Hey Kids!

Thirstin is waiting for you on pages 11 and 12.

City of Wilmington

Water Works

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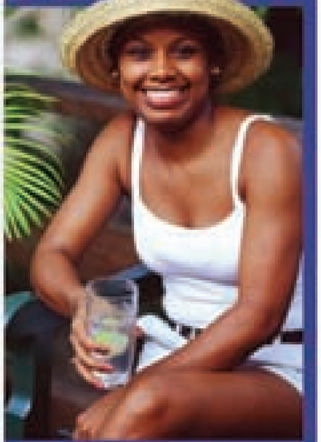
Wilmington's Edgar Hoopes Reservoir



Vision became reality in 1932

Hoopes Reservoir is a primary source of stored fresh water for the City of Wilmington and is the largest major water storage facility in New Castle County. Construction of this over 2 billion gallon raw water storage reservoir north of Wilmington near Routes 82 and 52 began in 1925. The approximately $3 million project was dedicated in June, 1932, and named for Colonel Edgar M. Hoopes, Jr., a former Chief Engineer of the City's Water Department and a board member of the Wilmington Water Commission, sponsors of the project.

Since 1932, the Edgar Hoopes Reservoir has served as reserve storage of fresh water primarily for the City, and also for other utilities in the state.

The history of the undertaking is filled with amazing engineering and construction feats in light of the times. The City had to clear the 1-3/4 mile reservoir site, construct the 400-foot long dam, design and build a new pumping station and an underground force main tunnel to move the water between the Brandywine, the Porter Filter Plant and the new reservoir.

Valley was a natural basin

The area formerly known as the Old Mill Stream Valley became the natural basin for the reservoir. The entire valley was about 8,000 feet long, 900 feet wide, and 135 feet deep and was protected by high hills unbroken except at the narrowest point where the manmade concrete dam was installed. Though no digging was required, 70,000 cubic yards of materials had to be excavated from the 230-acre basin. 480 acres of land were purchased.

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Building the dam

Approximately 105,000 cubic yards of concrete were poured during construction of the dam. Cement was received in bulk and pumped to a mixer 1,000 feet distant, across the Red Clay Creek, and under a highway to the mixer. A series of belt conveyors carried the mixed concrete from the mixer, up the hillside and across the dam to its final destination.

The base of the dam is about 90 feet thick, graduating to 16 feet at the top, with a 19-foot wide walkway on the top. To lessen seepage under the dam, the rock seams of the cut-off trench were grouted, and core walls eight feet thick were extended into the hillsides some 100 feet at the end of the dam. Twelve window-like openings, part of the force main that fills the dam with water, control the passage of water in and out of the dam at various elevations.

During construction, circa late 1920s. The Old Mill Stream Valley offered a natural basin, with high walls on three sides. Conveyor belts carried concrete to the dam.

The force main, or long underground pipe that carries the water into the city, was another sizable part of the project. Specially constructed water mains, having a diameter of 42 inches, were laid from Eighteenth and Baynard Boulevard to the reservoir. After completion of the dam, a pumping station with three gasoline-engine-driven centrifugal pumps, each with a daily pumping capacity of 4 million gallons and capable of returning water to existing filter plants, was constructed at the base.

Filling the reservoir

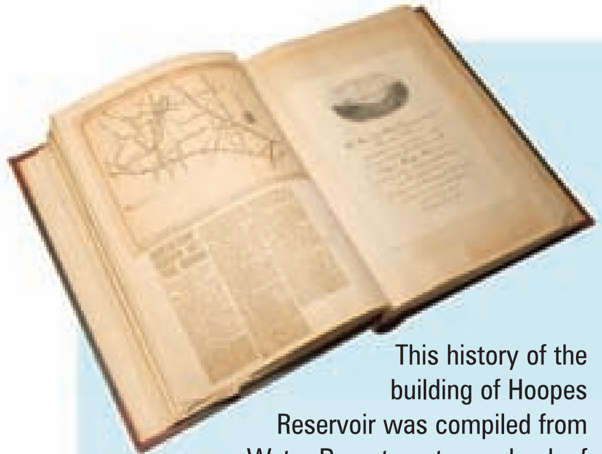
Filling the Edgar Hoopes Reservoir began with a "cushion" of approximately 40,000,000 gallons from the valley's Old Mill Stream. Water department engineers diverted the stream from its normal flow through the valley and into the Red Clay Creek, backing the stream up into the new reservoir. It took about a month for the water to form the 20-foot-deep miniature lake water cushion. Then an additional 700,000,000 gallons was pumped into the reservoir from the Brandywine. The cushion was necessary to prevent erosion of the banks of the reservoir as the water was pumped in. The water from the Brandywine was pumped at a rate of six to eight million gallons a day until the final depth of water of 100 feet was reached, creating a lake one and three-quarter miles in length with an average width of 900 feet.

