District of Columbia
Water and Sewer Authority

Drinking Water QUALITY REPORT 2007

Dear Consumer,

The District of Columbia Water and Sewer Authority (WASA) is pleased to provide you with our 2007 Annual Water Quality Report containing information about your drinking water—where the water comes from, what is in the water, how the water is treated, and how we distribute the water to your home or place of business.

WASA is committed to providing customers with the highest quality drinking water by first ensuring that the water we deliver to you meets or surpasses federal Safe Drinking Water Act standards, and secondly by providing you with the most reliable service possible. I am confident that you will find our 2007 Water Quality Report informative.

Jerry N. Johnson
General Manager

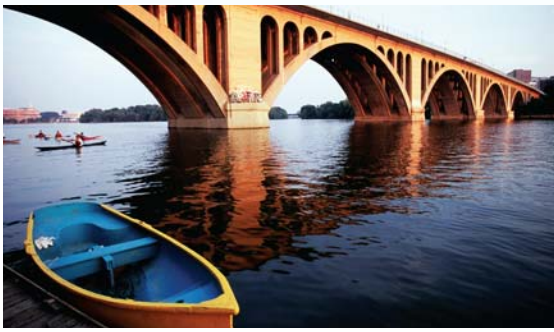
The Potomac River—Our Water Supply Source

Drinking water for the District of Columbia comes from the Potomac River, a "surface water" supply. As water travels over the surface of the land, and into the Potomac River, it dissolves naturally occurring minerals, leaves and vegetation, and sometimes even radioactive materials and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water (before treatment) include:

- Microorganisms, such as viruses and bacteria that come from agricultural livestock operations, septic systems, wastewater treatment plants and wildlife
- Inorganic chemicals, such as salts and metals that can be naturally occurring or result from urban stormwater runoff, farming, and industrial or domestic wastewater discharges
- Pesticides and herbicides that may come from agriculture, urban stormwater runoff, and residential uses
- Organic chemicals, including synthetic and volatile organic chemicals which are by-products of industrial processes, petroleum products from gas stations and urban stormwater runoff and septic systems
- Radioactive chemicals that can be naturally occurring or the result of mining activities

The Interstate Commission on the Potomac River Basin conducted a Source Water Assessment of the Potomac River watershed in April 2002. The assessment identified urban runoff, toxic spills, agriculture and inadequate wastewater treatment as potential contamination sources to the water supply. Contact the Interstate Commission on the Potomac River Basin at (301) 984-1908 or visit their website at *www.potomacriver.org/water_quality/dc.htm* for more information or to join your neighbors in activities that help protect our water supply.



Protecting the District Drinking Water Supply

PROTECT THE WATERSHED—A watershed is an area of land that drains to a particular point along a stream or river. The best way to protect the Potomac River from contamination is to help protect the watershed. Simple reminders that play a crucial role in protecting the watershed include:

- Take precautions to ensure that trash and debris do not enter storm drains and catch basins
- Dispose of household waste, grease and motor oil properly
- Report spills that could potentially enter the waterways

