

Fairfax  Water

ANNUAL REPORT ON
WATER QUALITY

2006



Q. What's the short answer to "How's my water quality?"

A. Excellent! This report contains a lot of information and data. But the short answer is that, of the more than 120 contaminants we test for, we found very few. Those found were in negligible amounts that are well below EPA's maximum contaminant levels. Fairfax Water's goal is to continue to deliver the highest quality water possible to our customers. Through the use of the best available technologies in treating drinking water, we believe we do just that!

Ozone Treatment

One technology we use for disinfection as well as taste and odor control is ozone treatment. Ozone is created by applying an electrical current to pure oxygen in specially designed chambers. From the chambers, ozone is disbursed in the settled water. Ozone breaks down organic matter in the water and removes it in the filtration process. There are many benefits to using ozone, such as the inactivation of *Cryptosporidium* and *Giardia*, improvements in taste and odor, and reductions in the formation of disinfection by-products.

Annual Report On Water Quality

June 2006

Fairfax Water's goal is to provide a reliable, high-quality and dependable supply of drinking water to the 1.3 million friends, neighbors, and family members in Northern Virginia who drink our water. We don't need any other reason to demand the highest in water quality standards and service!

This Annual Report on Water Quality was produced to inform you about the quality of your drinking water. We want to thank you for taking the time to read through the information. The information in this report represents data collected and reported in 2005.

The quality of your drinking water must meet stringent state and federal requirements developed by the Environmental Protection Agency (EPA) and administered by the Virginia Department of Health. Fairfax Water tests the treated drinking water for more than 120 constituents. The regulated contaminants that were detected are listed on the charts at the center of this report. All of those listed are well below EPA's maximum contaminant levels.

This report was prepared under the requirements of the Safe Drinking Water Act. While we know our customers appreciate receiving this information, cost is always a concern. This report was designed, printed, and distributed for less than 13 cents per copy. If you have questions regarding this report, please call us at (703) 698-5800.

Fairfax Water

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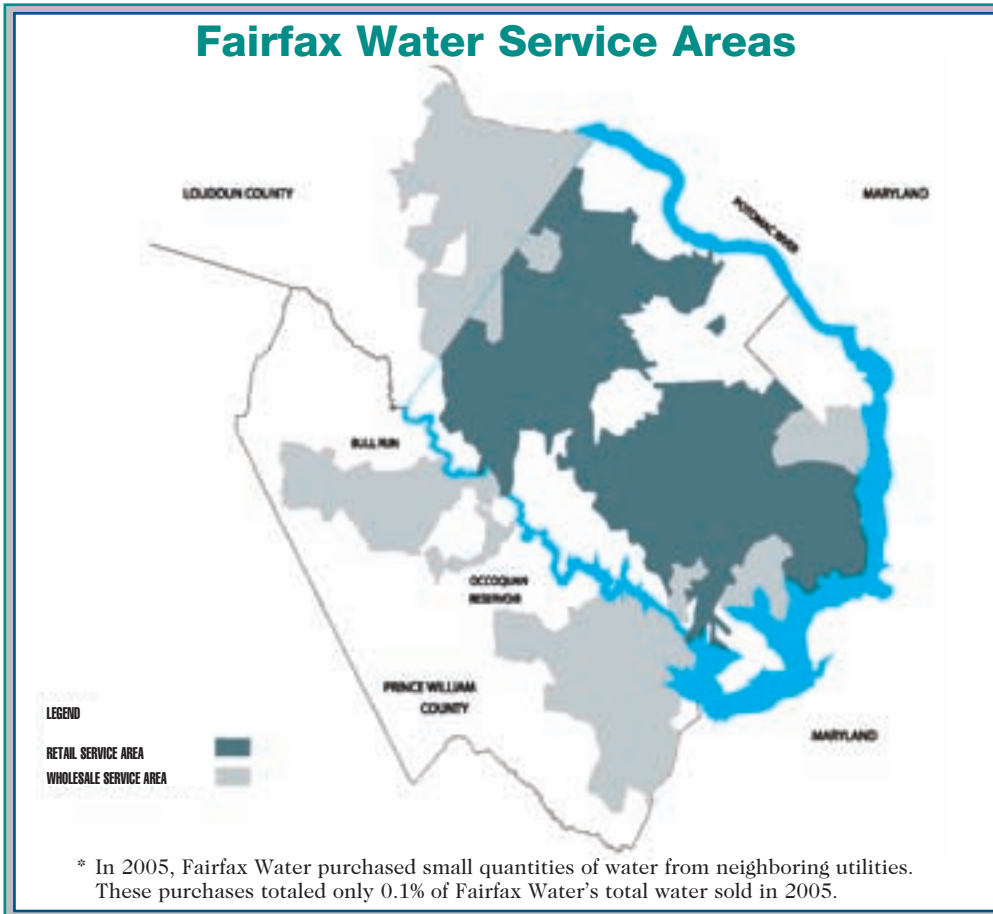
Important Information from EPA about...

