



## The Pittsburgh Water & Sewer Authority

441 Smithfield Street • Pittsburgh, PA 15222

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### *Prepared by:*

*The Pittsburgh Water & Sewer Authority, in keeping with its vision to provide water and wastewater services that meet or exceed regulations and customer expectations at the lowest possible cost.*



Publication of PWASA's 2006 Annual Drinking Water Quality Report is a requirement of the Federal Safe Drinking Water Act.



## **2006 Annual Drinking Water Quality Report**

**PA Public Water Supply ID No. 5020038**

**This report gives information on our water  
quality and explains what it means.**

*Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo ó hable con alguien que lo entienda bien. (This report contains very important information about your drinking water. Translate it, or speak with someone who understands it.)*

### **Special Information for Immuno-compromised Individuals**

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 or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers. Environmental Protection Agency (EPA) and 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 at 1-800-426-4791.

## 2006 Annual Drinking Water Quality Report

We are pleased to present to you The Pittsburgh Water and Sewer Authority's (PWSA) 2006 Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and quality service we deliver to you every day. Our constant goal is to provide you with a safe, dependable and ample supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. We are committed to ensuring the quality of your water.

If you have any questions about this report, please contact Dr. Stanley States, Water Quality Manager of PWSA at (412) 782-7553. We want our valued customers to be informed about their water.

This water quality report and additional information are available on PWSA's Web site: [www.pgh2o.com](http://www.pgh2o.com). Additional copies may be obtained by calling the Communications Division at (412) 255-0767.

To learn more about PWSA, please attend our regularly scheduled board meetings. They are held on the second Friday of every month at 9:00 a.m. in our downtown office at:

**The Pittsburgh Water & Sewer Authority (PWSA)**

**441 Smithfield Street • Pittsburgh, PA 15222**

**Phone: (412) 255-8935 • Fax: (412) 255-2475 • [www.pgh2o.com](http://www.pgh2o.com)**

### Where does your water come from and how is it treated?

PWSA draws its water from the Allegheny River. No ground or well water is used. Approximately 70 million gallons of water is treated each day at our water treatment plant. The plant is capable of producing over 100 million gallons of water per day. The treatment process takes three (3) full days and consists of three (3) separate stages:

**Stage 1 – Clarification** - River water passes through a process called "clarification," in which silts and clays are removed. This stage involves chemical formation of clumped particles called "floc," which are then physically removed by gravity sedimentation.

**Stage 2 – Filtration** - The clarified water next passes slowly through sand and gravel filters in order to remove fine particles and microorganisms.

**Stage 3 – Disinfection** - The filtered water is finally treated with chlorine in order to ensure removal of any harmful microorganisms.

During the process, several chemicals are added to complete treatment. These include activated carbon, which sweetens the taste of the water, and fluoride to prevent cavities in children’s teeth.

### Secondary Treatment of Reservoir Water

In addition to our primary water treatment plant, located near Aspinwall, PWSA operates a secondary treatment plant in Highland Park. All of the water stored in the open-air Highland Reservoir #1 was originally treated in our primary plant. But now, before the Highland Reservoir #1 water is distributed to the public, it is retreated in our secondary plant. This state of the art membrane filtration plant (constructed in 2002) utilizes microfiltration and chlorination to remove any impurities that may have entered the water during storage in the reservoir.

### Source Water Protection

PWSA has worked with the Pennsylvania Department of Environmental Protection (PADEP) and the Allegheny County Health Department (ACHD) in preparing a Source Water Assessment Report for our source water, the Allegheny River. The report identifies the most likely sources of pollution affecting this river. These include accidental release of contaminants from industrial processes and terminals; cumulative impact of discharge from power plants; cumulative release of petroleum products from pipeline ruptures; stormwater; and Combined Sewer Overflow (CSO) run-off from lands adjacent to the river. A summary of the Source Water Assessment is available on the PADEP Web site at [www.dep.state.pa.us](http://www.dep.state.pa.us).

## Who monitors and ensures the quality of water?

PWSA monitors for constituents in your drinking water (on a continuous basis – 365 days per year) in accordance with Federal and State regulations. Table #1 (which appears on pages 6 & 7 ) shows the results of our monitoring of water being treated at the Aspinwall Water Treatment Plant for the period of January 1, 2006 to December 31, 2006. Table #2 (which appears on pages 8 & 9 ) shows the results of our monitoring of water treated at the Highland Park Membrane Filtration Plant during the same period.