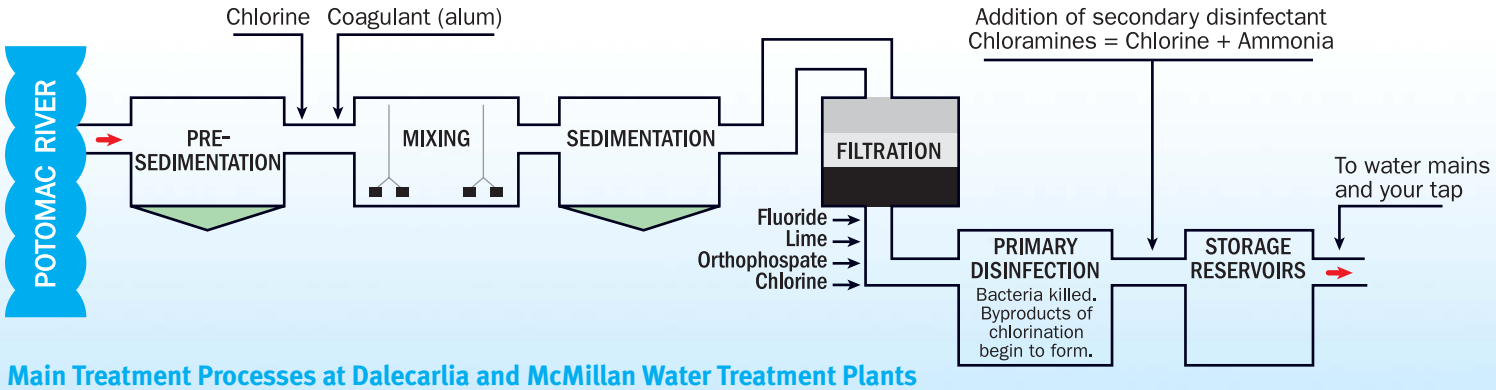
Please contact the Mayor's 311 call center to report spills or to seek assistance on waste disposal.

GET INVOLVED—The **WASA Board of Directors** conducts regular business meetings that are open to the public, generally on the first Thursday of each month, 9:30 AM at the Blue Plains Facility, 5000 Overlook Ave, SW, Washington, DC 20032. Please contact the Office of the Board Secretary at (202) 787-2330 to confirm the specific meeting time and location.

The Water Treatment and Distribution System

The District of Columbia Water and Sewer Authority (WASA) maintains about 1,300 miles of pipe and distributes potable water to over 500,000 residents and businesses throughout the District. WASA purchases drinking water from the US Army Corps of Engineers, Washington Aqueduct. The Washington Aqueduct draws water from the Potomac River at the Great Falls and the Little Falls intakes and treats the water at the Dalecarlia and McMillan Treatment Plants (see the water treatment diagram). The treatment process includes sedimentation, filtration, fluoridation, pH adjustment, primary disinfection using free chlorine, secondary disinfection with chloramines through the addition of ammonia, and corrosion control with orthophosphate.

Chloramines are a federally approved alternative to free chlorine. Chloramines must be removed from water used for kidney dialysis or aquariums. Please contact your physician or kidney dialysis center for the appropriate water treatment process. Contact your local pet store for the appropriate water treatment for fish tanks. For more information about chloramines go to *www.dcwasa.com/waterquality/faqs.cfm*.



Main Treatment Processes at Dalecarlia and McMillan Water Treatment Plants

Pre-Sedimentation - Allows large particles in untreated water to settle out naturally.

Mixing - "Coagulants" are added to the water to cause small particles to stick together when the water is mixed, making larger, heavier particles.

Sedimentation - Allows the newly formed larger particles to settle out naturally.

Filtration - Removes smaller particles by trapping them in sand filters.

Primary Disinfection - with Chlorine/Chloramines (after 11-1-2000). Other chemicals added include:
Lime to adjust the pH (the water's acidity) and orthophosphate to prevent corrosion.
Fluoride at low levels to protect teeth (as recommended by the American Dental association)

Improving Drinking Water Quality in Your Home

Water quality may deteriorate once it leaves the public mains and enters your household plumbing especially during long stagnation periods (when the water remains sitting in the pipes). Your home naturally warms the water in the internal plumbing and, combined with stagnation, can further deteriorate water quality and sometimes create taste and odor problems.

TIPS FOR IMPROVING WATER QUALITY IN YOUR HOME:

Reduce water stagnation in your home
Run your cold water tap for approximately two minutes before using for drinking and cooking if the water has been stagnant for several hours.

Clean your faucet aerator
Routinely remove the faucet aerator and clean the strainer of debris to prevent the buildup of metals and other sediments.

Replace your home water filter routinely
Replace the water filter in water pitchers and other devices as instructed by the manufacturer since used filters can elevate bacteria levels and accumulate metal.

Don't use hot water for drinking, cooking or making baby formula
Hot water generally comes from a hot-water heater that may contain impurities such as metals from household plumbing that should not be ingested. These impurities concentrate during the heating process and dissolve more rapidly in hot water.

