



Town of Herndon

*Drinking
Water Quality*

Annual Report

2010

Town of Herndon Drinking Water Quality Annual Report 2010

This report, for Calendar Year 2010, is designed to inform citizens about the town's drinking water quality.

Our goal is to provide the Town of Herndon with a safe and dependable supply of drinking water, and to inform concerned citizens of the efforts taken to protect your water supply. The quality of your drinking water must meet strict state and federal requirements administered by the Virginia Department of Health (VDH).

If you have questions about this report, or if you desire additional information about any aspect of your drinking water or desire to know how to participate in decisions that may affect the quality of your drinking water, please contact Salah Jaro at (703) 435-6853.

Ordinances and resolutions pertaining to water quality and distribution are advertised locally prior to Town Council hearings. Town Council work sessions and regular sessions are held twice a month on Tuesday nights except for the months of December, June, July, and August. In each of these months the Town Council meets for only one work session and one regular session.

Please refer to the town calendar regarding dates and times.



General Information

Drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water is a health risk. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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 stormwater runoff, and residential uses. (4) Organic

chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts 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. 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.

Sources of Drinking Water in the Town of Herndon

The Town of Herndon draws surface water from two primary sources: the Potomac River and the Occoquan Reservoir fed by the Occoquan River. Treatment facilities are located at opposite ends of Fairfax County and feed an interconnected distribution system. The James J. Corbalis, Jr. Treatment Plant, located in the northern part of Fairfax County, draws water from the Potomac River. The Occoquan Treatment Plant draws water from the Occoquan Reservoir, which is located on the southern border of Fairfax County.

Source Water Assessment and Protection

Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive Source Water Assessment Programs that identify the watersheds that supply public tap water, provide an inventory of contaminants in the watershed, and assess susceptibility to contamination in the watershed. Source water assessments for the Water Authority's watersheds were conducted by the Virginia Department of Health. Based on the criteria developed by the state, the Potomac River and 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 of Virginia.

The assessment consists of maps of the watershed area that was evaluated, 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 the Water Authority or by visiting the Water Authority's website at www.fcwa.org.

Treatment of the Town of Herndon Drinking Water Supply

Water treatment is the process of cleaning water so it is safe for human consumption. When raw 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 the remaining fine particles. Treatment chemicals that are added are: chlorine to kill harmful bacteria and viruses, a corrosion inhibitor to minimize dissolution of lead used in older household plumbing, and fluoride to protect teeth. If odors or unpleasant tastes are present in the raw water, powdered activated carbon and potassium permanganate are added to the treatment process.

Test Results

Some sample results were obtained from the Fairfax Water because that agency monitors and supplies the water source to our system.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Some of our water quality data is from testing done in years prior to 2010. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Even though some of our data may be more than one year old, it is accurate.

Maximum Contaminant Levels are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards, the EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. The EPA generally sets Maximum Contaminant Levels at levels that will result in no adverse health effects from some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

Compliance with EPA Drinking Water Standards:

Bacteriological Testing Requirements

The Town of Herndon is required to monitor the drinking water system for specific contaminants on a regular basis to ensure drinking water meets the National Primary drinking Water Regulations. Under

the Bacteriological Testing Requirements, The Town of Herndon is required to collect samples for Total Coliform. During 2010 no coliform was detected in any of the samples.

Cryptosporidium

Cryptosporidium is a microbial pathogen sometimes found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Fairfax Water consistently maintains its filtration process in accordance with regulatory guidelines to maximize removal efficiency. Our monitoring indicates the occasional presence of these organisms in the source water. Current test methods do not allow us to determine whether the organisms are dead or if they are capable of causing disease.

Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

Cryptosporidium must be ingested in order to cause disease. It may be spread through means other than drinking water, such as other people, animals, water, swimming pools, fresh food, soils, and any surface that has not been sanitized after exposure to feces.

Fairfax Water has completed monitoring of the Potomac River for compliance with the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The EPA 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 monitoring program began in 2004 and involved the collection of two samples from water treatment plant sources each month for a period of two years. Once monitoring for compliance with the LT2ESWTR was complete, Fairfax Water continued to monitor for *Cryptosporidium* at water treatment plant sources.

Under the LT2ESWTR, the average *Cryptosporidium* concentration determines whether additional treatment measures are needed. A *Cryptosporidium* concentration of 0.075 oocysts/Liter would have triggered additional water treatment measures. Fairfax Water's raw water *Cryptosporidium* concentrations consistently remain below this threshold.

Health Information about the Lead in Drinking Water

EPA has established an action level for lead in water of 15 ppb. When lead testing is performed as required by EPA, 90 percent of the samples must contain less than 15 ppb. This is usually referred to as the 90th percentile results being less than 15 ppb. 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.

The Town of Herndon has been testing for lead in accordance with EPA Standards and for testing performed in 2008 no sampling site has exceeded the action level. If lead is 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. The Town of Herndon 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 15 to 30 seconds or until it becomes cold or reaches a steady temperature 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 at: <http://www.epa.gov/safewater/lead>.

I. Definitions

Contaminants in your drinking water are routinely monitored according to federal and state regulations. The tables on the next few pages show the most recent results of our monitoring. In the tables and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms.

