

2013 Drinking Water Quality Report

Featuring 2012
Tap Water Quality
Results



This report is being mailed to you as a requirement of the Federal Safe Drinking Water Act. NOTE: Industrial and commercial customers, including hospitals, medical centers and health clinics, please forward this report to your Environmental Compliance Manager.

Philadelphia's water is safe and healthy to drink for most people. For people with special health concerns, please see the information on page two.



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Clean Water American Alliance
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Schuylkill Action Network
Tookany/Tacony-Frankford (TTF)
Watershed Partnership
Water Environment Federation
Water Environment Research Foundation
Water Research Foundation

This report is available online at
<http://www.phila.gov/water> and
<http://www.phillywatersheds.org>

Customer Information Hotline:
215-685-6300

The Philadelphia Water Department

The Philadelphia Water Department (PWD) is pleased to present our annual Water Quality Report. This report, published in April 2013, includes water quality information for the 2012 calendar year.

The good news is – your tap water is top quality. Our Water Quality Report provides our customers with a summary of where Philadelphia's drinking water comes from, how it is treated and the results of water quality monitoring performed by us on a daily basis.

The U.S. Environmental Protection Agency (EPA) requires all water utilities to produce and distribute water quality reports on an annual basis.

We have consistently performed better than all drinking water standards developed by the EPA to protect public health.

How do we do this? We use proven treatment practices at our water treatment plants and we participate in groundbreaking research while keeping water rates among the lowest in the region.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Our standards are the highest: PWD drinking water quality is better than all drinking water standards developed by the EPA to protect public health.

Para obtener una copia del informe en Español sobre los resultados más recientes de la calidad del agua publicado por el Departamento de Agua de Philadelphia, llame al 215-685-6300.

People With Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS and other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

U.S. Environmental Protection Agency (EPA)/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline: 800-426-4791.



Where does Philadelphia's drinking water come from?



Map Courtesy of the Delaware River Basin Commission.
Delaware River Basin Commission Map Collection.

Philadelphia is located in the Delaware River Watershed, which begins in New York State and extends 330 miles south to the mouth of the Delaware Bay. The Schuylkill River is part of the Delaware River Watershed.

The water that we treat comes from the Schuylkill and Delaware rivers. Rivers are surface water supplies. Philadelphia does not use groundwater. Each river contributes approximately one-half of the City's overall supply. We produce approximately 250 million gallons of high-quality drinking water for our customers on a daily basis.

PWD has three water treatment plants that process untreated river water. Depending on where you live, you receive drinking water from one of these three plants. The Queen Lane Plant is located in East Falls and its water comes from the Schuylkill River. Its intake is located along Kelly Drive. The Belmont Plant is located in Wynnefield and its water also comes from the Schuylkill River. Its intake is located along Martin Luther King, Jr. Drive. The Baxter Plant is located in Torresdale and its water comes from the Delaware River. Its intake is located at the plant on the Delaware River.



Safeguarding the water you drink

At their sources, the Delaware and Schuylkill Rivers are generally clean. But as the rivers flow downstream, they pick up contaminants from many sources – stormwater runoff washes pollutants on the land into the rivers, and communities and industries discharge used water back into the rivers. Today, the City enjoys watersheds that are cleaner and healthier than they have been in well over a century. Although we have seen a dramatic improvement in the water quality of the City's two major rivers since the passage of the Federal Clean Water Act in the early 1970s, there is still more work that needs to be done to protect our drinking water sources from pollution.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) has regulations that limit the amount of certain contaminants in water provided by water suppliers. The Food and Drug Administration establishes limits for contaminants in bottled water that must provide the same protection for public health.

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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or from their website (<http://www.epa.gov/safewater>).

Partnership for Safe Water

The Philadelphia Water Department (PWD) consistently produces high quality drinking water, achieving Partnership for Safe Water quality standards that are far stricter than State and Federal water quality regulatory requirements. PWD voluntarily adopted the stricter water treatment quality goals, as a member of the Partnership for Safe Water* in 1996. The average turbidity level (measure of water clarity) of PWD drinking water has been at or below 0.06 nephelometric turbidity units (NTU) since 1998.

The turbidity of Philadelphia's drinking water is 80 percent lower than the maximum of 0.30 NTU allowed by State and Federal regulations and is 40 percent less than the Partnership for Safe Water maximum turbidity goal of 0.10 NTU.

In 2008, the Baxter, Queen Lane and Belmont Water Treatment Plants were honored by USEPA and PaDEP with the Partnership for Safe Water 10-Year Director's Award in recognition of PWD's decade-long commitment to achieving and maintaining the highest possible drinking water quality.

PWD is committed to participation in this ongoing program, to assess and optimize treatment processes, operating and maintenance procedures and management practices to enhance and maintain our water system's ability to remove *Cryptosporidium*, *Giardia* and other microbial contaminants and ensure high quality drinking water.

**The Partnership for Safe Water is a voluntary optimization program conceived and initiated by the U.S. Environmental Protection Agency (USEPA), the American Water Works Association, the Association of Metropolitan Water Agencies and advocated by the Pennsylvania Department of Environmental Protection (PaDEP). Pennsylvania leads the nation in participation in this program and the Philadelphia Water Department is one of Pennsylvania's leaders.*



How do drinking water sources become polluted?



Across the nation, sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water (such as rain and melting snow) travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants such as salts and metals can be naturally occurring or come from urban stormwater runoff (streets and parking lots), industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides from a variety of sources such as agriculture, urban stormwater runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, are byproducts of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants can be naturally occurring or can come from oil and gas production, mining activities or even medical use.

Why is chlorine used to disinfect the drinking water?

State and Federal laws require the disinfection of all public water supplies. EPA and health agencies recognize that using chlorine is the most effective way to protect public health from disease-causing organisms that can be found in rivers and streams. However, chlorine can chemically react with natural materials in rivers to form disinfection byproducts, such as trihalomethanes and haloacetic acids. We have been adjusting our treatment process over the years to reduce this chemical reaction. But we also ensure that the treated water that is distributed through the City's water mains to your homes has a "chlorine residual." This residual continues to protect your water against bacteria and other organisms on its journey to your home's tap. We use sodium hypochlorite, a safer form of chlorine similar to household bleach, to disinfect the water at our treatment plants.

Lead in drinking water

It is important to minimize the intake of lead from dust inhalation, food and water. Children are particularly susceptible to the health effects of lead poisoning. Lead is most commonly found in dust, paint and contaminated soil. To a lesser extent, lead can also occur in tap water. When detected in tap water, it usually comes from older home plumbing or lead service pipes. When disturbed, such as for a repair, these lines can contribute to lead in tap water. It is the homeowner's responsibility to maintain, repair and replace the service lines.