Drain your hot water heater annually
Draining your water heater helps remove sediment and calcium particles that can affect your water pressure. For instructions on how to drain your hot water heater, go to *www.dcwasa.com/waterquality/waterheater.pdf*.

Flush your faucets if you replace your pipes or fixtures
After you replace plumbing fixtures or pipes, flush your cold water taps for at least five minutes before drinking or cooking use for several days to remove any pipe scale that may have detached or pipe shavings from pipe cuttings.

What's In My Drinking Water?

EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems to ensure that tap water is safe to drink. The US Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

The table compares the level of each detected contaminant to limits set by EPA: an allowable upper limit, the maximum contaminant level (MCL) or treatment technique requirement (TT), and a goal, the maximum contaminant level goal (MCLG).

Washington, DC Drinking Water Analysis Data for 2007

Regulated Contaminants

Washington Aqueduct Water Treatment Plant Performance

	Units	EPA Limits		DC Drinking Water	Description / Typical Sources of Contaminants
		MCLG	MCL or TT		
Turbidity	NTU	0	TT = 1 (maximum)	0.21 (maximum)	Turbidity can indicate the presence of disease causing microorganisms
	% of monthly turbidity readings ≤ 0.3 NTU	0	TT = 95% (minimum)	100%	Turbidity is often caused by soil runoff
Total Organic Carbon (TOC)	% removal	NA	TT 15-35% removal	43% (lowest annual average) 33% to 55% (range of monthly averages)	Naturally present in the environment

Water Entering WASA's Distribution System

	Units	EPA Limits		DC Drinking Water		Description / Typical Sources of Contaminants
		MCLG	MCL	Highest	Range	
Inorganic Metal						
Arsenic	ppb	0	10	0.5	ND to 0.5	Erosion of natural deposits; Runoff from orchards
Barium	ppm	2	2	0.05	0.03 to 0.05	Erosion of natural deposits
Chromium	ppb	100	100	3	ND to 3	Erosion of natural deposits
Selenium	ppb	50	50	0.8	ND to 0.8	Erosion of natural deposits; discharge from mines
Inorganic Anions						
Cyanide	ppb	200	200	30	ND to 30	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride	ppm	4	4	1.1	0.05 to 1.1	Water additive which promotes strong teeth
Nitrate	ppm	10	10	3.0	0.1 to 3.0	Runoff from fertilizer use; erosion of natural deposits
Nitrite	ppm	1	1	0.1	ND to 0.1	Runoff from fertilizer use; erosion of natural deposits
Synthetic Organic Contaminants						
Atrazine	ppb	3	3	0.5	ND to 0.5	Runoff from herbicide used on row crops
Dalapon	ppb	200	200	1	ND to 1	Runoff from herbicide used on rights of way
Simazine	ppb	4	4	0.2	ND to 0.2	Herbicide runoff
Radionuclides						
Beta emitters[1]	pCi/L	0	50[2]	4	ND to 4	Decay of natural and man-made deposits
Combined radium	pCi/L	0	5	0.8	ND to 0.8	Erosion of natural deposits

1 Results are from the 2005 monitoring year, which is the most recent sampling completed in accordance with EPA regulations.
2 The MCL for beta particles is 4 mrem/year. EPA considers 50pCi/L to be the level of concern for beta particles.