A view from the west side of the dam, before the reservoir was filled.

Hoopes Reservoir's role today

The Edgar Hoopes Reservoir has served the City of Wilmington for 74 years as a back-up supply of quality fresh water. It is a critical component of the City's Source Water Protection Program, providing high quality source water at Porter Filter Plant when rains make the Brandywine overly turbid and muddy.

For years, it was assumed that water near the bottom of Hoopes Reservoir was of poor quality and not suitable for general use, but sampling and testing by the Delaware Geological Survey (DGS) proved that water was suitable to within 2 feet of the bottom, adding 500 million reserve gallons to Hoopes' available water supply. As a result, in the City of Wilmington's "Operating Plan for Hoopes Reservoir," the City agreed to release up to 500 mg (3 to 5 million gallons per day) as requested by other utilities as long as the reservoir level was no more than 10 feet below its full capacity.



This history of the building of Hoopes Reservoir was compiled from a Water Department scrapbook of articles published in local newspapers from June 1931 to June 1932. Delaware newspapers included the *Evening Journal*, the *Every Evening*, the *Morning News*, and the *Sunday Star*. Clippings from the *Philadelphia Inquirer* and *West Chester Local Daily News* are also in the album.

Hoopes today, showing the filled reservoir and the 19-foot wide walkway atop the dam.

A pumping station with 3 gasoline-engine-driven centrifugal pumps was constructed at the base of the dam.

View of the dam's spillway. In 1932 dollars, cost of the reservoir was approximately $3 million. Imagine what it would cost today!

The 400-foot dam rests on solid rock 115 feet deep and ranges in thickness from 90 feet wide at the base to 16 feet wide at the top.

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, is the lead agency. The public participates through a Citizen and Technical Advisory Committee and by becoming informed about and staying 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.

City of Wilmington drinking water is treated continuously and exceeds all drinking water regulatory requirements. However, contamination of the source can lead to higher treatment costs and protecting source water is an important step in Wilmington's multiple barrier approach to protecting our drinking water supply.

In 2005, Wilmington's portion of the assessment included review of approximately 319 square miles of the watershed, located upstream of Wilmington's two intakes on the Brandywine Creek and within 2 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 and 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. However, wooded 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/phase2/finalassessments2.html). More information is also available from Delaware Department of Natural Resources and Environmental Control at 302-739-4793.

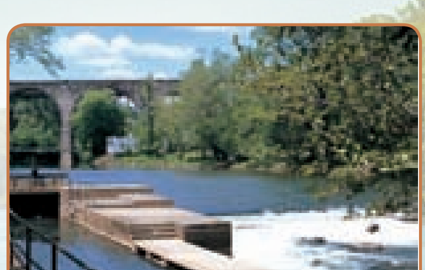
Wilmington takes a multiple barrier approach to protecting our drinking water

The next step after the Source Water Assessment report is Source Water 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 Source Water Protection program now and considers partnership with its consumers integral to its success.

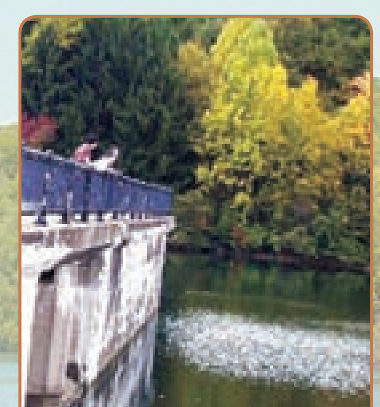
There are many benefits of source water protection. Pollution prevention is almost always cheaper than treating or replacing an existing drinking water supply. The costs of not protecting source water can include remediation or expensive treatment. If the source becomes too contaminated, replacement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

Source Water Protection Benefits

- Source water protection reduces risks to public health from contaminants.
- Source water protection can result in reduced costs for compliance monitoring.
- Source water protection helps maintain or regain consumer confidence and reduces complaints.
- Source water protection promotes pro-active approaches and invites consumers to get involved in the process.

