2014 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 *water.arlingtonva.us*; search "water quality report."

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.

The water quality engineer support team collects more than 120 samples a month throughout the County to ensure the safety of our water.

This 12-inch water main under the S. Abingdon Bridge crossing Interstate 395 is the first water main in Arlington that was rehabilitated using the cured-in-place pipe technology.

Where Arlington's Water Comes From

Arlington County purchases 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 2014 and none was detected. 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, the 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 US EPA finalized the 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 2014 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 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.

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

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

NOTE: Arlington County had one positive sample from 1482 samples for total coliform in calendar year 2014. There were no detections of *E coli* in any of the monthly samples during calendar year 2014.

Summary of 2014 Water Quality Data[1]

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	0.5	ND - 0.5	Runoff from orchards, glass and electronic produced waste[2]
Atrazine	ppb	3	3	0.1	ND – 0.1	Runoff from herbicide used on row crops
Barium	ppm	2	2	0.05	0.03 – 0.05	Discharge of drilling waste from metal refineries[2]
Chromium	ppb	100	100	2	ND – 2	Discharge from steel and pulp mills[2]
Fluoride	ppm	4.0	4.0	0.8	0.6 – 0.8	Water additive which promotes strong teeth; from fertilizer and aluminum factories
Gross Alpha Particles[3]	pCi/L	0	15	9	ND – 9	Erosion of natural deposits
Nitrate (as Nitrogen)	ppm	10	10	3	1 – 3	Runoff from fertilizer use; leaching from septic tanks, sewage
Nitrite (as Nitrogen)	ppm	1	1	0.01	ND – 0.01	Runoff from fertilizer use; leaching from septic tanks, sewage[2]
Selenium	ppb	50	50	0.9	ND – 0.9	Discharge from petroleum, mines and metal refineries
Total Organic Carbon (TOC)	ppm	n/a	TT	Running annual average removal ratio is required to be equal to or greater than 1.00. Removal ratio actually achieved ≥1.36		Naturally present in the environment
Turbidity[4]	NTU	n/a	TT	0.08 = highest single measurement. Lowest monthly percentage of samples meeting 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	0.07	0.01 - 0.15	Leaching from wood preservatives; corrosion of household plumbing[2]
Lead[6]	ppb	0	AL – 15	1.8	0.11 – 16.6	Runoff from fertilizer use; leaching from septic tanks; corrosion of household plumbing[2]
Total Coliform[7]	n/a	0	[9]	0.8%	ND – 0.8%	Naturally present in the environment
Chloramines[8]	ppm	(MRDLG) 4	(MRDL) 4	2.8	ND – 4.1	Water additive used to control microbes
TTHM[8]	ppb	n/a	80	38	16 - 58	By-product of drinking water chlorination
HAA5[8]	ppb	n/a	60	28	15 - 42	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 2009 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 2014 from the Dalecarlia treatment plant showed only trace amounts of perchlorate. The highest level detected was 2.2 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 2014, unless otherwise noted

[2] Erosion of natural deposits or products

[3] Triennial radionuclide monitoring was performed in 2014.

[4] Turbidity is the measure of cloudiness of the water. We monitor it because it's 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 51 samples tested for copper exceeded the current Action Level of 1.3 ppm. Most recent testing for this parameter was 2013.

[6] The Detected Level represents the 90th percentile value. One of the 51 samples (2% of the sample set) tested for lead exceeded the current Action Level of 15 ppb. Most recent testing for this parameter was 2013.

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

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

[9] Less than 5% of monthly samples contain coliform bacteria

AVERAGE LEVELS OF COMPOUNDS IN ARLINGTON DRINKING WATER

Calcium	40 mg/L
Chloramine Residual	2.8 mg/L
Chloride	42 mg/L
Fluoride	0.7 ppm
Total Hardness	132 mg/L or 7.7 grains/gal
Magnesium	8 mg/L
Nickel	1 ppb
pH	7.7
Sodium[1]	27 ppm
Sulfate	44 mg/L

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 for FY 2016

On May 1, 2015, the water rate will increase to $4.21 per 1,000 gallons of metered water consumption and the sewer rate will increase to $9.06 per 1,000 gallons. The last increase was in May 2014. Water/sewer fees are the main source of revenue for the Utilities Fund, which pays for the operations and maintenance of the County's water distribution and sewage collection systems and the Water Pollution Control Plant, as well as wholesale water purchases from the Washington Aqueduct. Utilities Fund revenues also pay for debt service and a transfer to the utilities capital fund to finance projects that maintain, upgrade, and expand the County's water, sewer and wastewater infrastructure.

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 registered on the water meter that is adjacent to a residence or business. Every three months, residents in duplex and single-family homes receive utilities bills from the County.

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.

The utilities bills include charges for water, sewer and refuse services. Need more information? Call 703-228-6570 with questions about your water and sewer bills. Or go to *water.arlingtonva.us*; click "customer service."