While we have conducted more than 100,000 analyses for approximately 100 different chemical and microbial constituents last year, we only found detectable levels of the contaminants listed in the water quality tables. It should be noted that none of the test results exceeded federal or state maximum contaminant levels (MCLs).

## What does PWSA test for?

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

### **Contaminants that may be present in source or raw water include:**

**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 be naturally occurring or result from urban stormwater run-off, 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 run-off and residential uses.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, or can come from gas stations, urban stormwater run-off and septic systems.

**Radioactive contaminants**, which can be naturally-occurring or the result of oil and gas production and mining activities.

In order to assure that tap water is safe to drink, the United States Environmental Protection Agency (EPA) and DEP prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and DEP regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

PWSA tests for contaminants that may be present in the source water prior to treatment. Results of these tests enable us to adjust the treatment process in order to maximize the reduction and the removal of contaminants. Tests are also conducted during the treatment process and on the finished or treated water. Additional samples for testing are collected from our storage facilities, various points in the distribution network and customers' taps.

## Abbreviations and Definitions

In the Water Quality Tables, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, we have provided the following definitions:

**ND:** ***Non-Detect*** - Laboratory analysis indicates that the contaminant is not present at a detectable level.

**ppm or mg/l:** ***Parts Per Million or Milligrams Per Liter*** - One part per million corresponds to one minute in two years or a single penny in \$10,000.

**ppb or ug/l:** ***Parts Per Billion or Micrograms Per Liter*** - One part per billion corresponds to one minute in 2000 years or a single penny in \$10,000,000.

**Continued on page 10**

# 2006 Water Quality Table

Table #1: Test Results for Regulated Contaminants (Aspinwall Treatment Plant)

	Contaminant (Unit of measurement)	Violation Y/N	Level Detected	Rate
Microbiological Contaminants	TURBIDITY (NTU) (a)	N	0.089 (b) 100%	N M
	TOTAL CHLORINE RESIDUAL IN DISTRIBUTION SYSTEM (ppm)	N	0.6	0.3
	FREE CHLORINE RESIDUAL AT ENTRY POINT TO DISTRIBUTION SYSTEM	N	0.26	0.26
Disinfection By-products	TOTAL TRIHALOMETHANES (ppb)	N	53	16
	TOTAL HALOACETIC ACIDS (ppb)	N	14	5
Radioactive Contaminants	BETA PHOTON EMITTERS (pCi/L) (e)	N	2.19	
Lead and Copper Rule	LEAD (ppb) (f)	N	90th percentile =9.5	1 site a out of sar
	COPPER (ppm) (f)	N	90th percentile =0.099	No site AL or sites s
Inorganic Chemical Contaminants	ANTIMONY (ppb)	N	4	<3
	BARIUM (ppm) (f)	N	0.041	
	CADMIUM (ppb)	N	0.1	<0.1
	FLUORIDE (ppm) (f)	N	1.45	0.05
	NITRATE (ppm)	N	1.0	
	NICKEL (ppb) (f)	N	5	<1
Total Organic Carbon Removal	TOTAL ORGANIC CARBON (TOC) (% REMOVAL) (i)	N	No quarter out of compliance	45
	Footnotes: (a) Turbidity is a measure of the cloudiness of the water. We m All turbidity samples met the turbidity limit of 0.3 NTU. (c) MRDLG. (d) MR than once per year because the concentrations of these contaminants do year old. (f) Data from 2004. (g) Only one sample required. (h) USEPA co TOC may be necessary to control unwanted formation of disinfection by-pr			