Our primary role in helping you minimize your intake of lead is to reduce the corrosive effects of tap water on materials that contain lead. Water is corrosive and encourages the dissolving of lead from these materials. The Philadelphia Water Department has a permit with the PA Department of Environmental Protection (PA DEP) for operating under optimized corrosion control, to minimize lead leaching from plumbing materials.

Currently, every three years, the Philadelphia Water Department tests for tap water lead at more than 50 representative taps of vulnerable homes in the City. We do this according to the requirement of the EPA's Lead and Copper Rule. The testing results are used to determine if our corrosion control treatment technique is working, so that water has minimum potential for lead to leach from plumbing materials. So far, our test results show that our treatment techniques keep lead levels to a minimum. For the 2011 test results, please see the chart on page 8.

These test results could change in any year, however, because Philadelphia is required to meet other regulations for tap water quality. Sometimes these water quality changes can affect the corrosion potential of the water. If such a change were to occur, the Philadelphia Water Department would notify its customers of the change while

it works to return to minimum corrosion conditions again. Water utilities all over the country are in the same position as Philadelphia, trying to balance all of the regulatory requirements and changes at one time so that their customers receive the best quality water possible. We are committed to reducing the corrosive effects of plumbing and lead levels in water.

Additional information is available from the EPA's Safe Drinking Water Hotline at 800-426-4791 or from their website at <http://water.epa.gov/drink/info/lead>.



Research and Monitoring:

Many of PWD’s scientists and engineers are active members of the American Water Works Association, Water Research Foundation, Water Environment Research Foundation and the International Water Association. PWD has representatives voluntarily serving on national committees for drinking water issues and as participants and advisors on funded research projects with these and other professional water organizations.

Involvement in professional water associations keeps Philadelphia on top of coming changes and best practices as the water industry continues to strive to meet new and stricter regulations. It also provides PWD with the broader national perspective and gives us a chance to participate and provide input in the larger conversation with our drinking water peers from around the country.

Pharmaceuticals in Drinking Water



The Philadelphia Water Department has been supporting and conducting research on pharmaceuticals and personal care products in drinking water since 2004.

This issue exists throughout the world, wherever pharmaceuticals are utilized. Pharmaceuticals get into drinking water because people use medications, both prescription and over the counter. Only a small portion of these substances is absorbed in the body. The rest passes through the body, eventually making its way into the wastewater and from there, back into the waterways that serve as our nation’s drinking water sources.

The pharmaceuticals detected in Philadelphia are in extremely low concentrations. There is currently no indication that any trace concentrations of such chemicals would pose any public health risk. The Philadelphia Water Department continues to stay abreast of this issue to ensure the safety of our drinking water and the protection of our watersheds.

You can help keep unused pharmaceuticals out of the water supply by paying attention to how you dispose of unused medications. Look for take-back programs that may be established near you, either through pharmacies or through household hazardous waste collection programs. For more information, please visit: <http://www.phila.gov/water/pdfs/pharm-20080915.pdf>.

The Drug Enforcement Agency (DEA) sponsors national take-back programs in coordination with State and local law enforcement agencies. The national take-back day provides opportunities for the public to surrender expired, unwanted or unused pharmaceuticals and other medications to law enforcement officers for proper disposal. To find out about future take-back events, visit DEA’s website at www.dea.gov or call 215-238-5172.

Fluoride Reduction

The public health impact of fluoridating community water supplies was identified by the Centers for Disease Control and Prevention (CDC) as one of ten great public health achievements of the 20th century. This breakthrough in health knowledge led to many benefits to water drinking citizens.

However, due to new reports from the U.S. Department of Human Services regarding fluoride concentrations in 2012, the Philadelphia Water Department (PWD) lowered the fluoride level from an average of 1.0 milligram per liter (mg/L) to 0.7 mg/L. This change was made in cooperation with the Philadelphia Department of Public Health and the Pennsylvania Department of Environmental Protection.

Fluoridation has been successfully practiced in the United States since 1945 and PWD has been fluoridating its water since 1951. However, new research has concluded that a fluoride level of 0.7mg/L achieves a better balance between the prevention of tooth decay and the risk of dental fluorosis.

Cryptosporidium and Giardia

Cryptosporidium and *Giardia* are microscopic organisms found in rivers and lakes throughout the United States. If ingested, *Cryptosporidium* and *Giardia* can cause diarrhea and abdominal cramps. However, these are also symptoms of intestinal diseases caused by many bacteria, viruses and parasites. Most healthy individuals can overcome such illnesses within a few weeks; however, immuno-compromised individuals are at a greater risk of developing a life-threatening illness and are encouraged to consult with their doctors about taking appropriate precautions to avoid infections.

PWD works closely with the Philadelphia Department of Public Health to ensure that our tap water is free of pathogens that can be found in rivers. The Philadelphia Department of Public Health monitors local hospital records in real time for symptoms consistent with waterborne illness and would contact the Water Department if there were any concerns that the drinking water may be contributing to illnesses.

The Water Department is one of the nation’s leaders in *Cryptosporidium* research and was one of the first utilities in the U.S. to monitor for the organism. The Water Department’s Office of Watersheds manages a source water protection program that looks at protecting the rivers in the City as well as further upstream of Philadelphia. *Cryptosporidium* can originate from different sources, such as dogs, geese, cows and horses. Research



with Lehigh University on sources of *Cryptosporidium* in Philadelphia’s watersheds continued in 2012. By identifying the sources of *Cryptosporidium* in the watershed, PWD is taking a proactive approach in improving the rivers’ water quality.

Drinking Water Treatment

How Do We Treat the Water So That You May Drink It?

Like the majority of water utilities in the U.S., we use a multi-step treatment process at all three of our drinking water treatment plants. This Water Treatment Process diagram provides a brief description of drinking water treatment in Philadelphia.

1. The River

The source of the water is from either the Delaware or Schuylkill River.

2. Natural Settling

After it has been pumped from the river, water is stored in reservoirs or basins for about 24 hours, to allow sediments to settle.

3. Disinfection

Sodium hypochlorite, a chemical compound containing chlorine, is added to kill disease-causing organisms.

4. Coagulation

The river water is coagulated. Chemicals are added to the water to cause smaller particles in the water to join together, and the pH is adjusted to aid in coagulation. This process makes the particles heavier so that they will settle to the bottom of the basin.