Drinking Water and People with Weakened Immune Systems

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 (800-426-4791)**.

What's the Source of My Water?

Fairfax Water draws surface water from two primary sources: the Potomac River and the Occoquan Reservoir, which is fed by the Occoquan River.* Our treatment facilities are located at opposite ends of Fairfax County and feed an interconnected distribution system. The James J. Corbalis, Jr., Treatment Plant, located at the northern tip of our service area, draws water from the Potomac River. The Occoquan Reservoir, on the southern border of Fairfax County, supplies the Occoquan and Lorton treatment plants near the Town of Occoquan.



Q. How are bacteria that can make people sick kept out of drinking water?

A. Chemicals called disinfectants are added to drinking water at the treatment plant to inactivate any bacteria that may remain in the water after the treatment process. Fairfax Water's primary disinfectant is chlorine. Chloramines, a stable form of chlorine, are added to the treated drinking water to keep a disinfectant residual throughout the distribution system. During the spring months, Fairfax Water performs its annual flushing program. This flushing program is designed to clean residue out of the water pipes that deliver water to your home.

Questions and Answers about Lead in Drinking Water

What is the EPA standard for lead in drinking water?

EPA has established an action level for lead in water of 15 parts per billion. When lead testing is performed as required by EPA, 90 percent of the samples must contain less than 15 parts per billion. This is usually referred to as the 90th percentile results being less than 15 parts per billion. The action level was not designed to measure health risks from water represented by individual samples. Rather, it is a statistical trigger value that, if exceeded, may require more treatment, public education, and possibly lead service-line replacement where such lines exist.

Fairfax Water has been testing for lead in accordance with this rule since 1992 and has consistently tested below the action level established in the Lead and Copper Rule. Because the lead level measured within Fairfax Water's system has been consistently below the EPA action level, the testing frequency requirement has been reduced from twice per year to every three years.



Summary of Finished Water Characteristics

Components	Northern and Southern Water Treatment Plant Data Results							
	Units	MCLG	MCL	Average	Minimum	Maximum	Violation	Major Source in Drinking Water
Atrazine	ppb	3	3	0.11	ND	0.17	No	Runoff from herbicide used on row crops
Simazine	ppb	4	4	0.02	ND	0.09	No	Herbicide runoff
Chloroform	ppb	NRL	NRL	19.6	3.4	47.1	No	By-product of drinking water disinfection
Bromodichloromethane	ppb	NRL	NRL	7.3	4.0	12.6	No	By-product of drinking water disinfection
Chlorodibromomethane	ppb	NRL	NRL	2.8	1.5	3.8	No	By-product of drinking water disinfection
Bromoform	ppb	NRL	NRL	0.1	ND	0.5	No	By-product of drinking water disinfection
Metolachlor	ppb	NRL	NRL	0.12	ND	0.21	No	Runoff from herbicide used on row crops
Barium	ppm	2	2	0.055	0.028	0.136	No	Discharge of drilling wastes; discharge from metal refineries; erosion from natural deposits
Chromium	ppb	100	100	ND	ND	1	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride	ppm	4	4	0.8	0.5	1.5	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate [as Nitrogen]	ppm	10	10	1.2	0.7	2.8	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite [as Nitrogen]	ppm	1	1	ND	ND	0.02	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Beta/photon emitters ^{1,2}	pCi/L	0	50	4.1	ND	4.9	No	Decay of natural and man-made deposits
Alpha Emitters ³	pCi/L	0	15	0.7	0.2	1.2	No	Erosion of natural deposits
Radium 228 ³	pCi/L	0	5	0.5	0.2	1.2	No	Erosion of natural deposits

Distribution System Water Quality

Microbial Results	MCLG	MCL	FW result	Major Source in Drinking Water	Violation
Total Coliform Bacteria ⁶	0	Presence not to exceed 5% of monthly samples	0.36%	Naturally present in the environment	No
Fecal Coliform Bacteria	0	A routine sample and repeat sample are Total Coliform positive, and one is also Fecal Coliform or E. coli positive.	0	Human and animal fecal wastes	No

