

2010 ANNUAL WATER QUALITY REPORT

Arlington's High-Quality Water

This annual "Consumer Confidence Report," required by the Safe Drinking Water Act, tells you where your water comes from, what our tests show about it and other things you should know about drinking water.

Arlington's Department of Environmental Services (DES)

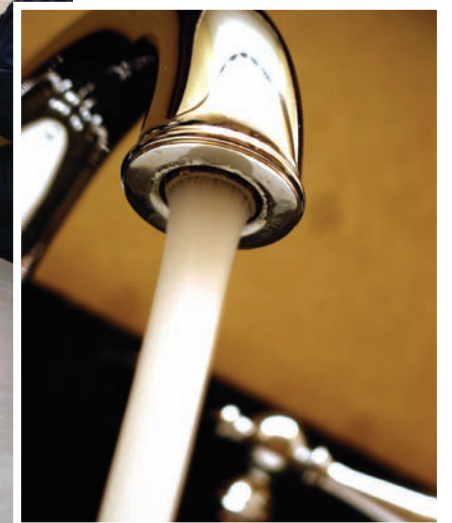
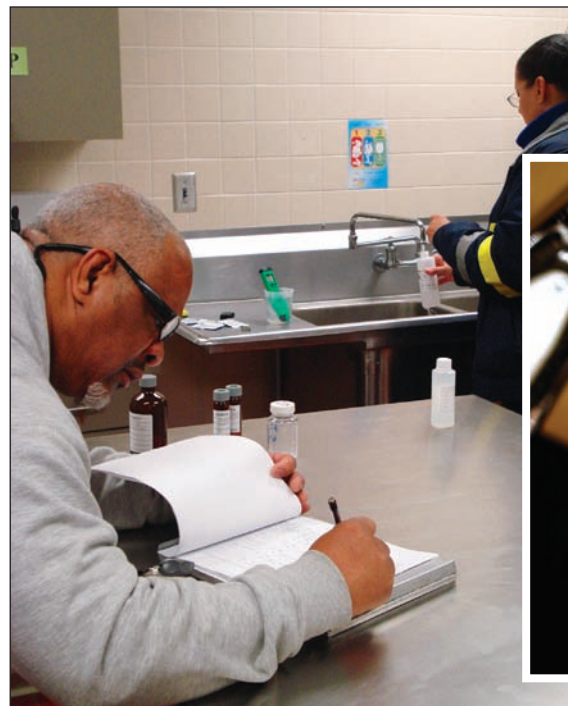
provides residents with a safe and reliable supply of high-quality drinking water. DES tests County water using sophisticated equipment and advanced procedures. Our water meets all state and federal standards for quality. View this report online at www.arlingtoncitizen.wordpress.com.

Notice to building managers for office, commercial and multifamily residential buildings: Please share the information in this Water Quality report with all occupants of your facility. Contact the Water Control Center at 703-228-6555 for additional information or copies of this report.

Aviso a los administradores de edificios de oficinas, propiedades comerciales y unidades residenciales: Por favor comparta la información de este informe sobre la Calidad del Agua con los ocupantes de su establecimiento. Comuníquese con el Centro Para Control del Agua al 703-228-6555 para mayor información o para recibir copias de este informe.



Installed in 2009, these booster pumps at Arlington's Minor Hill facility provide improved water pressure to the surrounding area.



Where Arlington's Water Comes From

Arlington County purchases its water from the Washington Aqueduct Division of the Army Corps of Engineers. The Washington Aqueduct operates

two water treatment plants in the District of Columbia. The plants treat water from a surface water source, the Potomac River.

Arlington's water is treated at the Dalecarlia Treatment Plant located on MacArthur Boulevard in Northwest Washington. 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 for more information.

Arlington County maintains water quality assurance through our regular water distribution and storage evaluations and routine water sampling analysis.

What's in the 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. The water also can pick up substances resulting from animals or human activity.

