assessment report is protection. The assessment identifies the source of contaminants to which the City's water supply is most susceptible. Protection efforts put in place various best management practices and partnerships to minimize susceptibility. The City is embarking on this next phase of developing a protection program now and considers partnership with its consumers integral to its success.

There are many benefits of source water protection. Pollution prevention is almost always cheaper than treating or replacing an existing drinking water supply. The costs of not protecting source water can include remediation or expensive treatment. If the source becomes too contaminated, replacement of the water supply system may be necessary.

Source Water Protection:

- Reduces risks to public health from contaminants.
- Can result in reduced costs for compliance monitoring.
- Helps maintain or regain consumer confidence and reduces complaints.
- Promotes pro-active approaches and invites consumers to get involved in the process.

The Race at Brandywine Creek

View of Hoopes Reservoir

THE CITY OF WILMINGTON

2006 WATER QUALITY REPORT

About This Report...

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 the 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.

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.

Continued on next page.

Trained personnel at the City's water quality laboratory closely monitor our water for more than 100 contaminants. Testing is performed at numerous intervals, from untreated water, through the treatment process and then from homes.

Protecting the Public from Disease

Microbiological testing of water helps protect the public from waterborne diseases such as polio, diptheria, 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. Average turbidity levels of 0.04 NTU and 0.03 NTU at Brandywine and Porter Filter plants respectively are well below EPA's limit of 0.3 NTU.

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 2006, average levels of *Cryptosporidium* were 3 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.

TOC Analyzer

This sophisticated instrument measures the organic content (Total Organic Carbon – TOC) of the City's source and treated water. This helps the City analyze source water trends (whether water quality is improving or declining) and optimize filtration to produce high quality treated water, which exceeds state and federal standards.

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.

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)**.

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, 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**. If you have questions about this report, call the Water Quality Laboratory at **(302) 573-5522** or **(302) 571-4158**. Weekends or after 5 pm - **(302) 571-4150**.

*See Key to Tables on page 9.

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

				Brandywine Filter Plant				Porter Filter Plant				
Contaminant	Units	MCLG[2]	MCL[3] or TT[4] [5]	Average	Lowest Detected Level	Highest Detected Level	Violation	Average	Lowest Detected Level	Highest Detected Level	Violation	Source
Microbiological Indicators												
Turbidity - Percentile	% of samples below 0.3	Not Applicable	95% of monthly samples must be less than 0.3	100	100	100	No	99.96	99.5	100	No	Soil runoff
Turbidity - Values	NTU		No sample must ever exceed 1.0	0.04	0.01	0.18	No	0.03	0.01	0.42	No	Soil runoff
Inorganic Chemicals (Metals and Nutrients)												
Barium	ppm [17]	2	2	0.03	0.03	0.04	No	0.03	0.03	0.03	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	ppb [16]	100	100	1.6	1.2	2.0	No	1.8	0.9	2.7	No	Discharge from steel and pulp mills; Erosion of natural deposits
Nickel	ppb [16]	100	100	2.2	2.2	2.2	No	4.0	2.0	6.6	No	Discharge from steel mills, metal refineries and electronic industries
Fluoride	ppm [17]	4	2/4[6]	0.9	0.2	1.6	No	1.0	0.5	1.8	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	ppm [17]	10	10	2.1	1.3	3.4	No	1.9	0.6	3.5	No	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Nitrite	ppm [17]	1	1	0.005	0.002	0.025	No	0.003	0.002	0.004	No	Runoff from fertilizer use; Leaching from septic tanks; Sewage; Erosion of natural deposits
Disinfectants												
Chlorine	ppm [17]		At least 0.3 residual entering Distribution System	2.0	1.1	4.7	No	2.0	0.7	4.5	No	Water additive used to control microbes
Disinfection Byproduct Precursors												
Total Organic Carbon	ppm [17]			1.3	0.8	2.9		1.2	0.8	1.7		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)			46	25	78		49	28	62		
Total Organic Carbon	Compliance Ratio		Ratio must be greater than or equal to 1	1.2[7]				1.2[7]			No	
Radionuclides												
Gross Alpha Particle Activity	pCi/L		15	0.51			No	0.17			No	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation

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

Contaminant	Units	MCLG[2]	MCL[3] or TT[4] [5]	Average	Lowest Detected Level	Highest Detected Level	Violation	Source
Microbiological Indicators								
Total Coliform	% of samples positive each month	0%	5%	0.3	0	1.6	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 2005 sampling)								
Lead	ppb [16]	0	90% of tap water samples must be less than the **Action Level of 15**.	8.5[9]	0.5	45	No	Corrosion of household plumbing systems.
Copper	ppm [17]	1.3	90% of tap water samples must be less than the **Action Level of 1.3**.	0.24[9]	0.015	0.59	No	Corrosion of household plumbing systems.
Disinfectants								
Chlorine	ppm [17]	MRDLG = 4.0[11]	MRDL = 4.0[10]	0.91	0.85[12]	1.00[12]	No	Water additive used to control microbes.
Disinfection Byproducts								
Total Trihalomethanes	ppb [16]	Not Applicable[9]	80: Based on Running Annual Average of Quarterly Samples	34[8]	14	77	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.
Bromodichloromethane	ppb [16]	0	None	9	5	16	No	
Bromoform	ppb [16]	0	None	0.6	0.6	0.6	No	
Dibromochloromethane	ppb [16]	60	None	3	1	5	No	
Haloacetic Acids	ppb [16]	Not Applicable[9]	60: Based on Running Annual Average of Quarterly Samples	20[8]	7	52	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.
Dichloroacetic Acid	ppb [16]	0	None	10	4	24	No	
Trichloroacetic Acid	ppb [16]	300	None	9	3	27	No	

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 health.

[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 not to 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 2006.

[8] ..... Cited average is highest running annual average calculated from quarterly samples in 2006.

[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 highest average of 123 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.

[15]..... EPA does not currently have a MCL, MCLG or SMCL for sodium; however, EPA suggests a level of 20 mg/L for the high.

[16]..... ppb - parts per billion.

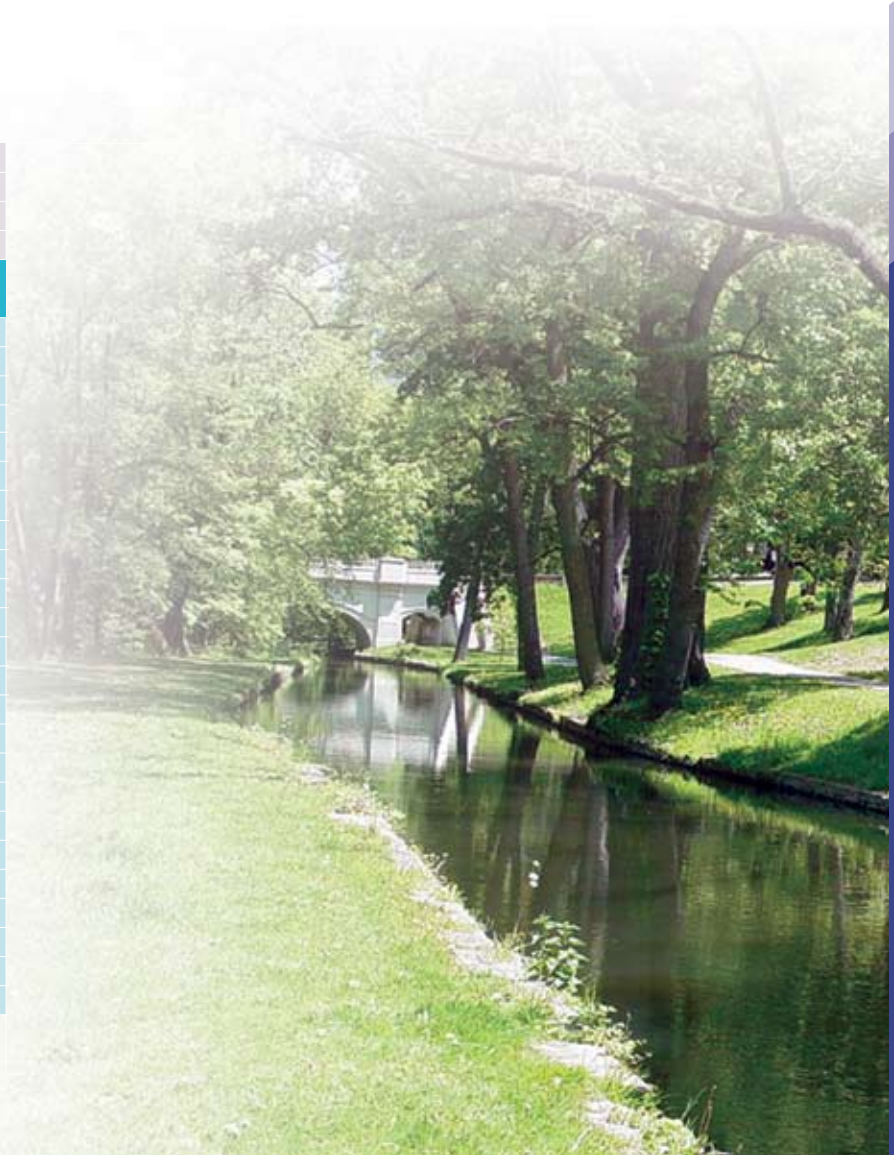
[17]..... ppm - parts per million.