Total Trihalomethanes (ppb)					
Quarterly Running Annual Average	Highest Quarterly System Running Annual Average	System Range	Violation	Major Source in Drinking Water	
0	80	28	4 - 70	No	By-product of drinking water disinfection

Total Chlorine (ppm)						
MRDLG	MRDL	Highest Quarterly Average	Minimum	Maximum	Violation	Major Source in Drinking Water
4	4	3.4	0.6	5.0	No	Water additive used to control microbes

Haloacetic acids (5) (ppb)					
Quarterly Running Annual Average	Highest Quarterly System Running Annual Average	System Range	Violation	Major Source in Drinking Water	
0	60	26	2 - 53	No	By-product of drinking water disinfection

Metals					
	Action Level	FCWA 90th Percentile	Number of Sites Above Action Level	Violation	Major Source in Drinking Water
Copper	1.3 ppm	0.064	0	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead	15 ppb	1	0	No	Corrosion of household plumbing systems; erosion of natural deposits

Additional Water Quality Information

Fairfax Water tests for over 120 regulated and non-regulated parameters. The regulated parameters that were detected are listed on these pages. To learn more and view additional water-quality information, please visit our website at <http://www.fairfaxwater.org/water/index.htm>.

Some Terms Defined

Contaminants in your drinking water are routinely monitored according to federal and state regulations. The tables on these pages show the results of our monitoring for the period of January 1, 2005, to December 31, 2005 (unless otherwise noted). In the tables and elsewhere in this report, you will find many terms and abbreviations with which you might not be familiar. The following definitions are provided to help you better understand these terms:

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

Maximum Contaminant Level Goal or MCLG: 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.

Maximum Contaminant Level or MCL: 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.

Total Trihalomethanes: A group of organic chemicals that are formed in the water-treatment process by the reaction of the disinfectant chlorine with natural organic matter in the source water. Compliance is based on a running annual average.

Total Coliform: A bacteria that indicates other potentially harmful bacteria may be present.

90th Percentile: Represents the highest value found out of 90 percent of the samples taken in a representative group. If the 90th percentile is greater than the action level, it will trigger a treatment or other requirement that a water system must follow.

Turbidity: A measure of the clarity of water. Turbidity is measured in Nephelometric Turbidity Units (NTU). Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth.

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

Key to Charts

NRL	No Regulatory Limit
MCLG	Maximum Contaminant Level Goal
NTU	Nephelometric Turbidity Unit
MCL	Maximum Contaminant Level
pCi/L	Picocuries per liter
MRDLG	Maximum Residual Disinfectant Level Goal
ppb	Parts per billion, corresponds to one penny in \$10,000,000
MRDL	Maximum Residual Disinfectant Level
ppm	Parts per million, corresponds to one penny in \$10,000
N/A	Not Applicable
QRAA	Quarterly Running Annual Average
ND	Non-detect
TT	Treatment Technique

Testing of Process Water

Turbidity (NTU)		Total Organic Carbon	
Turbidity levels are measured during the treatment process after the water has been filtered, but before final disinfection. The turbidity level of filtered water shall be less than or equal to 0.3 NTU in at least 95% of the measurements taken each month, and shall at no time exceed 1 NTU.		MCL	TT ⁴ (ratio)
MCL	TT(NTU)	MCLG	N/A
MCLG	TT(NTU)	Quarterly Running Annual Average ⁵	1.2
Average Annual Turbidity	0.07	Minimum	0.6
Highest Single Measurement	0.64	Maximum	1.5
Lowest Monthly % Samples Meeting Treatment Technique Turbidity Limit	99.992%	Major Source in Drinking Water	Naturally present in the environment
Major Source in Drinking Water	Soil runoff	Violation	No
Violation	No		

¹ The MCL for the Beta particles is written as 4mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta particles.

² Results are an average of Lorton/Occoquan 2003 and Corbalis 2005 data points.

³ Testing performed in 2003.

⁴ TT = Treatment Technique. Total Organic Carbon has no health effects, however, it provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Compliance with the treatment technique reduces the formation of these disinfection byproducts.

⁵ Quarterly Running Annual Average of the monthly ratio of actual Total Organic Carbon removal versus required Total Organic Carbon removal between source and treated waters. QRAA is to be ≥1 to be in compliance.