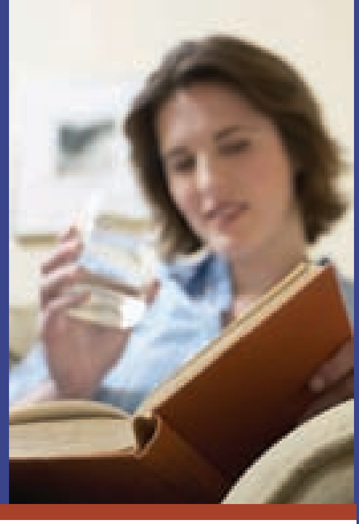


The Race at Brandywine Creek



Aerial View of Hoopes Reservoir

The City of Wilmington 2005 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 of our drinking water.

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 for public health.

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.

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 freshwater supply treatment plants, and distribution system and 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.

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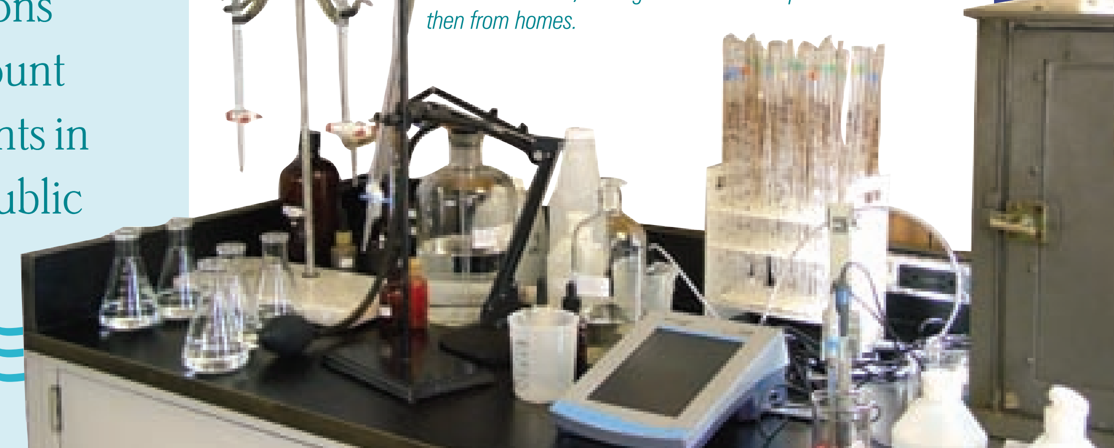
Trained personnel at the City's water quality laboratory closely monitor our water for more than 100 contaminants. Testing is performed at numerous intervals in the treatment process, from untreated water, through the treatment process and then from homes.



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.

However, 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. Cryptosporidium was detected at a level of 8 per 100L in one of these four raw water samples taken in 2005. 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 trends on the source water (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 be the 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, some 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 if you have questions about this report, call Colleen Arnold, Water Quality Manager at **(302) 573-5522**. Weekends or after 5 pm - **(302) 571-4150**.

Water Quality Statistics

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	99.8	97.2	100	No	Soil runoff
Turbidity - Values	NTU		No sample must ever exceed 1.0	0.04	0.02	0.16	No	0.03	0.01	0.72	No	Soil runoff
Inorganic Chemicals (Metals and Nutrients)												
Arsenic	ppb[16]	none	50	0.5	0.5	0.5	No	0.6	0.6	0.6	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	ppm[17]	2	2	0.027	0.027	0.027	No	0.032	0.032	0.032	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	ppb[16]	100	100	1.8	1.8	1.8	No	1.7	1.7	1.7	No	Discharge from steel and pulp mills; Erosion of national deposits
Fluoride	ppm[17]	4	2/4[6]	0.9	0.2	1.6	No	1.0	0.1	1.5	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	ppm[17]	10	10	2.5	1.3	3.5	No	2.4	1.3	3.4	No	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Nitrite	ppm[17]	1	1	0.004	0.002	0.015	No	0.004	0.002	0.013	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	1.9	0.7	5	No	1.8	0.7	4.8	No	Water additive used to control microbes
Disinfection Byproduct Precursors												
Total Organic Carbon	ppm[17]			1.2	0.7	2.5		1.1	0.8	2.0		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%. Ratio of actual removal to required removal–must be greater than or equal to 1.	45	35	57		49	37	61		
Total Organic Carbon	Compliance Ratio			1.2[7]				1.2[7]				
Radionuclides												
Gross Beta Particle Activity	pCi/L		50[13]				No	4.8	4.8	4.8	No	Decay of natural and man-made depostis of certain minerals that are radioactive