Unregulated Contaminants Monitoring

TREATMENT PLANT ENTRY POINT UCMR3 DETECTS

Substance	Unit	Avg. Detected Level	Range of Levels Detected
Chlorate	ug/L	272.5	140 - 430
Chromium	ug/L	0.455	ND - 1.5
Hexavalent Chromium (Dissolved)	ug/L	0.086	0.061 - 0.1
Molybdenum	ug/L	0.25	ND - 1
Strontium	ug/L	202.5	130 - 310

FINISHED WATER CHARACTERISTICS DISTRIBUTION SYSTEM UCMR3 DETECTS

Substance	Unit	Avg. Detected Level	Range of Levels Detected
Chlorate	ug/L	292.5	160 - 440
Chromium	ug/L	0.075	ND - 0.3
Hexavalent Chromium (Dissolved)	ug/L	0.0975	0.078 - 0.12
Molybdenum	ug/L	0.55	ND - 1.2
Strontium	ug/L	182.5	120 - 260
Vanadium	ug/L	0.4175	ND - 0.85

The Unregulated Contaminants Monitoring Rule (UCMR) was incorporated in the 1996 Safe Drinking Water Act amendments requiring EPA to issue a new list of no more than 30 unregulated contaminants to be monitored by Public Water Systems (PWSs), once every five years. UCMR monitors for contaminants not regulated by the National Primary Drinking Water Regulations. The data collected through UCMR are stored in the National Contaminant Occurrence Database (NCOD) to support analysis and review of contaminant occurrence and eventually help determine whether to regulate a contaminate in the interest of protecting public health. On May 2, 2012, EPA published UCMR3, requiring PWSs to monitor for 30 contaminants (28 chemicals and two viruses). The tables above report the average and range of results of all UCMR3 contaminants detected in the sampling performed 2014.

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

Construction on Four Mile Run Stream Restoration Project Begins

Photo of a living shoreline (courtesy Center for Coastal Resources Management)

During the 1960s and 1970s, Four Mile Run experienced significant flooding events as the watershed became more urbanized. In 1974, Congress authorized the Army Corps of Engineers (USACE) to construct a flood control channel that would contain the increased stream flows.

In 2000, the City of Alexandria, Arlington County and the Northern Virginia Regional Commission (NRVC) began to explore how to improve the stream's water quality and recreation potential, while maintaining flood protection. The Four Mile Run Master Plan was completed in 2006 and the design guidelines in 2009.

A demonstration project was selected from the Master Plan to be completed first. Construction on the stream project begins this summer and will include the following features:

- Naturalization of the Arlington stream bank and improved access via an overlook and terracing.
- Creation of a sediment collection area near the Mt. Vernon Bridge, to reduce sediment pollution.
- Construction of curved stone structures in the stream, to direct stream flow away from the banks.
- Removal of some rip-rap stone from the Arlington stream bank, to be replaced with native plants.
- Creation of living shorelines, which are small breakwaters built from stone with wetland plants behind them, on the Arlington side.
- Restoration of the tidal wetland condition in Four Mile Run Park on the Alexandria side.

For more information, visit *arlingtonva.us*; search "Four Mile Run Restoration."

Arlington Water Infrastructure

Arlington's drinking water distribution system contains about 500 miles of publicly-owned pipe as well as six pump stations, 16,000 valves and 3,700 fire hydrants.

Our water system was incorporated in 1927. In the 1940s and 1950s, World War II brought a major influx of people to the Washington, D.C., area, and the County's residential population increased dramatically. Many drinking water pipes from this era are still used. When installed, many of these pipes were not lined with a protective coating to prevent corrosion. It is common over the years for iron-oxide (rust) to form on the inside of these unlined pipes. While these pipes are mostly in good condition, over time the inner diameter shrinks due to buildup and the pipes carry less water. This aging infrastructure that delivers water is a vital resource to every home, facility and business in Arlington. The County budgets money each year to replace or rehabilitate a select subset of the water system to improve its overall condition – including at least 5 miles of pipe mains and replacing approximately 3 miles of pipe every year.

In neighborhoods where rehabilitation takes place, temporary services are run to each house and temporary fire hydrants are installed to ensure public safety. The pipes are first scraped clean, the residual water removed, and then a thin layer of cement mortar is applied to the inside of the pipes. After the cement cures, the pipes are disinfected and tested to certify sanitization requirements before returning to service. Relined pipes have an increased lifespan estimated at 50-75 years. Additionally, the cement lining improves the overall water quality in the pipe.

Over the years, iron-oxide (rust) often forms on the inside of unlined pipes. As part of the rehabilitation process, they're scraped clean and a thin layer of cement mortar is applied to the inside. Then the pipes are disinfected and returned to service – with an increased lifespan estimated at 50-75 years. The cement lining also improves the overall water quality in the pipe.

Other parts of the water infrastructure, such as valves, hydrants and pump stations, are inspected regularly and items are repaired or replaced as needed.

Timely maintenance of the water infrastructure is critical. The County proactively maintains the water system and to ensure Arlington remains a safe and healthy place to live and work.

"Wipe" Out Sewer Backups

Wipes don't break down like toilet paper. They create clogs in pipes and can damage equipment at the Water Pollution Control Plant.

You may have noticed the increase in the number and types of wipes available on the market. You can purchase specialized wipes to clean yourself, your baby, and your kitchen or bathroom, among other things.

Although many of these wipes say they are "flushable" on the packaging, **do not flush them down the toilet**. Wipes do not break down like toilet paper. They may create clogs in your pipes and could cause a sewer backup in your home. Wipes also can create clogs in the County sewer system and at the Water Pollution Control Plant, causing equipment to break down and wear out more quickly.

The **only** things you should flush down the toilet are human waste and toilet paper. Nothing else – not wipes, facial tissues, paper products, hair or dental floss. Even if the product says it's "flushable," put it in the trash.

FAQs About Arlington's Water

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

Hardness is primarily caused by dissolved calcium and magnesium in drinking water. It is 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 is considered moderately hard to hard. You can remove hardness by using white vinegar.

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

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

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

Certain bacteria can thrive in humid environments such as bathrooms, forming a pink to orange "biofilm" that is more pronounced with time. Often this biofilm will appear 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 the 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, because colder water can hold more air than warmer water. 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.

Visit *water.arlingtonva.us* for more information.