5. Flocculation

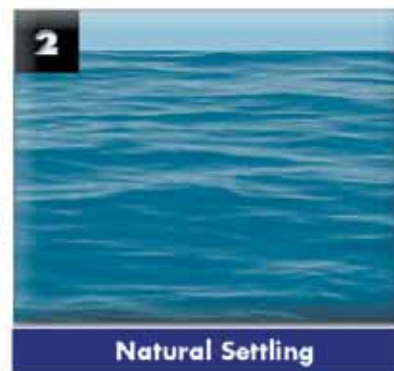
The water is mixed gently to make sure the added chemicals are well blended and react with all of the smaller particles. The particles combine to form "floc" which settle to the bottom of the basin.

6. Sedimentation

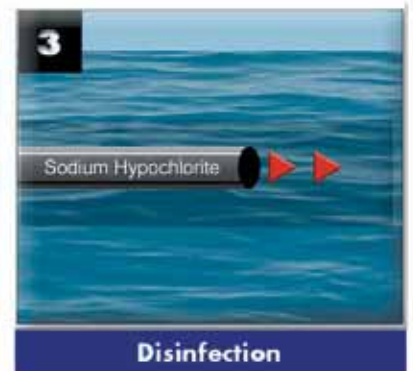
The newly joined particles or "floc" settle by gravity and are removed from the bottom of the mixing tanks. More sodium hypochlorite is added for disinfection.



Delaware or Schuylkill River



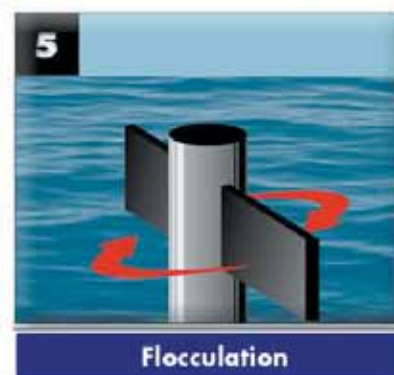
Natural Settling



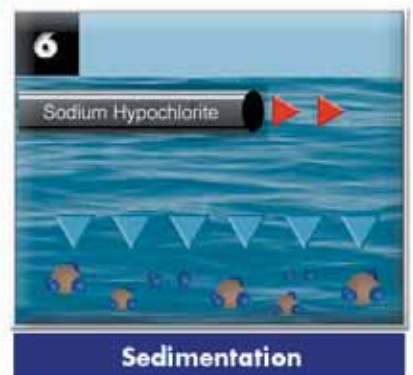
Disinfection



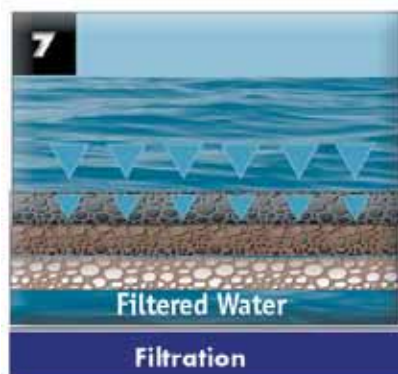
Coagulation



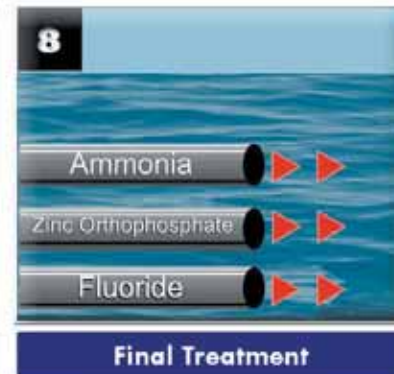
Flocculation



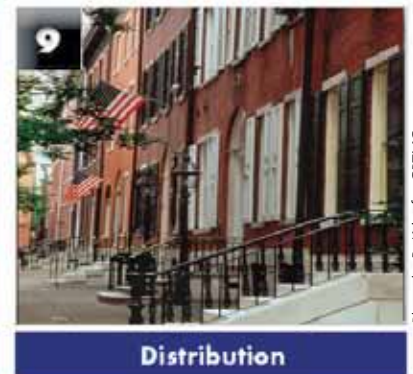
Sedimentation



Filtration



Final Treatment



Distribution

7. Filtration

The water flows by gravity through filters of sand and crushed coal, which remove very small particles that might never settle by gravity.

8. Final Treatment

Fluoride is added to help prevent tooth decay. Zinc orthophosphate is added to minimize rusting of metal pipes by the water. Ammonia is added to reduce the flavor of chlorine and to help the sodium hypochlorite to persist in the water while it travels through the water main system, or to remain active in the water all the way to our customers' faucets.

9. Distribution

The treated water is distributed through 3,137 miles of water mains to 480,000 households in Philadelphia.

Photo by B. Krist for GPTMC

What do we look for?

EPA, PADEP and Safe Drinking Water Regulations require drinking water utilities to monitor for about 100 regulatory parameters. These regulatory parameters are defined with their maximum contaminant level (MCL) and maximum contaminant level goal (MCLG) under federal rules such as the: Total Coliform Rule, Surface Water Treatment Rule, Disinfectants and Disinfection Byproducts Rule, Lead and Copper Rule and the Radionuclides Rule. We monitored for the regulatory parameters listed below. Tables on pages 8 and 9 summarize monitoring results for parameters found at detectable levels. Please see a glossary of terms and abbreviations on page 10.

Temperature and Cloudiness:

The temperatures of both the Schuylkill and Delaware rivers vary seasonally from approximately 37 degrees to 86 degrees Fahrenheit. PWD does not treat the water for temperature. Cloudiness most commonly happens in the winter, when the cold water in the mains is warmed up quickly by household plumbing. Cloudiness is visible during aeration, when the water flowing from your tap into a glass appears cloudy. This temporary condition is a result of dissolved air being released from the water and becoming suspended in the water in the glass.

Appealing to Your Senses

We also test for aluminum, chloride, color, iron, manganese, odor, pH, silver, sulfate, surfactants, total dissolved solids and zinc to ensure that your water meets all water quality taste and odor guidelines. This is so that your water looks, tastes and smells the way it should.