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/month	0%	5%	0.8	0	3.7	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	TT: 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	TT: 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]	0.76	0.67[12]	0.85[12]		Water additive used to control microbes.
Disinfection Byproducts								
Total Trihalomethanes	ppb[16]	Not Applicable[9]	80: Based on Running Annual Average of Quarterly Samples	31[8]	12	75	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.
Haloacetic Acids	ppb[16]	Not Applicable[9]	60: Based on Running Annual Average of Quarterly Samples	17[8]	9	68	No	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.

Key to Charts

[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 comtaminant 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 specifed 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 2005.

[8] .... Cited average is highest running annual average calculated from quarterly samples in 2005.

[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 120 routine samples per month.

[13] ...... The MCL for both particles is 4mrem/year. EPA considers 50 pCi/L to be the level of concern.

[14]....... 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.

[15]....... SMCL: Secondary Maximum Contaminant Level is the level of a physical, chemcial 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.

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

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

Table 3: Secondary[14] Parameters and Other Parameters of Interest at Entry Points to Distribution System

			Brandywine Filter Plant			Porter Filter Plant			
Contaminant	Units	SMCL[15]	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	6.7	7.6	7.1	6.5	8.1	Measure of acidity or alkalinity; Waters with pH = 7.0 are neutral
Alkalinity	mg/L	None	47	33	62	43	30	58	Measure of buffering capacity of water or ability to neutralize an acid
Hardness	mg/L	None	113	70	142	110	60	140	Naturally occurring; Measures Calcium and Magnesium
Conductivity	µmhos/cm	None	360	210	510	350	250	490	General measure of mineral content
Total Dissolved Solids (TDS)	ppm[17]	500	184	184		170	170		Metals and salts naturally occurring in the soil; organic matter
Sodium	mg/L	None	16	16		16	16		Naturally occurring
Chloride	mg/L	250	59	43	112	59	42	104	Naturally occurring; Chemical Additive to treat the water
Metals									
Iron	ppb[16]	300	19	3	58	15	5	50	Naturally occurring; Chemical Additive to treat the water
Manganese	ppb[16]	50	10	2	250	10	4	20	Naturally occurring
Zinc	ppb[16]	5000	250	16	730	390	38	660	Naturally occurring; Chemical Additive to treat the water