Contaminants that may be present in source 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 runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

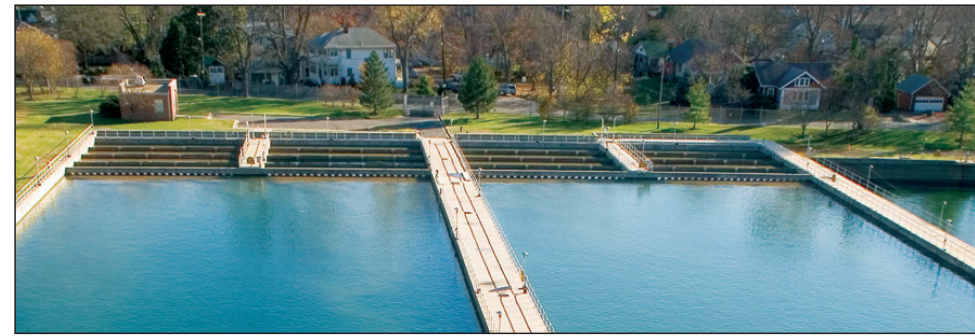
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

- 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 stormwater runoff and septic systems.

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

The water treatment process removes contaminants, making Arlington's water safe to drink. 💧

Important Health Information



U.S. EPA

Source water is tested for *Cryptosporidium*, a parasite that has caused outbreaks of intestinal disease in the United States and overseas. It is common in surface water, difficult to kill and even the best water system will contain some live parasites. The Environmental Protection Agency (EPA) is currently working to improve the control of

microbial pathogens, namely the protozoan *Cryptosporidium*, in drinking water. The Potomac River source was monitored monthly at Great Falls for *Cryptosporidium* during 2010 and there were no detects. No precaution about County drinking water is currently necessary for the general public. 💧

Advice for Special Populations

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 at risk from infections.

These people should seek advice from their health care providers about drinking water.

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.

EPA Regulations

To ensure tap water is safe to drink, EPA mandates regulations that limit the amount of certain contaminants in water provided by public water systems. FDA 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.

Call the EPA's Safe Drinking Water Hotline at 1-800-426-4791 for information about contaminants and potential health effects. 💧

Lead in Drinking Water

The U.S. EPA finalized Lead and Copper Rule Short-Term Regulatory Revisions and Clarifications in October 2007 with one of its goals being to improve customer awareness. Hundreds of water samples have been taken throughout Arlington County to determine the lead concentration in our water. Historically these concentrations have been below the action level for 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. Arlington County 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 www.epa.gov/safewater/lead.

How to Read This Table

It's easy! Our water is tested to ensure it's safe and healthy. Test results from 2010 are presented in the table (footnotes below).

The column marked **GOAL** shows the Maximum Contaminant Level Goal or **MCLG**. This is 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.

The column marked **MAXIMUM ALLOWED** is the Maximum Contaminant Level or **MCL**. This is 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 RESIDUAL DISINFECTANT LEVEL (MRDL) is the highest level of a

residual disinfectant that is allowed in drinking water.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG) is the level of residual disinfectant below which there is no known or expected risk to health. **MRDLGs** allow for a margin of safety.

NON-DETECTS (ND) – lab analysis indicates the contaminant is not present.

NEPHELOMETRIC TURBIDITY UNIT (NTU) is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

PARTS PER MILLION (PPM) OR MILLIGRAMS PER LITER (MG/L) corresponds to one minute in two years or a single penny in \$10,000.

PARTS PER BILLION (PPB) corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

PARTS PER TRILLION (PPT) corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

PICOCURIES PER LITER (PCI/L) is a measure of the radioactivity in water.

The column marked **DETECTED LEVEL** shows the results observed in our water during the most recent round of testing.

SOURCE OF SUBSTANCE provides an explanation of the typical natural or man-made origins of the contaminant.

NOTE: Arlington County received three positive samples (out of 1476) for total coliform in the calendar year 2010. Subsequent resampling at the locations did not detect coliform bacteria. There were no detections of *E. coli* in any of the monthly samples during calendar year 2010.