Parts per million (ppm) — one part per million. This fraction corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) — one part per billion. This fraction corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

Parts per trillion (ppt) — one part per trillion. This fraction corresponds to one minute in 2,000,000 years or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) — picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) — nephelometric turbidity unit is a measure of the clarity or cloudiness of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

Action Level (AL) — the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) — a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level (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.

Maximum Contaminant Level Goal (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.

NRL — no regulatory limit.

Maximum Residual Disinfectant Level Goal (MRDLG) — The level of a drinking water disinfectant 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.

Maximum Residual Disinfectant Level (MRDL) — 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.

Water Quality Results

II. Lead and Copper Contaminants — Detections are described below.

Contaminant	Units of Measurement	Action Level	MCLG	Results of samples for the 90th Percentile Value	Action Level Exceedance (Y/N)	Sampling Year	# of Sampling Sites Exceeding Action Level	Typical Source of Contamination
Lead	ppb	15	0	0.96	N	2008	0	Corrosion of household plumbing systems
Copper	ppm	1.3	1.3	0.115	N	2008	0	Corrosion of household plumbing systems

III. Microbiological Contaminants — Samples analyzed but there were no detections. Please see the last section on page 4. (Compliance with EPA Drinking Water Standards)

IV. Turbidity — Detections are described below.

Contaminant	Treatment Technique Limits	Average Annual Turbidity	Level detected	Violation (Y/N)	Sampling Year	Typical Source of Contamination
Turbidity	1) 1 NTU maximum 2) 0.3 NTU 95% of the time	0.05	1. Highest Single Measurement = 0.26 Lowest Monthly Percentage = 100%	N	2010	Soil Runoff

V. Total Organic Carbon — Detections are described below.

Total Organic Carbon	MCL	MCLG	Quarterly Running Annual Average ²	Minimum	Maximum	Major Source in Drinking Water
	TT ¹ (ratio)	n/a	1.3	0.9	1.7	Naturally present in the environment

1 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.

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

n/a = not applicable, below detection level

VI. Disinfection and Disinfection Byproducts

Contaminant	Units of Measurement	MRDLG ¹	MRDL ²	Highest Quarterly Average	Violations (Y/N)	Range of Detection at Sampling Points	Sampling Year	Major Source in Drinking Water
Total Chlorine	ppm	4	4	2.0	N	1.0 - 3.0	2010	Water additive used to control microbes

1 Maximum Residual Disinfectant Level Goal.

2 Maximum Residual Disinfectant Level.

Contaminant	Units of Measurement	MCLG	MCL	System Running Annual Average	Violations (Y/N)	System Range of Detections at Sampling Points	Sampling Year	Typical Source of Contamination
Total Trihalomethanes	ppb	NA	80	27	N	4 - 65	2010	By-Product of drinking water chlorination
HAA5	ppb	NA	60	16	N	2 - 34	2010	By-Product of drinking water chlorination

Regulated Contaminants

Contaminant	Units of Measurement	MCLG	MCL	Highest Level Detected	Violations (Y/N)	Range of Detection at Sampling Points	Sampling Year	Typical Source of Contamination
Barium	ppm	2	2	0.048	N	0.027 - 0.048	2010	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride	ppm	4	4	1.1	N	0.8 - 1.1	2010	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
<p>The fluoride concentration is optimized at the surface water treatment plant for the most dental benefit for children and adults. The following Center for Disease Control link may be accessed for more information regarding Fluoride in drinking water: http://apps.nccd.cdc.gov/MWF/index.asp</p>								
Nitrate (as Nitrogen)	ppm	10	10	1.6	N	ND - 1.6	2010	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Nitrite (as Nitrogen)	ppm	1	1	0.02	N	ND - 0.02	2010	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
¹ Beta/Photon Emitter	(pCi/L)	0	50	4.04	N	ND - 4.04	2008	Decay of natural and man-made deposits
<p>¹The MCL for Beta particles is written as 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for Beta Particles. Testing performed in 2008. ND = Non Detectable, below detection level.</p>								
² Bromate	ppb	0	10	0.5	N	ND-6	2010	By-product of drinking water disinfection
<p>²The MCL is based on the result of the Highest Quarterly Running Annual Average of all monitored sites.</p>								

Nonregulated Contaminants (These results were from Fairfax Water CORBALIS treatment plant)

Contaminant	Units of Measurement	MCLG	MCL	Highest Level Detected	Violations (Y/N)	Range of Detection at the Points of Entry	Sampling Year	Typical Source of Contamination
Chloroform	ppb	70	NRL	22.1	N	21 - 22.1	2010	By-product of drinking water disinfection
Bromodichloromethane	ppb	0	NRL	12.7	N	12.4 - 12.7	2010	By-product of drinking water disinfection
Chlorodibromomethane	ppb	60	NRL	5.4	N	5.1 - 5.4	2010	By-product of drinking water disinfection
Bromoform	ppb	0	NRL	0.6	N	ND - 0.6	2010	By-product of drinking water disinfection

NRL = No Regulatory Limit.

*Our goal is to
provide the
Town of Herndon
with a safe and
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Town of Herndon
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