City of Wilmington
Water Works
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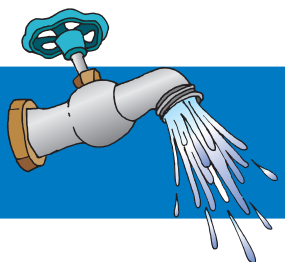
2004 WATER QUALITY REPORT

This issue of Water Works reports results of 2004 testing of the City of Wilmington's municipal drinking water system – the water that goes to your tap. You can read all about those tests beginning on page 4.

Our lead article is on bottled water. We thought you might be interested in knowing more about how that water is tested as well.

In This Issue...



Hey, Kids!... Have some fun with Thirstin the water glass on Jr. Water Works pages 10 and 11.

Bottled Water - Pros & Cons

Some people carry it around like a status symbol. It's with them as they exercise. It sits on their desk, or in the cup-holder in their car. Bottled water has become so popular it's available not only at grocery and convenience stores, but also at restaurants and even at fast food drive-through lanes.

Is bottled water better? Or is it just a well-hyped and expensive alternative to the water that comes out of our tap?

Finding that answer isn't as easy as it might seem, especially since there are several hundred brands of bottled water and tens of thousands of community tap water systems.

Bottled or Tap?

Why do many people choose bottled water?

Many people choose bottled water because it's very convenient. It's easy to take a bottle with you as you walk, jog or ride a bike. Plastic water bottles have even replaced the coffee mug in many boardrooms and on desks nationwide. Some people just prefer the taste. Others are trying to escape what they call "hard" water, which is actually a term used in measuring how well soap lathers in the water. It has very little to do with taste. Refrigerating tap water can usually solve most taste issues.

Those who don't drink bottled water may feel out of sync with other people who are making healthier choices. After all, we've all read recommendations about drinking at least 8 glasses of water a day. Nowhere does it say that that water has to be, or even should be, bottled, but the assumption has grown that bottled water is healthier than tap water. How do we know?

(continued on page 2)

Consumers perceive bottled water to be healthier, even though less testing is done to assure its quality.

continue from page 1

Madison Avenue told us so. TV, magazine and web advertising has created bottled water's healthier perception with images of fresh, cool mountain springs and attractive people drinking bottled water as they exercise to stay young and fit. The fact that much less testing is required of bottled water than for tap water is never mentioned.

> "People spend from 240 to over 10,000 times more per gallon for bottled water than for tap water"

Do we buy it anyway? Apparently, yes. According to AC Nielsen, last year U.S. consumers spent about $9 billion on bottled water. Sales of bottled water have tripled in the past 10 years, fueled by very successful marketing campaigns to convince the public of bottled water's purity and safety. People seem to be so convinced that they spend from 240 to over 10,000 times more per gallon for bottled water than they typically do for tap water. Cost for City of Wilmington tap water is about $0.003 (less than 1 cent) per gallon.

Check the Label

If you thought all the water in those attractively designed and labeled bottles was from "Natural Mountain Springs," check the label. You will find everything from "Natural Spring Water, to Purified Water Enhanced With Minerals, Purified Water, Carbonated Water, or Natural Artesian Water." The perception that bottled water is generally more pure is not necessarily the case. In fact, according to government and industry estimates, about one-fourth of bottled water is actually bottled tap water.

In their 1999 report called "Bottled Water: Pure Drink or Pure Hype?" the Natural Resources Defense Council, a nonprofit environmental group, reported that their four year scientific study of over 1,000 bottles of 103 brands found that while most of the tested waters were of high quality, some brands were contaminated.

Bottled waters are subject to less rigorous testing and purity standards than city tap water. For example, bottled water is required to be tested less frequently than city tap water for bacteria and chemical contaminants. In addition, bottled water rules allow for some contamination by E. coli or fecal coliform… contrary to tap water rules, which prohibit any confirmed contamination with these bacteria. Similarly, there are no requirements for bottled water to be disinfected or tested for parasites such as cryptosporidium or giardia, unlike the rules for big city municipal water systems like Wilmington's that use surface water sources.