Table 3: Secondary[13] Parameters and Other Parameters of Interest at Entry Points to Distribution System

			Brandywine Filter Plant			Porter Filter Plant			
Contaminant	Units	SMCL[14]	Average	Lowest Detected Level	Highest Detected Level	Average	Lowest Detected Level	Highest Detected Level	Source
Conventional Physical and Chemical Parameters									
pH	pH units	6.5 - 8.5	7.2	6.5	7.8	7.2	6.9	7.8	Waters with pH = 7.0 are neutral
Alkalinity	ppm [17] as $CaCO_3$	None	48	29	68	43	30	56	Measure of buffering capacity of water or ability to neutralize an acid
Hardness	ppm [17] as $CaCO_3$	None	110	53	130	110	57	130	Naturally occurring; Measures Calcium and Magnesium
Conductivity	µmhos/cm	None	340	260	400	340	190	390	General measure of mineral content
Total Dissolved Solids (TDS)	ppm [17]	500	184	184		164	164		Metals and salts naturally occurring in the soil; Organic matter
Sodium	ppm [17]	None [15]	17	17		16	16		Naturally occurring; Road salt application and run off; Detergent dischargers
Chloride	ppm [17]	None	55	47	106	56	29	74	Naturally occurring; Chemical additive to treat the water; Road salt application and run-off
Metals									
Iron	ppb [16]	300	17	3	180	15	3	81	Naturally occurring; Chemical additive to treat the water; Corrosion of pipes, can cause discoloration in water
Manganese	ppb [16]	50				14			Naturally occurring; Can cause discoloration and objectionable taste in water
Zinc	ppb [16]	5000	188	31	640	365	110	1160	Naturally occurring; Chemical additive to treat the water

Table 4: Other Primary Contaminants Tested, But Not Detected in 2006

Metals (Inorganic Chemicals)	Cadmium
Antimony	Mercury
Arsenic	Selenium
Beryllium	Thallium
Synthetic Organic Chemicals (including Pesticides and Herbicides)	
Alachlor (LASSO)	Epichlorohydrin
Atrazine	Ethylbenzne
Benzene	Ethylene Dibromide
Benzo (A) Pyrene (PAHs)	Glyphosate
Carbonfuran	Heptachlor
Carbon Tetrachloride	Heptachlor Epoxide
Chlordane	Hexachlorobenzene
Chlorobenzene	Hexachlorocyclopentadiene
2,4-D	Lindane
Dalapon	Methoxychlor
1,2-Dibromo-3-Chloropropane	Oxamyl
o-Dichlorobenzene	Pentachlorophenol
p-Dichlorobenzene	Picloram
1,2-Dichloroethane	Simazine
1,1-Dichloroethene	Tetrachlorethene
cis-1,2-Dichloroethene	Toluene
trans-1,2-Dichloroethene	Toxaphene
Di(2-ethylhexyl) adipate	2,4,5-TP (Silvex)
Di(2-ethylhexyl) phthalate	1,2,4-Trichlorobenzene
Dinoseb	1,1,1-Trichloroethane
Dioxin	1,1,2-Trichloroethane
Diquat	Trichloroethene
Endothall	Vinyl Chloride
Endrin	Xylenes (total)



Frequently Asked Questions FAQs

1) My water is rusty – is it safe to drink? What if it stains my laundry?

Although unsightly, iron is not regulated by the State or EPA as a health hazard. It occurs naturally as water passes through corroding pipes that lead to your tap. If you notice a few stains on your laundry, keep the clothes wet. Do not put them in your dryer. Call the City's Water Quality Laboratory (see numbers in blue box below), and a technician will supply a special rust-removing chemical. Before doing your next load, run a laundry cycle and make sure any rust in the pipes has cleared.

2) There is a pinkish substance on my bathroom fixtures – is that from the water?

Pink residue is less likely a problem associated with water quality than with naturally occurring airborne bacteria that appears on surfaces that are moist, such as toilet bowls, showerheads, sink drains and tiles. The best solution to keep these surfaces free from this bacterial film is continual cleaning with a solution that contains chlorine. Chlorine bleach also can be periodically stirred into the toilet bowl. It also helps to keep bath surfaces wiped down and dry.

3) My water smells or tastes funny. Will it make me sick?

It will not make you sick. The majority of complaints about smell are associated with chlorine. Sodium hypochlorite, or chlorine bleach, is used as a disinfectant to keep water safe to drink.

Water tastes better cold. Try flushing water from your cold kitchen faucet until you notice a temperature difference – this ensures that you are receiving fresh water and not water that has sat in your household plumbing. Fill a jug or container and put the water in your refrigerator. Letting the water sit in a container will eliminate most or all of the chlorine taste and odor.

We try to prevent seasonal odors in tap water by adding activated carbon to the water at our treatment plants. The carbon absorbs most of the musty smelling non-toxic chemicals given off by algae, bacteria and tiny fungi that sometimes grow in our source water, the Brandywine Creek.