Inorganic Chemicals:

Antimony, Arsenic, Asbestos, Barium, Beryllium, Cadmium, Chromium, Mercury, Nickel, Selenium, Thallium, Cyanide Free, Fluoride

Synthetic Organic Chemicals:

2,4-D, 2,4,5 TP (Silvex), Atrazine, Alachlor, Chlordane, Benzo(a)Pyrene, Carbofuran, Dalapon, 1,2-Dibromo-3-chloropropane, Dinoseb, Dioxin, Diquat, Endothall, Endrin, Ethylene Dibromide, Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, PCBs Total, Picloram, Bis (2-Ethylhexyl)phthalate, Bis(2-ethylhexyl) adipate, Pentachlorophenol, Oxamyl, Simazine, Toxaphene

Volatile Organic Chemicals:

Benzene, Carbon Tetrachloride, 1,2-Dichloroethane, o-Dichlorobenzene, p-Dichlorobenzene, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, Dichloromethane, 1,2-Dichloropropane, Ethylbenzene, Monochlorobenzene, Styrene, Tetrachloroethylene, Toluene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, o-Xylene, m,p-Xylenes

SODIUM IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average (ppm)	19 ppm	38 ppm	34 ppm
Average (mg in 8 oz. glass of water)	4 mg	9 mg	8 mg
Range (ppm)	13 - 23 ppm	21 - 49 ppm	20 - 49 ppm
Range (mg in 8 oz. glass of water)	3 - 6 mg	5 - 12 mg	5 - 12 mg

HARDNESS IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	84 ppm or 5 gpg	139 ppm or 8 gpg	159 ppm or 9 gpg
Minimum	66 ppm or 4 gpg	107 ppm or 6 gpg	103 ppm or 6 gpg
Maximum	95 ppm or 6 gpg	164 ppm or 10 gpg	190 ppm or 11 gpg
Hardness defines the quantity of minerals, such as calcium and magnesium, in water. These minerals react with soap to form insoluble precipitates and can affect common household chores such as cooking and washing. Philadelphia’s water is considered “medium” hard.			

ALKALINITY IN TAP WATER			
	Baxter WTP One Year Average	Belmont WTP One Year Average	Queen Lane WTP One Year Average
Average	39 ppm	66 ppm	69 ppm
Minimum	23 ppm	46 ppm	44 ppm
Maximum	49 ppm	81 ppm	83 ppm

2012 DRINKING WATER QUALITY RESULTS

Listed on pages eight and nine are our Drinking Water Quality Results for 2012. All results are better than the recommended Federal levels designed to protect public health. By reporting these results in the tables below, we are meeting a requirement of the EPA. Please see the glossary on page 10 for definitions of abbreviations used in the tables. Some contaminants may pose a health risk at certain levels. Others, such as turbidity, are used as indicators for treatment plant performance. For information about potential risks, please visit our website (<http://www.phila.gov/water>), or call us at 215-685-6300. We will be happy to mail them to you.

LEAD AND COPPER - Tested at Customers' Taps - Testing is done every 3 years. Most recent tests were done in 2011.

	EPA's Action Level - for a representative sampling of customer homes	Ideal Goal (EPA's MCLG)	90% of PWD customers' homes were less than	Number of homes considered to have elevated levels	Violation	Source
Lead	90% of homes must test less than 15 ppb	0 ppb	5.8 ppb	2 out of 92	No	Corrosion of household plumbing; Erosion of natural deposits
Copper	90% of homes must test less than 1.3 ppm	1.3 ppm	0.32 ppm	1 out of 92	No	Corrosion of household plumbing; Erosion of natural deposits; Leaching from wood

BACTERIA IN TAP WATER

	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Highest Monthly % or Yearly Total of Positive Samples	Monthly Range (% or #)	Violation	Source
Total Coliform	5% of monthly samples are positive*	0	0.60%	0 - 0.60%	No	Naturally present in the environment
Fecal Coliform or <i>E.coli</i>		0	0	0	No	Human or animal fecal waste

*Every sample that is positive for total coliforms must also be analyzed for either fecal coliforms or *E. coli*. If a system has two consecutive total coliform positive samples, and one is also positive for *E. coli* fecal coliforms then the system has an acute MCL violation.

INORGANIC CHEMICALS (IOC) – PWD monitors for IOC more often than required by EPA.

	Highest Level Allowed (EPA's MCL)	Ideal Goal (EPA's MCLG)	Highest Result	Range of Test Results for the Year	Violation	Source
Barium	2 ppm	2 ppm	0.050 ppm	0.022 - 0.050 ppm	No	Discharges of drilling wastes; Discharge from metals refineries; Erosion of natural deposits
Chromium	100 ppb	100 ppb	2 ppb	0 - 2 ppb	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride	2 ppm*	2 ppm*	0.76 ppm	0.69 - 0.76 ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate	10 ppm	10 ppm	3.8 ppm	0.730 - 3.8 ppm	No	Runoff from fertilizer use; Leaching from septic tanks; Erosion of natural deposits

*EPA's MCL and MCLG is 4 ppm, but PADEP has set this lower MCL and MCLG which takes precedence.

RADIOLOGICAL CONTAMINANTS

	EPA's MCL	EPA's MCLG	Highest Result	Yearly Range	Violation	Source
Alpha Emitters	15 pCi/L	0 pCi/L	3.5 pCi/L	0 - 3.5 pCi/L	No	Erosion of natural deposits
Beta Emitters	50 pCi/L *	0 pCi/L	17.5 pCi/L	0.84 - 17.5 pCi/L	No	Decay of natural and man-made deposits
Combined Radium 226 & 228	5 pCi/L	0 pCi/L	1.73 pCi/L	0 - 1.73 pCi/L	No	Erosion of natural deposits
Combined Uranium	30 µg/L	0 µg/L	0 µg/L	0 - 0 µg/L	No	Erosion of natural deposits

NOTE: The state allows us to monitor for some contaminants less than once per year because the concentration for these contaminants does not change frequently. Required monitoring conducted in 2011.

*The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

DISINFECTION BYPRODUCTS IN TAP WATER							
	Highest Level Allowed (EPA's MCL) -	Running Annual Average 2012			System-wide Range of Results:	Violation	Source
		Baxter WTP	Belmont WTP	Queen Lane WTP			
Total Trihalomethanes	80 ppb	42 ppb	40 ppb	37 ppb	13 - 98 ppb	No	By-product of drinking water disinfection
Total Haloacetic Acids (THAAs)	60 ppb	41 ppb	25 ppb	23 ppb	1 - 72 ppb	No	By-product of drinking water disinfection
*Running Annual Average calculated from April 2011 through March 2012.							

TOTAL ORGANIC CARBON (Tested at Water Treatment Plants)					
Treatment Technique Requirement	Baxter WTP One Year Range	Belmont WTP One Year Range	Queen Lane WTP One Year Range	Violation	Source
Percent of Removal Required	35 - 45%	25 - 45%	25 - 45%	n/a	Naturally present in the environment.
Percent of Removal Achieved	40 - 57%	30 - 50%	38 - 52%	No	
Number of Quarters out of Compliance	0	0	0		
PWD achieved TOC removal requirements in all quarters of 2012 at all WTPs. Compliance is based on a running annual average computed quarterly.					