⁶ Whenever positive samples occur, appropriate actions, such as investigation and recollection of samples, are taken until the concern is addressed.

Q. Where does lead in drinking water come from?

A. Although some utility source waters contain lead, Fairfax Water's sources do not. In 1986, lead was banned from use in pipe and solder. In older homes where lead is present in pipe and solder connections, it may dissolve into the water after the water sits for long periods of time. We add a corrosion inhibitor to slow this dissolution process. If you think lead may be present in the plumbing of your home, let your cold water run from the faucet for 60 to 90 seconds prior to using for drinking or cooking.

In 2005, the 90th percentile value for lead was 1.0 part per billion, compared to the EPA action level of 15 parts per billion. The next required sampling period under the Lead and Copper Rule is the summer of 2008.

What can I do in my home to reduce my exposure to lead in the drinking water?

- The simplest and most cost-effective solution is flushing your faucet. The Environmental Protection Agency advises flushing the faucet for 60 to 90 seconds if the home water supply has been idle for six hours or more.
- Cook only with cold water.
- Some people choose to install a filter in their home. If you choose to use a water filter, follow these three rules:
 1. Choose one designed for the specific filtration desired (e.g., chlorine, lead, *Cryptosporidium*, etc.);
 2. Make sure the filter is approved by the National Sanitation Foundation (www.nsf.org); and,
 3. Maintain the filter as directed.

Can I have the water in my house tested?

Yes. For information on having a lead level test conducted, call our Customer Service Department at (703)698-5800. The charge for lead level testing of your home's water is \$35.00 per faucet. Additional information is available from EPA's Safe Drinking Water Hotline (800-426-4791).

Water Quality Improvements

As Fairfax Water continues to meet or exceed all water quality standards, we need to remain diligent in our efforts to improve our product and service. Here are a couple of ways we are improving...

Griffith Water Treatment Plant

The new Frederick P. Griffith, Jr., Water Treatment Plant is in the final phase of construction. This plant features conventional treatment, along with ozone and granular activated carbon filters. The plant began serving water on May 4, 2006, replacing three existing plants on the Occoquan Reservoir.

Community Outreach Grants

As part of Fairfax Water's efforts to improve water quality, four water supply outreach grants were awarded to area community groups for projects related to water supply and source water protection. You can learn more about our grants program on our website at <http://www.fairfaxwater.org/outreach/grants.htm>.

Opportunities for Public Participation

Fairfax Water's Board of Directors normally meets the first and third Thursday of each month at 6:30 p.m. in the Board Room of its offices at 8570 Executive Park Avenue, Fairfax, Virginia. Notices of public hearings and other opportunities for public participation are posted in the lobby and on the website at www.fairfaxwater.org. Need more information or additional copies of this report? Contact Fairfax Water's Customer Service Department at (703) 698-5800.

Water Quality and Treatment

Fairfax Water's goal is to continue to deliver to our customers the highest level of water quality possible. To reach this goal, Fairfax Water promotes the use of the best available technologies and practices in treating drinking water. Water treatment is the process of cleaning water to make it safe for human consumption. When untreated water enters the treatment plant, coagulants are added to make small particles adhere to one another, become heavy, and settle in a sedimentation basin. The water is then filtered to remove remaining fine particles and is disinfected with chlorine to kill harmful bacteria and viruses. Ozone is used to reduce odors and organic material in the water. A corrosion inhibitor is added to help prevent lead leaching from older household plumbing. Fluoride is added to protect teeth.

Source-Water Assessment and Protection

Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive source-water assessment programs that do the following: identify the watersheds that supply public tap water; provide an inventory of contaminants present in the watershed; and assess susceptibility to contamination in the watershed. Source-water assessments for the watersheds were conducted by the Virginia Department of Health. Based on the criteria developed by the Commonwealth of Virginia, the Potomac River and the Occoquan Reservoir were determined to be of high susceptibility to contamination. This determination is consistent with the State's finding of other surface waters (rivers, lakes, streams) throughout the Commonwealth.

The assessment consists of maps of the evaluated watershed area, an inventory of known land-use activities, and documentation of any known source-water contamination within the last five years. A secure version of the report is available by contacting Fairfax Water or visiting our website.

Cryptosporidium

Cryptosporidium is a single-celled organism that lives and reproduces within the intestines of an animal host. During its life cycle it matures into resistant cells called oocysts that can be shed in feces. The disease caused by *Cryptosporidium* is called *Cryptosporidiosis* and is caused by infection with oocysts.