Summary of 2010 Water Quality Data¹

FINISHED WATER CHARACTERISTICS, TREATMENT PLANT MONITORING						
Substance	Unit	Goal (MCLG)	Max. Allowed (MCL)	Detected Level	Range of Levels Detected	Source of Substance
Arsenic	ppb	0	10	0.8	ND – 0.8	Run off from orchards, glass and electronic product waste ²
Barium	ppm	2	2	0.07	0.03 – 0.07	Discharge of drilling waste from metal refineries ²
Cadmium	ppb	5	5	0.2	ND – 0.2	Corrosion of galvanized pipes; Discharge from metal refineries; Runoff from waste batteries and paints ²
Chromium	ppb	100	100	4.4	ND – 4.4	Discharge from steel and pulp mills ²
Combined Radium 226/228 ³	pCi/L	0	5	2	ND – 2	Erosion of natural deposits or products
Fluoride	ppm	4.0	4.0	1.1	0.5 – 1.1	Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen)	ppm	10	10	3.1	0.06 – 3.1	Runoff from fertilizer use; leaching from septic tanks, sewage
Nitrite (as Nitrogen)	ppm	1	1	0.05	ND – 0.05	Runoff from fertilizer use; leaching from septic tanks, sewage
Selenium	ppb	50	50	1.2	ND – 1.2	Discharge from petroleum, mines and metal refineries
Total Organic Carbon (TOC)	ppm	n/a	TT	Running annual average removal ratio is required to be greater than 1.0. Removal ratio actually achieved ≥ 1.49.		Naturally present in the environment
Turbidity ⁴	NTU	n/a	TT	0.11 = highest single measurement. Lowest monthly percentage of samples meeting minimum turbidity requirements = 100%.		Soil runoff

FINISHED WATER CHARACTERISTICS, DISTRIBUTION SYSTEM MONITORING						
Substance	Unit	Goal (MCLG)	Max. Allowed (MCL)	Detected Level	Range of Levels Detected	Source of Substance
Copper ⁵	ppm	1.3	AL – 1.3	0.069	0.017 – 0.11	Leaching from wood preservatives; corrosion of household plumbing ²
Lead ⁶	ppb	0	AL – 15	1.1	ND – 3.0	Runoff from fertilizer use; leaching from septic tanks; corrosion of household plumbing ²
Total Coliform ⁷	n/a	0	°	0.8%	ND – 0.8%	Naturally present in the environment
Chloramines ⁸	ppm	(MRDLG) 4	(MRDL) 4	3.1	ND – 4.9	Water additive used to control microbes
TTHM ⁸	ppb	n/a	80	49	20 – 90	By-product of drinking water chlorination
HAA5 ⁸	ppb	n/a	60	37	15 – 57	By-product of drinking water chlorination

Notice About Perchlorate

Perchlorate is a naturally occurring as well as man-made compound. Its presence in drinking water is currently unregulated and utilities are not required to monitor for it. The Washington Aqueduct has been voluntarily monitoring for perchlorate since 2002. The EPA initially established a reference dose of 24.5 parts per billion (ppb) for perchlorate and beginning in 2010 has proposed an interim health advisory of 15 ppb. A reference dose is a scientific estimate of daily exposure level that is not expected to cause adverse health effects in humans. The reference dose concentration was

used in EPA's efforts to address perchlorate in drinking water and to establish the interim health advisory.

The source and treated water samples collected in 2010 from the Dalecarlia treatment plant showed only trace amounts of perchlorate. The highest level detected was 3.7 ppb. If you have special health concerns, you may want to get additional information from the EPA at www.water.epa.gov/drink/contaminants/unregulated/perchlorate.cfm or contact the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

TABLE FOOTNOTES

¹ All test results are from 2010, unless otherwise noted (Combined Radium 226/228)

² Erosion of natural deposits or products

³ Most recent testing for this parameter was 2008.

⁴ Turbidity is the measure of cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of the filtration process. 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.

⁵ The Detected Level represents the 90th percentile value. None of the 56 samples tested for copper exceeded the current Action Level of 1.3 ppm.

⁶ The Detected Level represents the 90th percentile value. None of the 56 samples tested for lead exceeded the current Action Level of 15 ppb.

⁷ The Detected Level represents the highest monthly percentage of positive results.

⁸ The Detected Level represents the highest running annual compliance average during the calendar year.

⁹ Less than 5% of monthly samples contain coliform bacteria

ACTION LEVEL (AL) is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

TREATMENT TECHNIQUE (TT) is a required process intended to reduce the level of a contaminant in drinking water.

LEVELS OF COMPOUNDS IN ARLINGTON DRINKING WATER

Average Hardness	8.4 grains/gal
Average pH	7.8
Average Chloramine Residual	3.1 ppm
Average Fluoride	0.9 ppm
Average Sodium ¹	18 ppm
Average Nickel	2.3 ppb

Although sodium is not regulated by an MCL, the EPA's Fall 2009 Drinking Water Advisory Table identifies 20 mg/L as a health-based value for a person on a 500 mg/day restricted sodium diet.