TURBIDITY - A MEASURE OF CLARITY (Tested at Water Treatment Plants)					
	Baxter WTP	Belmont WTP	Queen Lane WTP	Violation	Source
Treatment Technique Requirement: <i>95% of samples must be at or below 0.300 NTU</i>	100% below 0.300 NTU	100% below 0.300 NTU	100% below 0.300 NTU	n/a	Soil runoff, river sediment
Highest single value for the year	0.095 NTU	0.089 NTU	0.070 NTU	No	
We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. PWD continuously operates and monitors water quality from a total of 160 filters at three drinking water treatment plants. In the calendar year of 2012, on three separate occasions, turbidity monitoring was interrupted on one of our filters and therefore we cannot be sure of the quality of the drinking water from these filters during that time period. On April 10, 2012 for a 24 hour period the turbidity instrument on filter 35 at Queen Lane WTP was left in the hold position following a routine calibration check. On May 12, 2012 filter 20 at Queen Lane WTP was repaired and returned to service for a 92 hour period without the monitoring instrument activated. On May 24, 2012 filter 62 at Baxter WTP operated for 14 days with a monitoring instrument bulb failure that provided a false data signal as a default reading. After each monitoring interruption, once the turbidimeter instruments were restored, subsequent monitoring showed no filter problems. During each single filter monitoring interruption the combination flow from all plant filters at each facility was continuously sampled and monitored with no change in turbidity levels. No water quality emergency occurred due to the monitoring interruptions, and this notice is for informational purposes only.					

SYNTHETIC ORGANIC CHEMICALS (SOC)						
Chemical	EPA's MCL	EPA's MCLG	Highest Result	Yearly Range	Violation	Source
Atrazine	3 ppb	3 ppb	0.18 ppb	0 - 0.18 ppb	No	Runoff from herbicide used on row crops

TOTAL CHLORINE RESIDUAL (Tested at Water Treatment Plants. Samples taken every three hours.)					
Sample Location	Minimum Disinfectant Residual Level Allowed	Lowest Level Detected	Yearly Range	Violation	Source
Baxter WTP	0.2 ppm	1.95 ppm	1.95 - 3.10 ppm	No	Water additive used to control microbes
Belmont WTP		1.10 ppm	1.10 - 2.48 ppm		
Queen Lane WTP		0.30 ppm	0.30 - 3.30 ppm		

TOTAL CHLORINE RESIDUAL (Tested throughout Distribution System. Over 450 samples collected throughout the City every month.)					
Sample Location	Maximum Disinfectant Residual Level Allowed	Average	Yearly Range	Violation	Source
Distribution System	4.0 ppm	1.78 ppm	0.00 - 3.10 ppm	No	Water additive used to control microbes

GLOSSARY

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. The action level is not based on one sample; instead, it is based on many samples.

Alkalinity: A measure of the water's ability to resist changes in the pH level and a good indicator of overall water quality. Although there is no health risk from alkalinity, we monitor it to check our treatment processes.

E. coli (*Escherichia coli*): A type of coliform bacteria that is associated with human and animal fecal waste.

gpg – grains per gallon: A unit of water hardness. One grain per gallon is equal to 17.1 parts per million.

MCL - Maximum Contaminant Level: 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.

MCLG - Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

mg/L - Milligrams per liter: One milligram per liter is equal to one part per million.

MRDL (Maximum Residual Disinfection Level): The highest level of disinfectant that is allowed in drinking water. The addition of a disinfectant is necessary for the control of microbial contaminants.

MRDLG (Maximum Residual Disinfection Level Goal): The level of a disinfectant in drinking water below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Minimum Residual Disinfectant Level: The minimum level of residual disinfectant required at the entry point to the distribution system.

ntu - nephelometric turbidity units: Turbidity is measured with an instrument called a nephelometer. Measurements are given in nephelometric turbidity units.

pCi/L - Picocuries per liter: A measure of radioactivity.

ppm - parts per million: Denotes 1 part per 1,000,000 parts, which is equivalent to two thirds of a gallon in an Olympic sized swimming pool.

ppb - parts per billion: Denotes 1 part per 1,000,000,000 parts, which is equivalent to half a teaspoon in an Olympic sized swimming pool.

ppt - parts per trillion: Denotes 1 part per 1,000,000,000,000 parts, which is equivalent to one drop in 20 Olympic sized swimming pools.

SOC – Synthetic Organic Chemical: Commercially made organic compounds, such as pesticides and herbicides.

Total Coliform: Coliforms are bacteria that are naturally present in the environment. Their presence in drinking water may indicate that other potentially harmful bacteria are also present.

THAAs - Total Haloacetic Acids: A group of chemicals known as disinfection byproducts. These form when a disinfectant reacts with naturally occurring organic and inorganic matter in the water.

TOC - Total Organic Carbon: A measure of the carbon content of organic matter. This measure is used to indicate the amount of organic material in the water that could potentially react with a disinfectant to form disinfection byproducts.

TTHMs - Total Trihalomethanes: A group of chemicals known as disinfection byproducts. These form when a disinfectant reacts with naturally occurring organic and inorganic matter in the water.

Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Turbidity: A measure of the clarity of water related to its particle content. Turbidity serves as an indicator for the effectiveness of the water treatment process. Low turbidity measurements, such as ours, show the significant removal of particles that are much smaller than can be seen by the naked eye.

VOC – Volatile Organic Chemicals: Organic chemicals that can be either man-made or naturally occurring. These include gases and volatile liquids.

WTP: Water Treatment Plant



We welcome your ideas and opinions

We participate in nearly 200 public and community events a year, including presentations made at schools, on-going educational programs and other environmental celebrations.

We offer ways for individuals, families, students, seniors, community groups and others to participate in learning about protecting water.

We greatly benefit from our Citizens Advisory Council, which has been working with us over the last few years to improve our communications with our customers. Citizens representing business and industry, education, environmental advocacy, senior citizens, regulatory agencies, and civic and community groups have assisted us in developing public information about a variety of topics, including drinking water quality and stormwater pollution prevention. Interested citizens are welcome to attend our Water Quality Education Citizens Advisory Council meetings. Call our Hotline at 215-685-6300 to confirm the meeting dates, times and locations.

Getting Involved

If you would like to help protect your water supply or watershed, please call the Philadelphia Water Department at 215-685-6300, visit our website at www.phillywatersheds.org, or see Table 2 on page 14.

How to contact us

You can write to us at:
Philadelphia Water Department ARAMark Tower
1101 Market Street, 3rd Floor
Philadelphia, PA 19107-2994

You can call our Customer Information Hotline at 215-685-6300.