According to government and industry estimates, about one-fourth of bottled water is actually bottled tap water (some estimates go as high as 40%.)

*NRDC Study: Key Differences Between EPA Tap Water and FDA Bottled Water

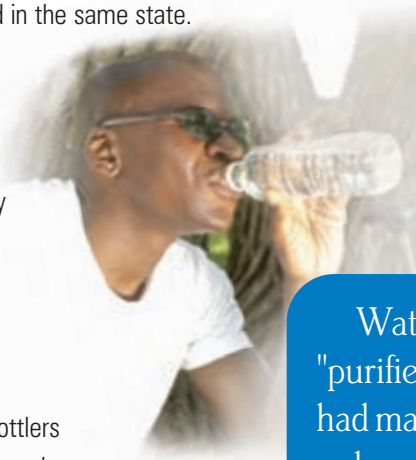
Water Type	Test Preformed:	Disinfection Required?	Testing Frequency for Bacteria	E.Coli & Fecal Coliform Banned?	Test for Cryptosporidium Giardia, Viruses?
	Bottled	No	1/week	No	No
	Carbonated Or Seltzer	No	None	No	No
	Big City Tap Water (surface water)	Yes	Hundreds/ week	Yes	Yes

*Natural Resources Defense Council Study, 1999

EPA Standards vs. FDA Standards

One reason for this disparity in testing is that the Environmental Protection Agency (EPA) regulates municipal tap water, while the Food and Drug Administration is responsible for bottled water because it is considered a packaged food product. EPA's standards require more than 100 checks per month with a report to the public to be published each June. FDA's more relaxed standards call for self-regulation by water bottlers and testing once per year. 60-70% of all bottled water is exempt from the FDA's contamination limits because it is bottled and sold in the same state.

As for claims of "freshness," bottled water may surprise you there too. Water labeled "purified" may have had many synthetic chemicals added to it to improve taste, because completely purified water tastes pretty bad!



Does this mean that water bottlers are unconcerned about purity and safety in their products? Of course not. They are in business to keep their customers happy and buying. Generally speaking, both tap water and bottled water are very safe. And maybe that's why so many of these bottlers are using water from municipal water systems. It has been tested and meets EPA standards.

> Water labeled "purified" may have had many synthetic chemicals added to it to improve taste, because completely purified water tastes pretty bad!

Is the convenience worth the cost?

For some, it may be. For instance, in some areas of our state not served by a municipal water system, leaky underground septic systems may threaten to contaminate wells, making bottled water or boiling of the suspected water a good choice. It's also a good idea to keep bottled water on hand in case of an emergency situation.

The American Water Works Association points out that "if you have a severely compromised immune system, you may have different vulnerabilities than the general public. Consult your physician before choosing tap or bottled water."

So what is the consumer to do?

Stay informed. Tap water and bottled water both have their positive and negative points. If you're grabbing a bottle of water to take to the health club and drink while you're using the treadmill, the convenience may be worth the $1 or more you paid. But if you'd like a glass of water with dinner, it may do just fine to keep a pitcher of tap water chilled in your refrigerator. Drink it with the knowledge that your water is well-tested, pure water costing you less than a penny a gallon.

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 our source can lead to higher treatment costs and protecting our source water is an important step in Wilmington's multiple barrier approach to protecting our drinking water supply.

In 2004, 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 Race at Brandywine Creek

Aerial View of Hoopes Reservoir

The City of Wilmington's source water on the Brandywine Creek was determined to have very high vulnerability to nutrients, petroleum hydrocarbons, and other organic contamination. Wilmington intakes received the highest susceptibility rating for pathogen and metal contamination. Point or discrete sources in the watershed were identified as the most likely contributors.

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 that 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 from contaminants to public health.
- 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 CITY OF WILMINGTON

2004 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 6,000 water samples were drawn from the City's freshwater supply treatment plants, and distribution system and our laboratory performed over 20,000 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.

Continue 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 in the treatment process, from untreated water, through the treatment process and then randomly from homes.