Water and Sewer Rates Increase

On May 1, 2011, the water rate increased to \$3.68 per 1,000 gallons of metered water consumption (from \$3.50) and the sewer rate will be \$8.51 per 1,000 gallons (from \$8.24). The last increase was in May 2010. The rate changes are necessary primarily to finance the upgrade to the Water Pollution Control Plant and adequately fund various capital projects.

Significant renovations nearing completion at the plant will modernize our infrastructure and enable the County to meet stringent new state and federal environmental regulations. The facility upgrade also will increase capacity, which is essential to managing Arlington's growing population. Other benefits include cleaner water discharged to Four Mile Run, a reduction in plant-related odors and improved removal of nitrogen, resulting in a healthier Chesapeake Bay.

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Measuring the Rates

Each year, the County Board approves the water rate and a separate sanitary sewer rate. Both charges are based on the amount of water consumed. Water usage is measured by meters adjacent to a residence or business.

Simple Steps to Save Water and Lower Your Bill

- Repair leaks in faucets, toilets and hoses.
- Install more efficient water fixtures, such as aerators and low-volume toilets.
- Run your clothes washer and dishwasher only when full.
- Take shorter showers.
- Turn off the water while you brush your teeth, shave and shampoo your hair.
- Conserve when watering your lawn – use only what is needed, prevent run-off and avoid watering during the heat of the day. Reminder: There are no credits available to sewer charges for water used for irrigation.

Every three months, residents in duplex and single-family homes receive utility bills from the County. The utility bills include charges for water, sewer and trash/recycling services. Residential customers' summer quarterly bills will be the first to reflect the increase.

Need more information? Call 703-228-6570 with questions about your water and sewer bills. Or go to www.arlingtonva.us/des and click on "Water & Wastewater." 💧

Notice to Customers of the Arlington County Water System

In keeping with National Primary Drinking Water Regulations, we are informing you that the Washington Aqueduct which provides water to Arlington County violated a portion of state regulations concerning frequency of monitoring drinking water. The Washington Aqueduct is required to regularly monitor our drinking water for specific contaminants on a regular basis. Results of this monitoring indicate whether or not your drinking water meets health standards.

For 12 hours beginning Oct. 20, 2010, the Washington Aqueduct did not monitor or test for turbidity for 2 of its 36 filters, and therefore cannot be sure of the quality of your drinking water during that time. Concurrent

monitoring of all other processes and turbidity instruments showed no problems. Past records show the Washington Aqueduct has continually demonstrated compliance with the regulations regarding water treatment and quality.

There is nothing you need to do at this time. The Washington Aqueduct has addressed this lapse in their monitoring protocol by retraining operators on proper monitoring procedures. The safety of Arlington County's water system is paramount. We will continue to diligently manage this critical resource and report any alerts to citizens. For more information, contact the Water Control Center at 703-228-6555. 💧

Because of consistent compliance and results below the Maximum Contaminant Level, Lead and Copper Sampling will only take place every three years.

FAQ's About Arlington's Water



I've had yellowish-red water at my house in the past. What can be done to fix it?

The discolored water results from a disruption of iron oxide deposits on the inside of older water distribution pipes, typically those that were installed before 1960. Sudden changes in the system, such as when a fire hydrant is opened, can stir up the iron oxide sediments and cause temporary discoloration. County crews flush the lines through fire hydrants during the year to minimize the buildup of sediments in the pipes which helps reduce the chances of discolored water. The County also undertakes rehabilitation of older mains in areas of the County where discolored water has occurred more than once.

Crews are working on the water line nearby. What are they doing?

It is likely that they are repairing or replacing the line. Emergency repairs

can happen at any time, day or night, and planned work usually takes place during daylight hours. Your water may be shut off while work is taking place. After work is complete and the water is back on, you may need to flush your line until the water runs clear.

What's "hardness?" Is Arlington's water hard?

Hardness is primarily caused by dissolved calcium and magnesium in drinking water. It's more difficult to create a sudsy lather with hard water than with soft water and hard water can leave whitish deposits on water fixtures such as faucets. Arlington's water averages 8.4 grains per gallon (gpg), and is considered moderately hard to hard. Use white vinegar to remove hardness.



There is a pinkish film that is growing in my bathroom. What is it? Is it dangerous?

The pinkish film is a result of certain bacteria that can thrive in humid environments such as bathrooms. The bacteria form a pink to orange "biofilm" that is more pronounced with time. Often this biofilm appears as a ring around the

high water level in a toilet or around a bathtub drain or showerhead. The biofilm is not dangerous under normal circumstances and can be removed with bleach-containing products.