SCHUYLKILL ACTION NETWORK

THE SAN PROVIDES:

- Central coordination of restoration and protection efforts for the entire Schuylkill River;
- Consensus-based plans for the watershed built on sound science, data and stakeholder input; and,
- Prioritized ranking of projects that will have the greatest impact on protecting and restoring the health of the Schuylkill River

\$2 Million: Funds awarded for Schuylkill Action Network priority projects (2010-2011) from Federal, State, local and private sources

165: Number of SAN organizations in 2012

415: Number of SAN members in 2012

SAN Members:

- Citizens
- Non-profits
- Universities
- Funders
- Water supplies
- Corporations
- Federal, State and local governments

POLLUTION SOURCES ADDRESSED IN 2012

Agriculture: SAN Agriculture Projects are designed to treat excessive loadings of nutrients and contaminated stormwater runoff.

- 300 feet of streambank fencing has been installed
- 17,075 feet of streambank protected
- 154 Conservation and Nutrient Management Plans completed on watershed farms
- 2 manure storage facilities and barnyard retrofits completed
- 5 Comprehensive Farm Management Plans completed

Abandoned Mine Drainage (AMD): The upper watershed is impacted by polluted water seeping from abandoned coal mines that discharge iron, manganese and aluminum to the Schuylkill River.

- \$4.9 Million secured or spent to address AMD issues in the watershed
- 3 studies/models completed for AMD remediation and prevention
- 32 Acres of trees planted on abandoned mine lands
- 2 projects completed to reduce water infiltration into the Pine Knot mine pool (AMD Prevention)
- 1 construction project initiated to build a treatment system for AMD

Stormwater: SAN Stormwater projects are designed to reduce the volume and velocity, and improve the quality, of stormwater runoff on priority areas in the Schuylkill Watershed.

- 4 stormwater management projects completed on school campuses throughout the watershed
- 1 new stormwater guide developed and distributed to businesses in the watershed

Land Protection: SAN Watershed Land Protection projects promote and implement activities that lead to the conservation of the highest priority lands for drinking water protection.

- Provided outreach to 20 municipalities with a large percentage of priority lands.
- 4 land transaction assistant projects completed, protecting 584 acres of priority watershed land and leveraging over \$3.5 Million in land value.
- Initiated a riparian buffer restoration initiative for a source water protection area in the watershed

Schuylkill and Delaware River Source Water Protection Plans

The Schuylkill and Delaware River Source Water Protection Plans provide a comprehensive framework for implementing a watershed-wide effort to improve source water quality by prioritizing and outlining several approaches to reduce sources of contamination to Philadelphia's raw water supply. PWD has made exceptional progress accomplishing Plan goals, including prioritizing and promoting land for permanent protection; establishing a regional network of organizations, businesses and governments to work together to protect and enhance the Schuylkill River Watershed; supporting policies that preserve forests and emphasize water resource protection; and collaborating with the State of Pennsylvania to ensure regulations are enforced for

wastewater treatment plants that discharge upstream of Philadelphia.

During the past year, the Source Water Program conducted research to further improve our knowledge of Philadelphia's water supplies and help to define priorities for watershed protection. This research includes an analysis of flows needed to protect PWD's Baxter Water Treatment Plant on the Delaware River

If you would like to receive a copy of the source water assessment summaries, or would like to know how to get involved in protecting your water supply or watershed, please call the Philadelphia Water Department at 215-685-6300, visit Table 2 on page 14 of this report, or go to <http://www.phillywatersheds.org/what-were-doing/documents-and-data/watershed-plans-reports>

from saltwater intrusion; a preliminary analysis of water use availability in the Schuylkill River; monitoring and evaluating natural gas development activity to ensure continued protection of our drinking water supply; developing and implementing an Iodine-131 watershed characterization program; and tracking of major sources of human infectious pathogens such as Cryptosporidium. Information from the latter study was used to develop a Cryptosporidium Watershed Control Program Plan for the Schuylkill River watershed which will help ensure our compliance with the EPA's Long-Term 2 Enhanced Surface Water Treatment Rule at the Queen Lane Water Treatment Plant.

The Delaware Valley Early Warning System (EWS) is an integrated monitoring, notification and communication system designed to provide advance warning of surface water contamination events in the Schuylkill and lower Delaware River watersheds to water purveyors and major industrial users. PWD is currently implementing a 5-year Strategic Plan that identifies improvements and expansions that will enable the EWS to better fulfill its current roles and critical functions that improve the system's monitoring and notification capabilities. Grant funding from the Delaware Bay Area Maritime Exchange Port Security Grant Program further supports additional system improvements, specifically the development of a tidal spill model and a more sophisticated mapping component. PWD is constantly working to improve system efficiency and expand both the user base and water quality monitoring network on the Schuylkill and lower Delaware Rivers.





Marcellus Shale Drilling

The Philadelphia Water Department (PWD) provides clean water to 1.8 million people in Philadelphia, Bucks County, Montgomery County and Delaware County. Source water protection is a primary mission of PWD and the assurance of a sustainable, clean source of drinking water for our citizens is embedded in all PWD operations.

The northern reaches of the Delaware River basin sits above a portion of one of the largest known natural gas deposits, where recent technological advancements, commonly known as “fracking”, have made that natural gas easily accessible for the first time. Natural gas extraction presents a significant economic opportunity for communities and land owners above the deposits, however this drilling will impose currently unknown costs on Southeastern Pennsylvania’s water supply. Drilling activities are projected to impact over 18,000 acres (roughly 30 square miles) of land upstream from Philadelphia in the next five to ten years. The coal mining boom of the late 19th and early 20th century has lessons for the Marcellus Shale opportunity. The coal boom fostered incredible economic development, but 21st century tax payers continue to pay to remediate the environmental harms. Any natural gas development in the basin should not impose costs on future generations.

PWD reviews and evaluates all regulations and operational strategies that pertain to natural gas drilling to protect the Delaware River watershed and the preservation of the Delaware and Schuylkill Rivers as a reliable source of drinking water. PWD actively follows and tracks the development of this growing industry in Pennsylvania.

The Department’s preference is for a long-term cumulative impact study to be performed. However, we also believe that with the proper regulations and legislation, combined with continuous monitoring and careful controls on the discharge of fracking waters, the waters of the Delaware and our drinking water intakes can be protected and preserved. For more information on Marcellus Shale drilling, please visit our website at: <http://www.phillywatersheds.org/marcellus-shale-drilling-delaware-river-basin>.

Iodine-131

The health and safety of our customers is always our top priority and Philadelphia’s drinking water consistently meets or surpasses the State and Federal standards. In addition to 24- hour monitoring at our three treatment plants and at checkpoints throughout our 3000 mile delivery system, we believe it is our responsibility to look for things that can challenge our water quality and to have the best understanding possible of drinking water in our region and around the country.