Table 4: Other Primary Contaminants Tested, But Not Detected in 2005

Metals (Inorganic Chemicals)	Benzo (K) Fluoranthene	Metolachlor
Antimony	BHC-Gamma	Metribuzin (Sencor)
Arsenic	Bis (2-Ethlyhexyl) Phthal	Naphthalene
Beryllium	Bis Ether	Ordram
Cadmium	Butachlor	Oxamyl
Mercury	ButylBenzyl Phthalate	Pentachlorophenol
Selenium	Carbaryl	Phenanthrene
Thallium	Carbofuran	Picloram
Radionuclides	Chrysene	Propachlor
Gross Alpha Activity	Dalapon	Propoxur
Gross Beta Activity	DDE	Pyrene
Synthetic Organic Chemicals (including Pesticides and Herbicides)	Di Adipate	Simazine
	Di Phthalate	Terbacil
1,2,3-Trichloropropane	Dibenzo Anthracene	**Volatile Organic Chemicals**
2,4,5-TP	Dibenzofuran	Benzene
2,4,5-Trichlorophenol	Dibromochloropropane	Carbon Tetrachloride
2,4-D	Dicamba	1,2-Dichlorobenzene
2,4-Dinitrotoluene	Dieldrin	1,4-Dichlorobenzene
2,6-Dinitrotoluene	Diethyl Phthalate	1,2 Dichloroethane
2-Methyl Naphthalene	Dimethyl Phthalate	1,1 Dichloroethylene
3-Hydroxycarbofuran	Di-N-Butyl Phthalate	cis-1,2-dichloroethylene
Acenaphthene	Di-N-Octyl Phthalate	trans-1,2-dichloroethylene
Acenaphthylene	Dinoseb	Dichloromethane
Acifluorfen	Endrin	1,2 Dichloropropane
Actechlor	Eptam	Ethylbenzene
Alachlor (LASSO)	Ethylene Dibromide	Methyl tert Butyl Ether
Aldicarb	Fluoranthene	Momochlorobenzene
Aldicarb Sulfone	Fluorene	Styrene
Aldicarb Sulfoxide	Heptachlor	Tetrachlorethylene
Aldrin	Heptachlor Epoxide	Toluene
Anthracene	Hexachlorobenzene	1,2,4-Trichlorobenzene
Atrazine	Hexachlorocyclopentadiene	1,1,1-Trichloroethane
Benzo (A) Antracene	Ideno (1,2,3-CD) Pyrene	1,1,2-Trichloroethane
Benzo (A) Pyrene	Methiocarb	Trichloroethylene
Benzo (B) Fluoranthene	Methomyl	Vinyl Chloride
Benzo (G,H,I) Perylene	Methoxychlor	Xylenes

Frequently Asked Questions FAQs

1) My water is rusty – is it safe to drink?

Yes. Wilmington has many unlined cast iron mains that naturally corrode over time, depositing rust in the pipes that carry water to your tap. Although unsightly, iron is not regulated by the State or EPA as a health hazard.

2) My laundry is stained due to rusty water – what can I do?

Keep the clothes wet. Do not put them in your dryer. Call the laboratory at the number below and a technician will provide you with ROVER, a special chemical for removing rust. Also, before doing your next load of laundry, run a water cycle and make sure any rust in the pipes has cleared.

3) I received your flyer about flushing the water mains, but I am experiencing low or no water pressure – is this a problem?

The flyer should have noted that low water pressure is common. Pressure will return as soon as flushing is completed for the day.

If you did use water during our hydrant flushing and brought some rusty water into your household plumbing, use all the cold faucet taps throughout your house, starting in the basement and working your way up. (If you start at the top of the house, i.e. an upstairs bathroom, you may draw rusty water throughout the house, when it was originally only in the basement pipes.)

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

It will not make you sick. The majority of smell complaint samples the lab tests 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.

5) Should I filter my tap water ? Brita/ refrigerator filter/faucet filter, etc…

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 on replacing, 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, at most, a couple of 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.