4) Should I filter my tap water?

Water is treated at one of two treatment plants and exceeds all requirements of the Safe Drinking Water Act. That said, there are old iron water mains in the City that we are working to replace, so you may experience intermittent problems with rust. If you are experiencing rust, a 5-micron cartridge-type filter available at local hardware stores for a few hundred dollars will easily remove the rust. Reverse osmosis, water softening systems, etc., cost thousands of dollars and will not necessarily provide any additional health benefit. If you do find the need to use a water filter of any type, please remember that these filters will clog and need to be replaced per manufacturer recommendations.

5) Why does my water have white particles in it?

Lime (a white powdery substance made of mostly calcium) is used to adjust pH on the water – this limits its corrosion potential when traveling through metal pipes. Draining your hot water heater can help eliminate lime accumulations.

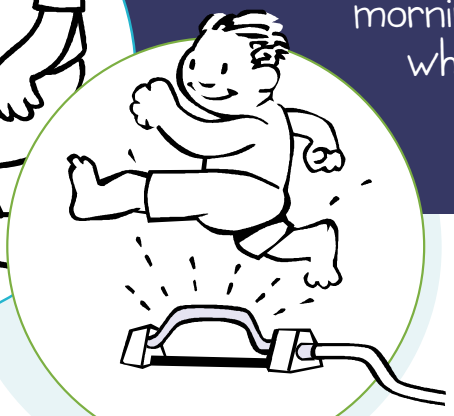
Should you have any additional questions or concerns about your drinking water, feel free to call the City Call Center, (302) 576-3877, the Water Quality Laboratory at (302) 571-4158 (the main lab number) or (302) 573-5522 (lab supervisor's number). The laboratory is open 8 A.M. to 5 P.M. Monday through Friday.

Water Conservation for Kids

At school and at home you can help save water by:

Turning off the water while you brush your teeth. By doing so we can save up to 10 gallons of water a day!

Using less water by taking shorter showers.

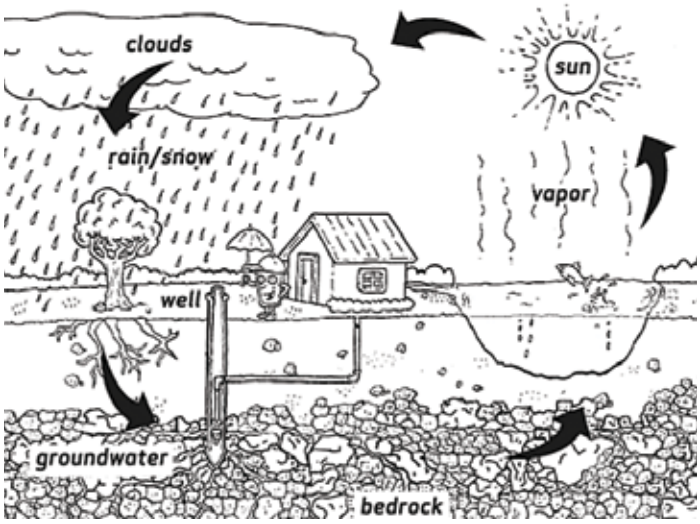


Have your parents water their lawn and plants in the early morning or evening when it is cooler. More water soaks into the ground during cooler parts of the day.

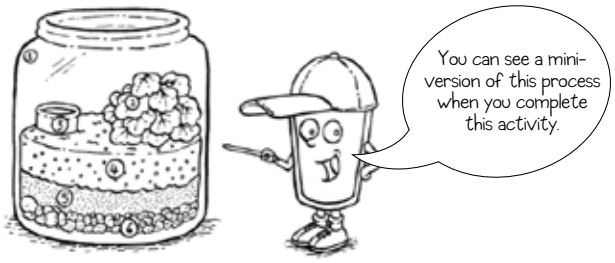
Fill a container with water and put it in the fridge, rather than running the water to cool it off for drinking.

Thirstin's Water Cycle Activity

The Water Cycle is a circular process that repeats over and over:



When it rains, water fills up the lakes, rivers, streams and oceans on the surface of the Earth. The Earth soaks up some of the water and stores it in the ground until needed. When the sun comes out, it heats up the stored water, turning it to vapor clouds. The vapor rises up into the clouds and it begins to rain, sleet or snow...



You Will Need:	Directions:
1. Jar with lid	1. Fill jar as in picture and put the lid on.
2. Plant	2. Put the jar in a sunny place.
3. Bottle cap or shell filled with water	3. See how the water cycle works!
4. Soil	
5. Sand	
6. Small rocks	

Copy and graphics were adapted from EPA educational material.
To view more learning tips, go to www.epa.gov site and click on For Kids.

Department of Public Works
Louis L. Redding City/County Bldg.
800 French Street
Wilmington, DE 19801-3537