In April 2011, PWD commenced a multi-phased sampling program to develop a comprehensive understanding of the sources and levels of Iodine-131 (I-131). The results of the sampling showed that the levels in our drinking water are well below Federal limits.

Iodine-131 is a radioactive form of iodine that is a byproduct of nuclear energy production and is widely used in the medical field for the diagnosis and treatment of thyroid disease. Trace amounts are present in waterways around the world as well as in our rivers; however, the drinking water levels pose no risk to public health and here in Philadelphia, the average levels are well below EPA limits.

I-131 and elements like this come from different sources, but most frequently are linked to people who have received medical treatments and whatever is not absorbed by the body is flushed into the sewer system. While wastewater treatment plants do a great job of removing contaminants, detectable levels can remain.



PWD will continue to work with the EPA, DEP and the Philadelphia Department of Public Health to gain a better understanding of I-131’s medical usage and the implications to wastewater treatment to determine long-term opportunities to modify practices. For more information, please visit: www.phillywatersheds.org.

Explore Water in Our World at the Fairmount Water Works Interpretive Center!

The historic Fairmount Water Works is part of the Fairmount Water Works Interpretive Center experience – the original buildings surround today's modern exhibits. Visitors can experience the flowing Schuylkill River from this unique vantage point – right at river's edge. From billstuffers and brochures to our Water Quality Report and the Fairmount Water Works Interpretive Center, our Public Education and Outreach staff works to provide educational information to our customers of all ages. Please visit our website, www.fairmountwaterworks.org, for more information about our exhibits and programs. We also invite you to like us on Facebook, and to follow us on Twitter at @FWWIC.

The FWWIC has grown since its opening in 2003, and will be celebrating its 10th anniversary in the Fall of 2013. Continuing the legacy of the historic Fairmount Water Works, the Interpretive Center has become the premier urban watershed education center and is recognized by the Pennsylvania Department of Environmental Protection as The Delaware River Basin's Official Watershed Education Center and as a Gateway Center for the Schuylkill River National and State Heritage Area. With more than 450,000 visitors to date, the Fairmount Water Works Interpretive Center has become the destination for innovative water and watershed education programming in the Delaware Valley. Water in Our World is the overarching theme that unites the exhibits at the FWWIC. Through the use of both high-tech interactive exhibits and user friendly exhibits, visitors are engaged in learning about the many fascinating aspects of water:

- View an award-winning film that tells the story of the Fairmount Water Works history;
- Fly on a virtual helicopter ride up the Delaware Bay to the headwaters of the Delaware and Schuylkill Rivers and learning how our activities on the land affect water quality;
- Witness a simulation of the rise and fall of tides in the Schuylkill River with an actual working model of the Fairmount Water Works;
- Go outside to cast a discerning eye at the river and calculate where the river is in the tidal cycle and collect a sample of river water;
- Experience *Seeing is Believing* in the FWWIC's state-of-the-art Water Lab where you can observe the teeming "unseen" life in a water sample at 400 times magnification;
- Visit Pollutionopolis, America's dirtiest City;
- Follow a flush through the City's sewer system;
- Make rain fall and seeing the affects of rainfall on the watershed; and
- View fish and animals migrating up the Schuylkill River via a television camera installed in the Fairmount Dam Fishway Facility located on the riverbank opposite the Interpretive Center.

School Programs Include:

Where can students go to learn about one of the most important issues of the 21st century? Students of all ages come to learn about water through these many exciting lessons.

- **Water In Our World**
- **Land and Water: A Delicate Balance**
- **From Street to Stream: Slow the Flow**
- **Building as Machine: Water for the City**
- **Seeing is Believing: A Drop in the Bucket**
- **Green City, Clean Waters: Following Nature's Lead**
- **Global Water Action: Engineering a 21st Century Solution**

Public Programs:

Speakers and public events bring lively and thought-provoking topics featuring artists, writers and environmental professionals who share our passion for water to the FWWIC.

Sunday films documentaries on global water issues, infrastructure, water resources, climate change and other timely and sometimes controversial themes.

Architectural Walking and Bus Tours: Weekend tours led by seasoned Philadelphia Tour Developer Ken Hinde. (fee based)

Special tours: We offer a variety of themed programs for Questors, Alumni organizations, tour groups, engineering and public health professionals and other organizations. (fee based)

Family Programs:

Science Saturdays are fun hands-on activities that meld science and art in our laboratory. We test water, explore the wondrous beauty of diatoms, identify leaves and more. Open to all ages every Saturday afternoon from 2:00 to 4:00 pm.

Pop Up Science are hands-on activities and that meld science, technology, engineering, art/architecture and math throughout the facility. Open to all ages weekdays from 2:00 to 4:00 pm.

Lifelong Learning: We celebrate the United Nations' World Water Day, Earth Day, Drinking Water Week, the Spring Shad Run, and more. In addition, our collaboration with the Mayor's Office of Sustainability is helping Philadelphia reach its goal of being the nation's greenest City.

Visit Us Soon!

The Interpretive Center is located at 640 Water Works Drive, nestled between Boat House Row and the Philadelphia Museum of Art. Hours are Tuesday through Saturday, 10:00 am to 5:00 pm, and Sunday from 1:00 pm to 5:00 pm. Closed on Mondays and City holidays. Admission is free.

Support our educational efforts! Make a donation to "The Fund for the Water Works—IC"

The FWWIC is ADA accessible. To schedule classroom tours or to check out the Center's Saturday Family Programs, Sunday Film Series, Schuylkill Soundings offering, visit our website: www.fairmountwaterworks.org.



Clean water begins and ends with you

Always recycle or dispose of unwanted household hazardous wastes properly. Don't pour motor oil, antifreeze or other toxic materials down storm drains. Water that enters our storm drains often flows directly to our local streams and rivers. So, don't pollute! Recycle these household hazardous materials safely and help protect our waterways. Also, don't flush paint thinners, insect sprays, herbicides and other harmful chemicals down the sink. Contact the Streets Department to get a schedule of their Household Hazardous Materials Drop-off Events where you can dispose of these materials safely without polluting your drinking water supply.