Protecting the Public from Disease

Microbiological testing of water helps protect the public from diseases such as polio, diptheria, typhoid, and cholera. Although Cryptosporidium, a microbial pathogen that can cause abdominal infection, is found in surface water throughout the US, it was not detected in the City of Wilmington water sampled in 2003 and has never been detected in our treated supply.

In 2004, the City's Water Division took about 6,000 water samples from the City's freshwater supply and performed over 20,000 water analyses on those samples. The result? Our drinking water meets or exceeds all state and federal water quality standards.

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)**.

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.

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 - Detected Primary Substances[1] (Health Related) Results

				Brandywine Filter Plant				Porter Filter Plant				
Contaminant	**Units**	**MCLG[2]**	**MCL[3] or TT[4][5]**	**# of Samples**	**Average**	**Range**		**# of Samples**	**Average**	**Range**		**Source**
						Lowest	**Highest**			**Lowest**	**Highest**	
Microbiological Indicators												
Total Coliform	% of samples positive/month	0%	5%	12 months/ 1452 samples	0.5%	0%	1.7%	12 months/ 1452 samples	0.5%	0%	1.7%	Bacteria that are naturally present in the environment. Used as an indicator of the presence of other potentially harmful bacteria.
E. coli	% of samples positive/month	0%	0%	12 months/ 1452 samples	0%	0%	0%	12 months/ 1452 samples	0%	0%	0%	Human and animal fecal waste.
Turbidity - Percentile	% of samples below 0.3	N/A	TT: 95% of monthly samples must be less than 0.3	12	100%	100%	100%	12	100%	100%	100%	Soil runoff
Turbidity - Values	NTU		TT: No sample must ever exceed 1.0	2053	0.05	0.03	0.21	2190	0.02	0.01	0.19	Soil runoff
Inorganic Chemicals												
Arsenic	ppb[14]	none	50	2	0.6	0.6	0.6	2	—	Non-Detect	Non-Detect	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium	ppm[13]	2	2	2	0.038	0.033	0.043	2	0.038	0.033	0.043	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium	ppb[14]	100	100	2	1.7	1.3	2.0	2	1.7	1.4	2.0	Discharge from steel and pulp mills; Erosion of natural deposits.
Fluoride	ppm[13]	4	1.8/4 [6]	219	.99	0.25	2.50	246	1.0	0.3	1.5	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	ppm[13]	10	10	14	2.3	1.3	3.8	12	1.8	1.0	2.8	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits.
Nitrite	ppm[13]	1	1	10	0.005	0.002	0.01	9	0.01	0.003	0.05	Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits.
Lead and Copper (based on 2002 sampling)												
Lead	ppb[14]	0	TT: 90% of tap water samples must be less than the Action Level of 15	50	7 [10]	Non-Detect	12	50	7 [10]	Non-Detect	12	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper	ppm[13]	1.3	TT: 90% of tap water samples must be less than the Action Level of 1.3	50	0.34 [10]	0.01	0.42	50	0.34 [10]	0.01	0.35	
Disinfectants												
Chlorine	ppm[13]	MRDLG = 4.0[7]	MRDL =4.0[8]	12 months/ 1455 samples	0.69	0.69	0.74	12 months/ 1455 samples	0.69	0.64	0.74	Water additive used to control microbes.
Chlorine	ppm[13]		TT: Min. Redisual entering Distribution System 0.3	2053		0		2190		0.4		Water additive used to control microbes.
Disinfection Byproduct Precursors												
Total Organic Carbon	ppm[13]			55	1.5	0.8	2.2	57	1.4	1.0	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)			12	50	23	72	12	51	33	63	
Total Organic Carbon	Compliance Ratio		TT: Ratio of Actual to Required Removal. Must be >or = to 1	12	1.3	1.0	1.6	12	1.4	1.0	1.8	
Disinfection Byproducts												
Total Trihalomethanes (TTHM)	ppb[14]	N/A	80: Based on Running Annual Average of Quarterly Samples	16	36 [9]	13	62	16	51 [9]	16	90	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.
Haloacetic Acids (HAA5)	ppb[14]	N/A	60: Based on Running Annual Average of Quarterly Samples	16	22 [9]	7	32	16	17 [9]	8	26	Byproduct of drinking water disinfection. Forms due to reaction of chlorine with total organic carbon.