People can be exposed to oocysts from other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces. Symptoms range from a mild to incapacitating diarrhea, cramps, loss of appetite, weight loss, nausea, and low-grade fever.

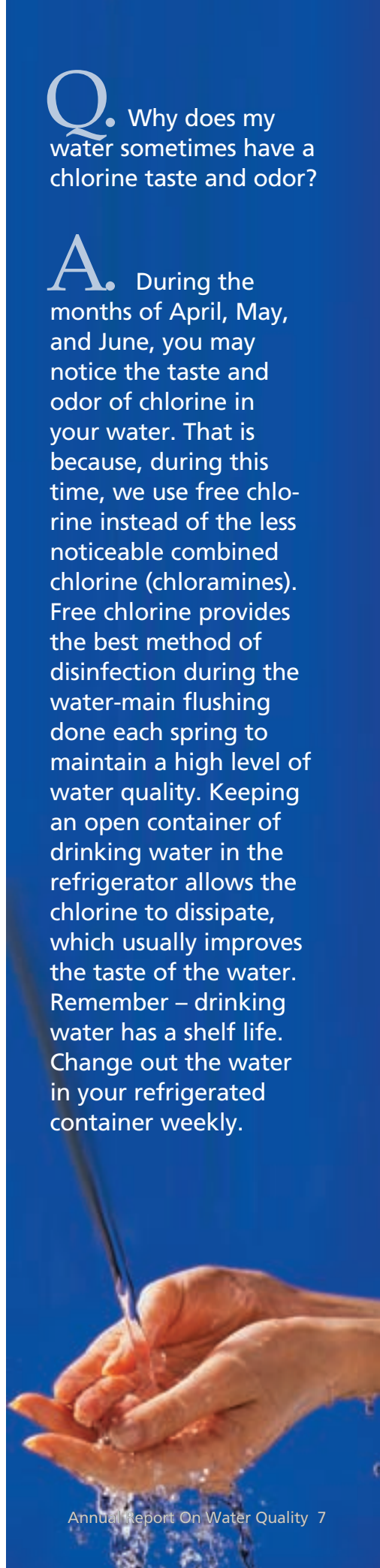
Fairfax Water is currently monitoring the Potomac River and Occoquan Reservoir for compliance with the U.S. Environmental Protection Agency's (EPA) Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The EPA has created this rule to provide for increased protection against microbial pathogens, such as *Cryptosporidium*, in public water systems that use surface water sources. Fairfax Water's current *Cryptosporidium* monitoring program began in 2004, and involves the collection of two samples from water treatment plant sources each month for a period of two years. The data collected in 2005 is summarized below:

Source (before treatment)	Average <i>Cryptosporidium</i> concentration (oocysts/Liter)
Potomac River	0.004
Occoquan Reservoir	0.012

Under the LT2ESWTR, the average *Cryptosporidium* concentration determines if additional treatment measures are needed. A *Cryptosporidium* concentration of 0.075 oocysts/Liter triggers additional water-treatment measures. As noted in the table, Fairfax Water's source water *Cryptosporidium* concentrations are well below this threshold.

Q. Why does my water sometimes have a chlorine taste and odor?

A. During the months of April, May, and June, you may notice the taste and odor of chlorine in your water. That is because, during this time, we use free chlorine instead of the less noticeable combined chlorine (chloramines). Free chlorine provides the best method of disinfection during the water-main flushing done each spring to maintain a high level of water quality. Keeping an open container of drinking water in the refrigerator allows the chlorine to dissipate, which usually improves the taste of the water. Remember – drinking water has a shelf life. Change out the water in your refrigerated container weekly.



Sources of Drinking Water

The sources of 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 animals or from human activity.

Contaminants that may be present in source water include: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (2) Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (3) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. (4) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. (5) Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Contaminants

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which 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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Need more information or additional copies of this report?
Contact the Fairfax Water Customer Service Department at (703) 698-5800.

Fairfax Water
8570 Executive Park Avenue
Fairfax, VA 22031

This report contains very important information about your drinking water. Please translate it, or speak with someone who understands it.

이 보고서에는 귀하가 거주하는 지역의 수질에 관한 중요한 정보가 들어 있습니다. 이것을 번역하거나 충분히 이해하시는 친구와 상의하십시오.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

Bản báo cáo có ghi những chi tiết quan trọng về phẩm chất nước trong cộng đồng quý vị. Hãy nhờ người thông dịch, hoặc hỏi một người bạn biết rõ về vấn đề này.