TABLE 1: Who to Call to Report Various Situations

Situation	Who To Call	Phone
Dead Fish	Fish & Boat Commission PADEP	717-626-0228 484-250-5900
Illegal Dumping & Related Pollution Activities	PADEP	484-250-5900
Sewage Spills	PADEP PWD	484-250-5900 215-685-6300
Oil & Gas Spills/ Accidents	PADEP PWD	484-250-5900 215-685-6300

Important telephone numbers and Internet addresses

Philadelphia Water Department
215-685-6300
<http://www.phila.gov/water>

Delaware River and Schuylkill River Source Water Assessments
http://www.phillywatersheds.org/what_were_doing/documents_and_data/watershed_plans_reports

Schuylkill Action Network
<http://www.schuylkillwaters.org>

Philadelphia river and watershed information
<http://www.phillywatersheds.org>

RiverCast
<http://www.phillyrivercast.org>

Fairmount Water Works Interpretive Center
215-685-0723

Philadelphia Streets Department
215-686-5560
<http://www.philadelphiastreet.com>

U.S Environmental Protection Agency (Safe Drinking Water Hotline)
800-426-4791
<http://www.water.epa.gov/drink/hotline/index.html>

ACTIVITY TYPES

- A: Environmental activism
- B: Business-related protection and education activities
- C: Clean-up of trash and litter
- E: Environmental education
- F: Fishing or fish recreation activities
- L: Land conservation and management
- P: Planting trees and streambank repair/protection
- R: Rowing, canoeing and related boating activities
- S: Storm drain marking
- T: Water quality testing

TABLE 2 – Places To Go To Get Involved In Protecting Your Local Streams, Rivers and Water Supply

Organization	Activity Types	Phone Number	Website Address
Friends of the Pennypack	A, C, E, P, T	215-934-PARK	http://balford.com/fopp
Friends of the Wissahickon	A, C, E, P, T	215-247-0417	http://www.fow.org
Friends of Fox Chase Farms	A, C, E, P	215-728-7900	http://www.foxchasefarm.org
Friends of the Tacony Creek Park	A, C, E, P, T	215-745-8903	http://friendsoftaconycreekpark.org
Friends of the Manayunk Canal	A, C, E, P, T	215-466-4587	http://www.manayunkcanal.org
Schuylkill Environmental Education Center	A, B, C, E, P, T	215-482-7300	http://www.schuylkillcenter.org
Partnership for the Delaware Estuary	A, B, C, E, P, S,T	1-800-445-4935	http://www.delawareestuary.org
Environmental Alliance for Senior Involvement	A, C, E, P, T	203-779-0024	http://www.easi.org
Philadelphia Canoe Club	R, F, T	215-487-9674	http://www.philacanoec.org
Friends of Fairmount Fish Ladder	F	215-683-3608	email: epac99@aol.com
Cobbs Creek Environmental Education Center	A, C, E, P, T	215-685-1900	http://www.cobbscreekcenter.org
Wissahickon Restoration Volunteers	A, C, E, P, T	215-951-0330x2101	http://wissahickonrestorationvolunteers.org
Wissahickon Valley Watershed Association	A, C, E, P, T	215-646-8866	http://www.wvwa.org
Lower Merion Conservancy	A, C, E, P, T	610-645-9030	http://www.lmconservancy.org
Philadelphia Water Department Water Quality Education Citizens Advisory Council	A, E	215-685-6300	http://www.phila.gov/water
Schuylkill Action Network	A, B, C, E, L, P, T	800-445-4935x109	http://www.schuylkillwaters.org
Schuylkill Banks	B,E,L	215-222-6030	http://www.schuylkillbanks.org
Senior Environment Corps	A, C, E, P, T	215-848-7722	http://www.centerinthepark.org/progsec.html
Tookany/Tacony-Frankford (TTF) Watershed Partnership	A, C, E, P, T	215-844-8100	http://ttfwatershed.org/



WATER Wheel

Update/2013

Infill Philadelphia: Soak It Up Design Competition



The Infill Philadelphia: Soak It Up! national design competition was created through an 18-month partnership between the Community Design Collaborative, U. S. Environmental Protection Agency and the Philadelphia Water Department

to revitalize urban neighborhoods through the adoption of green stormwater management in the Philadelphia region. These methods are outlined in *Green City, Clean Waters*, Philadelphia's \$2 billion, 25-year plan to protect and enhance the city's waterways by managing stormwater

primarily through innovative green stormwater infrastructure.

A jury of green stormwater infrastructure stakeholders chose the three winners of the Infill Philadelphia: Soak It Up! design competition on

Thursday, March 7, 2013 at the Academy of Natural Sciences of Drexel University, Philadelphia PA.

The competition challenged architects, landscape architects, engineers and other sustainability professionals to show how green stormwater infrastructure could transform the city. Teams were asked to address the unique stormwater management challenges and opportunities at one of three sites based in Philadelphia. Each site represented a different urban context and land-use (industrial, commercial or neighborhood).

Ultimately, 28 teams, 101 firms and 315 professionals from the Philadelphia region and other cities including New York City, St. Louis, Chicago, Oakland and Portland participated in the design competition.

Nine finalists were selected to present their entries to a jury and the public at the March 7 Design Awards event, where a jury of comprised of leaders in green stormwater infrastructure selected three winners—one for each competition site. Each winner was awarded a \$10,000 prize.

Congratulations to the winning teams!





Infill Philadelphia: Soak It Up Design Competition



About the Competition Sites

INDUSTRIAL—Warehouse Watershed

A warehouse and a city-owned lot that could be the catalyst for the revitalization of a high-vacancy residential/industrial district

COMMERCIAL—Retail Retrofit

A retail center that could play a more central role in the surrounding neighborhood through improved walkability, pop-up community space, and access to river recreation

NEIGHBORHOOD—Greening the Grid

An historic neighborhood with an engaged community and a network of streets, alleys, roofs, and open space ready for an array of small-scale interventions

About the Winners

INDUSTRIAL—Warehouse Watershed

Leveraging Water + Plants in Zero Lot Sites

Roofmeadow, Philadelphia, PA

In Posse – A subsidiary of AKF, Philadelphia, PA

m2 Architecture, Philadelphia, PA

Meliora Environmental Design LLC, Phoenixville, PA

SED Design, Blue Bell, PA

Sere Ltd., Spring Mills, PA

Winner

COMMERCIAL—Retail Retrofit

Stormwater reStore

Urban Engineers Inc., Philadelphia, PA

Mathews Nielsen Landscape Architects, New York, NY

Spiezle Architectural Group, Trenton, NJ

Winner

NEIGHBORHOOD—Greening the Grid

Meeting Green

OLIN Design Studio, Philadelphia, PA

Gilmore & Associates, New Britain, PA

International Consultants Inc., Philadelphia, PA

MM Partners LLC, Philadelphia, PA

Penn Praxis

SMP Architects, Philadelphia, PA

Prize Sponsors

AIA Philadelphia

City of Philadelphia Department of Commerce

City of Philadelphia Mayor's Office of Sustainability



For more information on Green City, Clean Waters, please visit www.phillywatersheds.org.