Table 2: Water Quality - Detected Secondary[11] Parameters and Other Parameters of Interest

			Brandywine Filter Plant				Porter Filter Plant				
Contaminant	Units	SMCL[12]	# of Samples	Average	Range		# of Samples	Average	Range		Source
Conventional Physical and Chemical Parameters					Lowest	Highest			Lowest	Highest	
Iron	ppb[15]	300	69	20	20	50	73	20	10	60	Naturally occurring; Chemical additive to treat the water.
Manganese	ppb[15]	50	11	10	10	40	15	10	10	30	Naturally occurring.
pH	pH units	6.5-8.5	217	7.2	6.6	8.0	243	7.1	6.6	7.5	
Chloride Metals	mg/L	250	216	58	48	217	243	59	48	101	Naturally occurring; Chemical additaive to treat the water.
Total Dissolved Solids (TDS)	ppm[13]	500	1	—	164	164	1	—	158	158	Metals and salts naturally occurring in the soil; organic matter.
Zinc	ppb[14]	5000	31	360	30	1090	35	300	20	560	Naturally occurring; Chemical additive to treat the water.
Hardness	mg/L	None	55	117	72	138	55	112	49	138	Naturally occurring; Measures calcium and magnesium.
Sodium	mg/L	None	1	28	28	28	1	23	23	23	Naturally occurring.
Conductivity	µmhos/cm	None	216	330	190	500	242	320	190	460	

Table 3: Other Primary Contaminants Tested, But Not Detected in 2004

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-Dinitrotolune	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

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 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 1.8 mg/L. Federal MCL is 4.0 mg/L.

[7] .....MRDLG – Maximum Residual Disinfectant Level Goal means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety.

[8] .....MRDL – Maximum Residual Disinfectant Level is the highest level of a disinfectant allowed in drinking water. This is a level which is based on an average of all samples collected at customers' taps over a given month.

[9] .....Cited average is highest running annual average calculated from quarterly samples in 2004.

[10] .....Value given is not an average, but the 90th percentile action level.

[11] .....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.

[12] .....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.

[13] .....ppm – parts per million

[14] .....ppb – parts per billion

Highlighted and Bolded values indicate a violation occurred.

VIOLATIONS

Chlorine: On May 25, 2004, the Brandywine Filter Plant violated minimum chlorination requirements. Chlorine levels dropped below 0.3mg/L for five hours. The standard is that levels may not drop below 0.3 for more than 4 hours. Please note that inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

The violation occurred because a chlorine pump failed. An alarm system has been installed to better alert operators and prevent this situation from reoccurring.

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.