WASA's Distribution System

	Units	EPA Limits		DC Drinking Water		Description / Typical Sources of Contaminants
		MCLG	MCL or TT	Highest	Range	
Microbial Indicators						
Total Coliform Bacteria	% of total-coliform-positive samples	0	5% (maximum)	1.8%	0 to 1.8%	Naturally present in the environment
Fecal Coliform	Number positive	0	0	0	0	Human and animal fecal waste
E.coli bacteria	Number positive	0	0	0	0	Human and animal fecal waste
Disinfectants and Disinfection Byproducts						
Chlorine	ppm	4 (MRDLG) (annual average)	4 (MRDL) annual average)	3.4 (Highest running annual average)	0.4 to 4.5 (Range of single site results)	Water additive that protects against microbiological contamination. Chlorine is combined with ammonia to form chloramine.
Total Trihalomethanes	ppb	NA	80 (4-quarter running average)	41 (Highest 4-quarter running average)	19 to 63 (Range of single site results)	Trihalomethanes are a byproduct of drinking water disinfection
Haloacetic Acids (5)	ppb	NA	60 (4-quarter running average)	31 (Highest 4-quarter running average)	17 to 44 (Range of single site results)	Haloacetic acids are a byproduct of drinking water disinfection

Lead and Copper (at the customer's tap)

	Units	EPA Limits		DC Drinking Water		Description / Typical Sources of Contaminants
		MCLG	Action Level	Samples above AL	90th Percentile	
Lead						
Jan-June 2007 Monitoring Period	ppb	0	15	5 of 104	10	Corrosion of household plumbing systems; erosion of natural deposits
July-Dec 2007 Monitoring Period				4 of 101	11	
Copper						
Jan-June 2007 Monitoring Period	ppm	1.3	1.3	0 of 104	0.1	Corrosion of household plumbing systems and erosion of natural deposits
July-Dec 2007 Monitoring Period				0 of 101	0.1	

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 Safe Drinking Water Hotline at (800) 426–4791 or at *www.epa.gov/safewater*.

The Washington Aqueduct and WASA routinely monitor numerous water quality parameters outside of the regulated contaminants to optimize the quality of water delivered to customers. The *Unregulated Contaminant* section in the table summarizes some of these contaminants. WASA also provides regular updates on our website for routine water quality monitoring at *www.dcwasa.com/waterquality*.

Important Health Information

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 about drinking water from their health care providers. EPA/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 (800) 426–4791.

CRYPTOSPORIDIUM

The Washington Aqueduct monitored for *Cryptosporidium* in the Potomac River monthly from 2005 through 2007. *Cryptosporidium* is a microbial pathogen found in most surface water in the U.S. In October 2005, the Washington Aqueduct detected *Cryptosporidium* at 1.5 oocysts per 100 liters in one sample from the Potomac River. *Cryptosporidium* was not detected in any other sample during the two year period.

Ingesting *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing a life-threatening illness. WASA encourages immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. WASA is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *www.epa.gov/safewater/lead*.

UNREGULATED CONTAMINANTS

Water Entering WASA's Distribution System

CONTAMINANT	UNITS	AVERAGE	RANGE
Aluminum	ppb	79	18 to 907
Chloride	ppm	32	16 to 89
Cobalt	ppb	ND	ND to 0.3
Iodide	ppb	5.9	2.5 to 9.2
Iron	ppb	28	ND to 420
Lithium	ppb	2.7	1.3 to 5.1
Magnesium	ppm	9.9	5.8 to 14.4
Manganese	ppb	1.2	0.3 to 3
Metolachlor	ppb	ND	ND to 0.07
Molybdenum	ppb	1	ND to 1.9
N-Nitrosodimethylamine (NDMA)	ppt	ND	ND to 2.5
Nickel	ppb	2	1.4 to 3.4
Perchlorate[1]	ppb	ND	ND to 1.7
Potassium	ppm	3.0	2.0 to 4.3
Silver	ppb	ND	ND to 0.6
Sodium	ppm	16	9 to 22
Strontium	ppb	203	101 to 304
Sulfate	ppm	54	33 to 89
Vanadium	ppb	0.9	0.2 to 1.6
Zinc	ppb	2.1	ND to 26

Other Water Quality Parameters — WASA's Distribution System

Alkalinity	ppm as $CaCO_3$	74	32 to 126
Ammonia (Free)	ppm as Nitrogen	0.14	0.0 to 0.4
Calcium Hardness	ppm as $CaCO_3$ gpg	114 7	80 to 156 5 to 9
Dissolved Orthophosphate	ppm	2.29	1.9 to 2.6
pH	—	7.6	7.3 to 8.1
Temperature	degrees Fahrenheit	66	39 to 90

1 The Washington Aqueduct (WA) used a modified version of EPA Method 314 that detects lower levels than the standard EPA Method 314. In addition, EPA recently initiated a study of perchlorate in the Potomac River Basin and also used a modified method. For more information pertaining to these results and general information about perchlorate go to *www.dcwasa.com/waterquality*.