Sometimes water appears milky or cloudy but then becomes clear if left to stand. What causes this?

Drinking water naturally contains a certain amount of dissolved air. Air dissolved in water can result in tiny bubbles similar to those in carbonated beverages, which can cause the water to have a whitish or cloudy tint. This is most likely to occur during winter months when the water temperature is low. The bubbles disappear over time as the water warms up.

I used to drink from the garden hose all the time as a kid. Why is this discouraged?

The chemicals used to make standard vinyl garden hoses flexible can leach into the water, especially when the weather is warm. The chemicals are not good for you or for your pets, so the water should not be consumed unless the hose is well-flushed. There are, however, some hoses that may be used for drinking water. They are made with a 'food grade' plastic, approved by the US Food and Drug Administration and will not contaminate the water. 💧

Water by the Numbers

8.6
billion
gallons

The total amount of water the County used in 2010. That's more than one trillion 8-ounce glasses of water!

63

The total number of water main leaks repaired between Jan. and the beginning of April 2011.

7

Miles of sanitary sewers are rehabilitated by cured-in-place pipe lining per year.

Did You Know?

Tap water is the ultimate green product: delivered to your home and removed without relying on a container that needs to be thrown away or recycled. The cost for the water including delivery and disposal is a mere \$12.19 per thousand gallons. Compare that to bottled water, which can cost more than \$10 for a single gallon!

Water Main Breaks

The bad, the worse and the really ugly

When more than 60 percent of water mains are 50 years or older, as Arlington's are, breaks in the pipes are as unavoidable as they are unpredictable. Each break brings its own set of challenges. Small breaks are easier to fix, but can be harder to find. Large breaks can wreak havoc on traffic and sometimes cause damaging floods and water shortages.

What causes breaks?

In addition to age, other factors include the way the pipes were installed; previous repairs; variations in water pressure; corrosion; and even seasonal temperature changes.

How do we know when a pipe breaks?

We regularly monitor water pressure at various points in the system – a drop in pressure can signal a problem. But often, the Water, Sewer and Streets (WSS) staff learns about a break when a resident calls the 24-hour hotline (703-228-6555) to report water running in an unusual location. A crew is sent to investigate. If the crew finds no obvious source, they run tests to help determine whether it is drinking or ground water. If it is drinking water, but no break is visible, the crew uses leak detection equipment to "listen" for and locate the break.

How do you fix a leak?

Once crews find a leak, they close the valves on the pipe to stop the flow of water to the broken section. This might cause a temporary service disruption to some properties. After isolating the broken section, the crew repairs or replaces it depending on the type and severity of the break.

In most cases, repairs are made within several hours to a day after the first report. However, repairs on major water transmission mains may require complex repairs that take longer to complete.

Report all water emergencies and possible main breaks to the WSS Bureau at 703-228-6555. 💧

3. IN ALL CONDITIONS



Crew members have to be prepared to work in all weather conditions and at all times of the day or night, since it is important to return water mains to service as soon as possible.

1. CLOSING THE VALVE



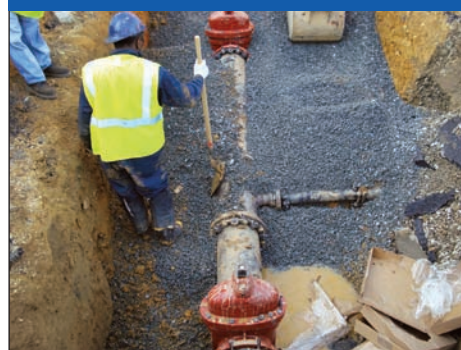
Crew members close a valve at a water pumping station. Closing the upstream and downstream valves on a segment of water main will stop the flow to a broken section.

2. OUT WITH THE OLD



A cracked section of pipe is removed. In this case, a 12-inch pipe at Kirkwood Rd. and Washington Blvd. split at the joint and needed to be replaced.

4. IN WITH THE NEW



A new segment of pipe is positioned in place. Once connected, the water main is returned to service. After ensuring the main has been repaired satisfactorily, the trench is backfilled. Proper backfill and compaction reduce roadway settling.

5. FINAL TOUCHES



Final restoration of the pavement surface is done after backfilling is complete.