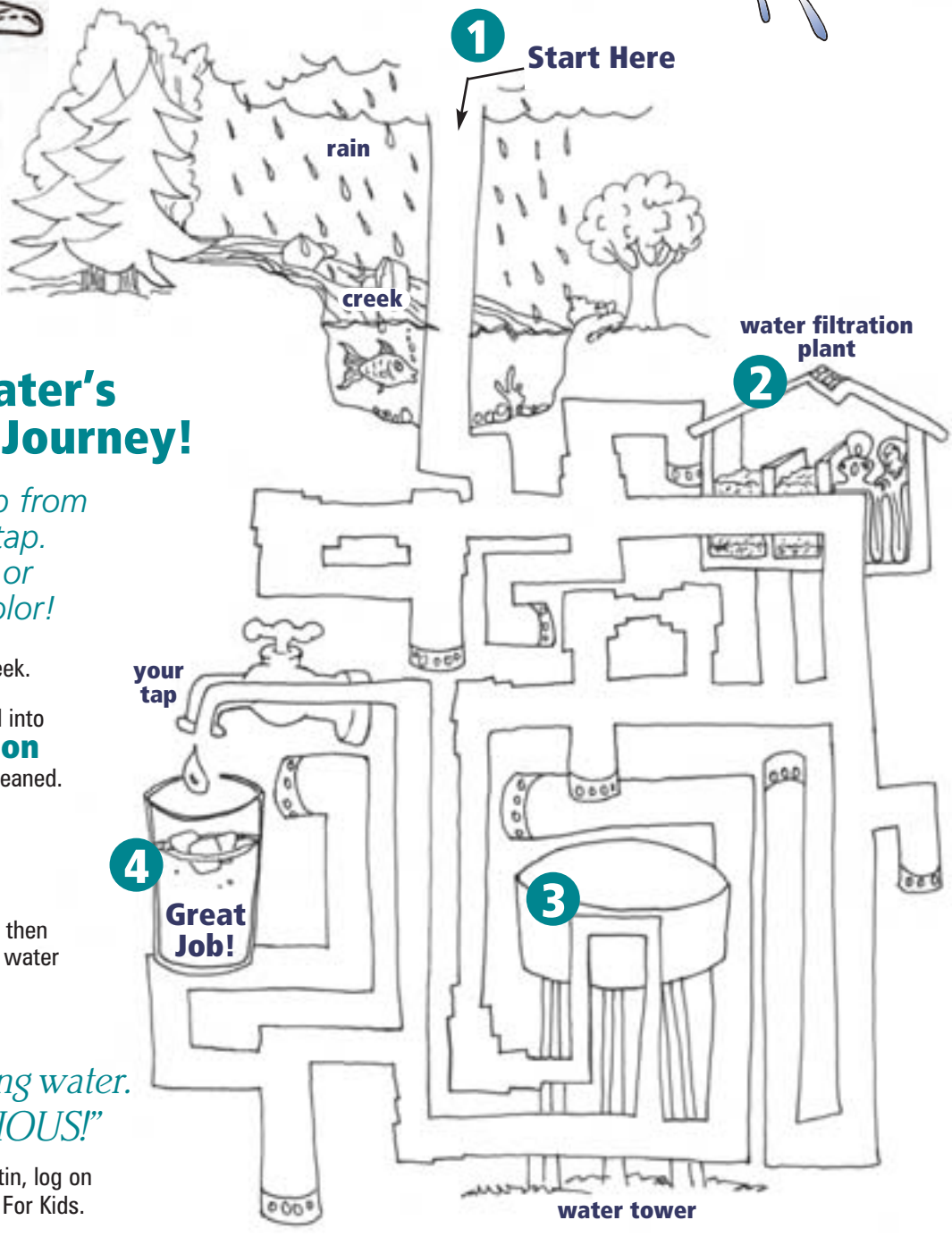
Jr. WaterWorks PAGES

Hello. My name is Thirstin. Join me for some fun games as we learn more about DRINKING WATER.

Drinking Water's A"maz"ing Journey!

Follow water's trip from the skies to your tap. Then use crayons or markers to add color!

1. **Rain** goes into a creek.
2. Creek water is pumped into a **water filtration plant,** where it is cleaned.
3. A **water tower** stores the clean water until needed.
4. Clean drinking water is then piped to **your tap** water supply in your home.



Pure, clean drinking water. Color it "DELICIOUS!"

For more fun with Thirstin, log on www.epa.gov. Click on For Kids.

Lots of Ways to Learn About Water...

Alphabet Scramble

Help Thirstin put these words back in order.

1. ___ ___ ___ ___ ___
2. ___ ___ ___ ___ ___
3. ___ ___ ___
4. ___ ___ ___ ___ ___
5. ___ ___ ___ ___ ___
6. ___ ___ ___ ___ ___