Abbreviations and Definitions

AL = Action Level. The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement that a water system must follow.

$CaCO_3$ = Calcium carbonate.

CDC = Centers for Disease Control and Prevention, located in Atlanta, preventing and controlling disease, injury, and disability. CDC is an agency of the U.S. Department of Health and Human Services.

gpg = grains per gallon

HAA_5 = Haloacetic Acid 5. The five haloacetic acid species required to be monitored by EPA.

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.

MRDLG = Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MDRLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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.

mrem/year = millirems per year (a measure of radiation absorbed by the body)

NA = Not Applicable.

ND = Non-Detectable.

NR = Not regulated by EPA at this time.

NTU = Turbidity is measured with an instrument called a nephelometer, which measures the intensity of light scattered by suspended matter in the water. Measurements are given in nephelometric turbidity units (NTUs).

pCi/L = Picocuries per liter (a measure of radioactivity)

ppm = parts per million

ppb = parts per billion

ppt = parts per trillion

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

Turbidity = A measure of the cloudiness of water. We measure turbidity because it is a good indicator of the effectiveness of the water treatment system. Turbidity in excess of 5 NTU is just noticeable to the average person.

DC Water & Sewer Authority
5000 Overlook Ave., SW
Washington, DC 20032

Additional Studies of the Potomac River and our Drinking Water

The U.S. Geological Survey (USGS) conducted a study of personal care products and pharmaceuticals, among other chemicals, in the nation's streams and rivers. Our water treatment provider, the Washington Aqueduct, participated in this study by sampling the Potomac watershed and our drinking water. Several compounds were found in trace amounts, but are not considered to have any short-term health effects. The results of this study will help to advance the science of understanding the occurrence and treatment of these chemicals from our source waters. More information can be found at *http://pubs.usgs.gov/ds/2007/268*.

The U.S. Department of Agriculture (USDA) collects data on pesticides in food and reports the data annually. In 2006 and 2007, the reports included data of bottled water and drinking water from public water systems; the Washington Aqueduct participated in these studies. The samples collected from the Potomac River and the treated drinking water had no pesticide levels near or above EPA's MCLs or Health Advisory Levels. The report can be found under the "Pesticides Data Program" at *http://www.ams.usda.gov/science/pdp/Index.htm*.

CONTACT INFORMATION

If you have any questions about this report or your drinking water, please call WASA's Water Quality Division at (202) 612-3440 or visit us on the web at *www.dcwasa.com*. For other WASA-related information or services, please call:

Customer Services ..... (202) 354-3600
Emergency ..... (202) 612-3400
Public Affairs ..... (202) 787-2200

Other important numbers:

Source Water Protection
DC Department of Environment ..... (202) 535-2600
Interstate Commission on the Potomac River Basin .... (301) 984-1908

Drinking Water Treatment
Washington Aqueduct Division, USACE ..... (202) 764-2753

Safe Drinking Water Hotline
EPA ..... (800) 426-4791

You can also visit the EPA on the web at www.epa.gov

Robin B. Martin – *Chairman of the Board*
Jerry N. Johnson – *General Manager*

이 안내지에는 귀하께서 드시는 식수의 질에 대한 중요한 정보가 들어있습니다. 이해하시는데 도움이 필요하시거나 질문이 있으시면 한인봉사센타 (Korean Community Service Center: KCSC) 에서 도와드릴 것이오니, 240-683-6663 으로 연락 주시기 바랍니다.

本手册備有有關飲用水的信息，若在閱讀的過程中需要幫忙解釋請與美京中華基督教會聯絡。電話是：202-898-0061