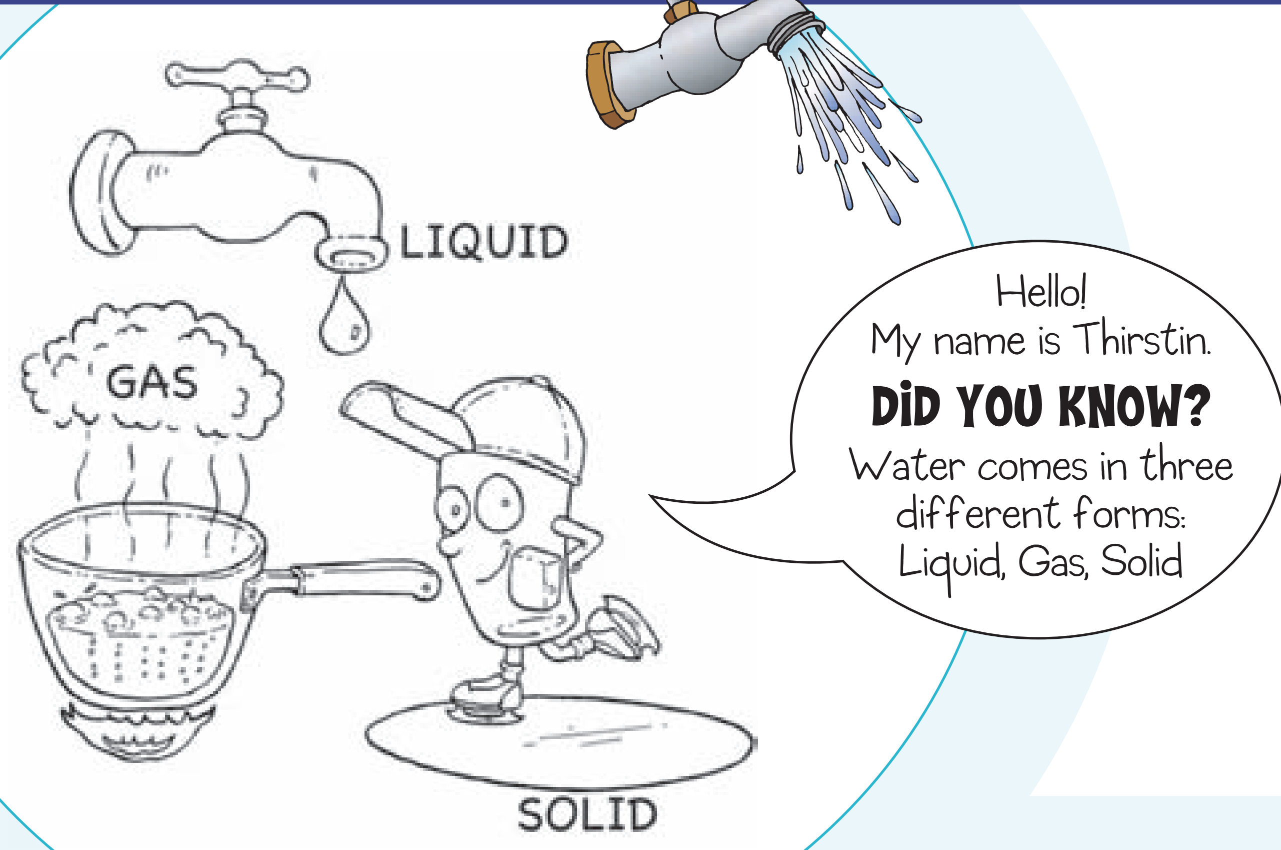
6) Why does my water have white particles in it?

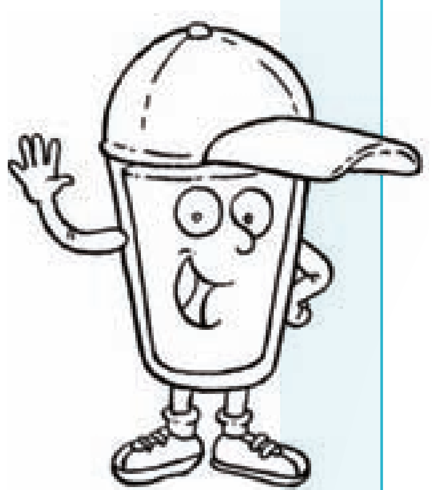
Lime (a white powdery substance made of mostly calcium) is used to adjust pH on the water – this limits its corrosion potential when traveling through metal pipes. Draining your hot water heater can help eliminate lime accumulations.

Should you have any additional questions or concerns about your drinking water, feel free to call The City Water Quality Laboratory at 571-4158 (the main lab number) or 573-5522 (lab supervisor's number). The laboratory is located at the Porter Filter Plant at 1401 Concord Pike and is open 8 am to 5 pm Monday through Friday.

Jr. WaterWorks PAGES

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.





Circle the correct answer to these questions about water's 3 forms… Liquid, Solid, & Gas

1. ***If you want to change water (a liquid) to ice (a solid), you need to***
   A. Heat it B. Defrost it C. Freeze it
2. ***When water boils it becomes a gas and the liquid in the pan***
   A. Reduces B. Increases C. Stays the same
3. ***Water freezes at what temperature?***
   A. 98.6º Fahrenheit B. 100º Fahrenheit C. 32º Fahrenheit
4. ***The steam that rises from the hot water you use to take a shower is an example of a***
   A. Liquid B. Gas C. Solid
5. ***If an ice skater falls through the ice, it is usually because the ice***
   A. Is not completely liquid B. Is not completely solid C. Is too cold

Answers: 1:C 2:A 3:C 4:B 5:B

COLOR US "GOOD KIDS" FOR NOT WASTING WATER

It is important to conserve as much water as we can. You can help by:

turning off the water when you're not using it, and...

telling an adult when you see a leak.

James M. Baker, Mayor

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

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