Range	MCLG	MCL	Likely Source of Contamination
N/A N/A	N/A	TT=1 NTU for a <u>single measurement</u> TT=at least 95% of samples < 0.3 NTU	Soil run-off
to 0.6	(c) 4	(d) 4	Water additive used to control microbes
to 1.06	(c) 4	(d) 4	Water additive used to control microbes
to 118	N/A	80	By-product of drinking water chlorination
to 33	N/A	60	By-product of drinking water disinfection
(g)	0	(h) 50	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solders
above AL 50 sites sampled	0	AL = 15	Corrosion of household plumbing systems; erosion of natural deposits
es above ut of 50 sampled	1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
to 4	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
(g)	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
to 0.1	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; run-off from waste batteries and paints
to 1.45	2	2	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
(g)	10	10	Run-off from fertilizers; leaching from sewage; natural deposits
to 5	100	100	Discharges from petroleum and metal refineries; erosion of natural deposits; discharge from mines
to 58	N/A	TT = 35%	Naturally present in the environment

monitor it because it is a good indicator of the effectiveness of our filtration system. (b) DL. (e) Data from 2003. The state allows us to monitor for some contaminants less not change frequently. Some of our data, though representative, are more than one considers 50 pCi/L to be the level of concern for beta particles. (i) Adequate removal of products.

# 2006 Water Quality Table

Table #2: Test Results for Regulated Contaminants (Highland Park Membrane Filtration Plant)

	Contaminant (Unit of measurement)	Violation Y/N	Level Detected	R
Microbiological Contaminants	TURBIDITY (a)	N	0.23 (b) 100%	
	FREE CHLORINE RESIDUAL AT ENTRY POINT TO DISTRIBUTION SYSTEM	N	0.2	0.20
Radioactive Contaminants	ALPHA PHOTON EMITTERS (pCi/L) (e)	N	4.9	0
	BETA PHOTON EMITTERS (pCi/L) (e)	N	8.2	4.5
	COMBINED RADIUM (pCi/L) (e)	N	1.2	0
Inorganic Chemical Contaminants	BARIUM (ppm)	N	0.036	
	CHROMIUM (ppb)	N	0.2	
	FLUORIDE (ppm)	N	0.9	
	NITRATE (ppm)	N	1.1	
	NICKEL (ppb)	N	1.0	
	Footnotes: (a) Turbidity is a measure of the cloudiness of the water. We monitor samples met the turbidity limit of 0.3 NTU. (c) MRDLG. (d) MRDL. (e) Data Only one sample required.			

Range	MCLG	MCL	Likely Source of Contamination
N/A N/A	N/A	TT=1 NTU for a <u>single measurement</u> TT=at least 95% of samples $\leq$ 0.3 NTU	Soil run-off
0 to 2.63	(c) 4	(d) 4	Water additive used to control microbes
0 to 4.9	0	15	Erosion of natural deposits
0 to 8.2	0	(f) 50	Decay of natural and man-made products
0 to 1.2	0	5	Erosion of natural deposits
(g)	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
(g)	100	100	Discharge from steel and pulp mills; erosion of natural deposits
(g)	2	2	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
(g)	10	10	Run-off from fertilizers; leaching from sewage; natural deposits
(g)	100	100	Discharges from petroleum and metal refineries; erosion of natural deposits; discharge from mines

tor it because it is a good indicator of the effectiveness of our filtration system. (b) All turbidity from 2005. (f) USEPA considers 50 pCi/L to be the level of concern for beta particles. (g)

- NTU:** *Nephelometric Turbidity Unit* - Measurement of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- AL:** *Action Level* - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- TT:** *Treatment Technique* - A required process intended to reduce the level of a contaminant in drinking water.
- 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.
- 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.
- MRDLG:** *Maximum Residual Disinfectant Level Goal* - The level of a drinking water disinfection 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.
- MRDL:** *Maximum Residual Disinfectant Level* - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- NA:** *Non-Applicable* - Does not apply.
- pCi/L:** *Picocuries Per Liter* - A measure of radioactivity in water.
- Mrem/yr:** *Millirems Per Year* - A measure of radiation absorbed by the body.

## What does the test result information mean?

As you can see in Tables 1 & 2, our system had no water quality violations. We are proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected.

## Should you be concerned about lead?

Infants and young children are typically more vulnerable to lead in drinking water than the general population. Always use cold water for cooking, drinking, and making baby formula.

It is possible that lead levels in your home may be higher than in other homes in the community as a result of materials used in your home's plumbing. It is important to point out that the use of lead solders or pipes in drinking water plumbing systems is illegal. Never use lead solders when repairing drinking water lines.

If you are concerned about elevated lead levels in your home's water and would like to have your water tested for lead, free of charge, please call PWSA at (412) 782-7554. Additional information is available from the EPA's Safe Drinking Water Hotline.

## In General

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.