answers:
1. water 2. drink 3. ice 4. vapor 5. river 6. clean

Picture Match

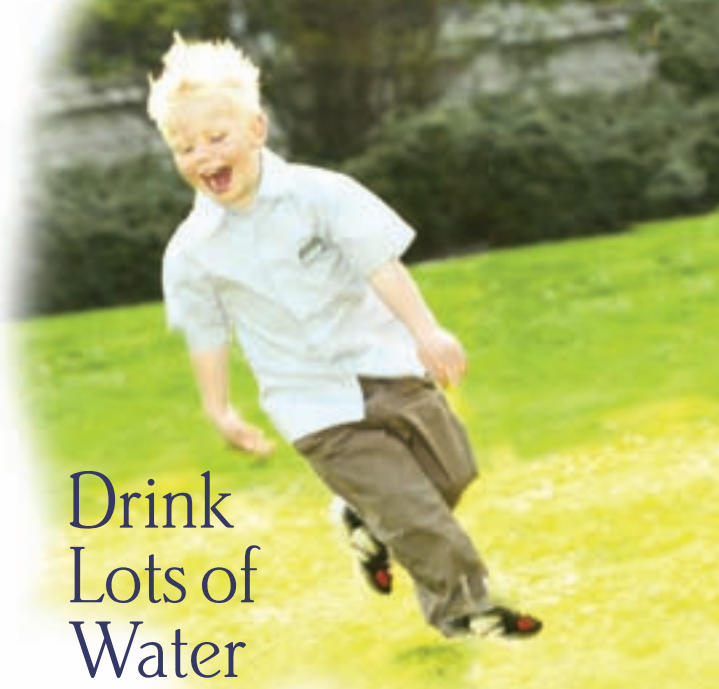
Draw a line from the highlighted trivia words to the photographs below.

Water Trivia

Fun Facts About Water

1. How much water does it take to cook a **hamburger**?
   ☐ 1 glass ☐ 1 quart ☐ 1 gallon
2. How much water is used to **brush** your teeth?
   ☐ 2 glasses ☐ 2 quarts ☐ 2 gallons
3. How much water does an **individual** use daily?
   ☐ 25 gallons ☐ 50 gallons ☐ 75 gallons
4. How much of a **chicken** is water?
   ☐ 25% ☐ 50% ☐ 75%
5. How much of an **elephant** is water?
   ☐ 60% ☐ 70% ☐ 80%
6. How much of a **pineapple** is water?
   ☐ 60% ☐ 75% ☐ 80%

answers:
1. Approximately one gallon. 2. 2 gallons. 3. 50 gallons. 4. 75% 5. 70% 6. 80%



Drink Lots of Water

Summer is a great time to play sports, ride bikes and enjoy being outside, but...

All that activity and hot weather can lead to something called "dehydration." Our bodies are about two-thirds water. Dehydration occurs when a person loses more fluids than he or she takes in. This happens more often in the summer, because the heat makes us sweat a lot. The easiest way to avoid dehydration is to drink lots of fluids – at least 6 to 8 cups per day. Avoid drinks with caffeine or lots of sugar such as soda or even fruit juice. Just plain water is best!

Pets need water too...

Your pets need plenty of water too, especially if it's hot and they are running around. Make sure there is a bowl nearby for them to have a refreshing drink of water whenever they need it!

If your pets are traveling with you this summer, or even if they are just joining the family for a shopping trip, never leave them in a hot, closed up car. In extreme heat, dehydration, heat stroke and even death can occur in less than 30 minutes! If you must leave them for a few minutes, make sure you leave the window open a little and bring them some water when you return.

A Benefit of Tap Water

Fluoride Facts

5 FACTS ABOUT FLUORIDE

1) **Adding fluoride to Wilmington's water is part of a community health measure that benefits people of all ages, income levels and ethnicity. Not all States require the addition of fluoride to the water supply. Delaware requires it.**

2) **Fluoride protects over 300 million people in more than 40 countries worldwide, with over 10,000 communities and 145 million people in the United States alone.**

3) **Fluoride is not a medicine. It is a naturally occurring element and a nutrient. When adjusted to optimum levels, it is effective in preventing tooth decay.**

4) **Multiple studies over the years done in several countries and the US show that fluoridation can reduce tooth decay by 60% in baby teeth and up to 35% in adult teeth.**

5) **Water fluoridation is safe. Multiple studies show that adjustment to appropriate levels does not pose a health risk for the public. Fluoride at recommended levels has been used for more than 50 years with no side effects.**

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