



## Alexandria Lead Levels

March 9, 2004

With the recent concerns about lead in Washington D.C. and neighboring Arlington County, questions have been raised about the quality of the water in Alexandria, or specifically the amount of lead detected, and steps being taken by Virginia American Water to ensure the safety of the drinking water.

First let me say that the water in Alexandria meets all state and federal drinking water standards **including the standard for lead**. Having said that, I will be the first to admit that the standard itself is not easy to understand. The standard for lead establishes an "Action Level" of 15 parts per billion (ppb) at the 90<sup>th</sup> percentile. Our test results indicate a level of lead of 1 ppb at the 90<sup>th</sup> percentile. Without going into the details of the standard yet, these results indicate that the corrosion control methods being utilized are doing a great job in effectively reducing the occurrence of lead in the drinking water.

There are over one dozen separate water utilities in the Washington area, but only three major water supply agencies treat about 95% of the metropolitan region's drinking water. The WSSC serves Montgomery and Prince Georges County in Maryland. The Washington Aqueduct Division of the U.S. Army Corp of Engineers produces water for Washington DC, Arlington County, and the City of Falls Church. The Fairfax County Water Authority produces water for Fairfax, Loudoun and Prince William Counties, the City of Alexandria, Herndon, and others such as Ft. Belvoir and Dulles Airport. The lead problems have been in areas served by the Army Corp of Engineers – Washington DC, Arlington County and Falls Church. The areas served by the Fairfax County Water Authority, including the City of Alexandria, have **not** had lead problems.

FCWA has three water treatment plants. One gets water from the Potomac River and the other two get water from the Occoquan Reservoir. The water is mixed as it travels through the interconnected piping systems.

- Water is a universal solvent and no matter how pure the water is flowing from the treatment facility, it will pick up particles from the materials it comes in contact with. For example, if you place a metal object in a bucket of water, it will eventually rust or corrode. Therefore, even though your source water does not naturally contain lead, if it is allowed to stay in contact with your plumbing long enough, some of the lead will corrode into the water.
- Lead is found in some brass faucets, in lead-based solder, and in service pipes installed prior to 1946 that were typically made from lead. Since 1986, plumbing codes have required the use of "lead free" solder which is not 100% lead free, but has a greatly reduced amount of lead.
- There are two methods typically used to reduce the corrosiveness of water. Adding lime (calcium) to reduce the acidity of water, or adding a corrosion inhibitor. Zinc Orthophosphate is the corrosion inhibitor used in Alexandria.

- American Water is a leader in the water industry and has pioneered research in corrosion control. Our research and experience has found the addition of a corrosion inhibitor to be the most effective method to reduce corrosion.
- Virginia American Water has over 20 years experience in the use of corrosion inhibitors that help prevent corrosion in your home's pipes. Virginia American Water was the first in the Washington DC area to use a corrosion inhibitor – years ahead of any other water system.
- VAW's extensive experience in the use of corrosion inhibitors has enabled us to significantly reduce lead and copper corrosion with test results improving every year.
- Corrosion inhibitors bond with the surface of your plumbing and inhibit (reduce) the amount of corrosion that occurs. A very small amount of corrosion inhibitor is added to water. It takes months to form a protective layer. If you replace your faucets with new brass faucets, or install new plumbing, it will take several months for the corrosion inhibitor to form a protective layer.
- If you are concerned about lead in your water, a simple way to reduce your exposure is to flush your cold-water faucet for 30 seconds to 2 minutes or until there is noticeable change in temperature.
- Action Level is the concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow. The USEPA has established an action level for lead in water of 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.
- A part per billion is a measure of concentration, the amount of one material in a larger amount of another material. For example, if you took an apple pie and chopped it into one billion pieces, then one piece would be one part per billion of the pieces of the original pie.

For additional information, go to the following websites:

USEPA information on lead in drinking water [www.epa.gov/safewater/lead/lead1.html](http://www.epa.gov/safewater/lead/lead1.html)

NSF International for certified water filters <http://www.nsf.org/Certified/DWTU/>

Center for Disease Control (CDC) [www.atsdr.cdc.gov/tfacts13.html](http://www.atsdr.cdc.gov/tfacts13.html)

Sincerely,



William R. Walsh  
Vice President & Manager  
Virginia American Water

Friday, March 05, 2004  
FOR IMMEDIATE RELEASE

## *News Release*

### **Alexandria Lead Results Below USEPA Action Levels**

Virginia American Water, the public water supplier for the City of Alexandria, announced today that lead sampling results over the past seven years have been below the US Environmental Protection Agency's required action level limits. Alexandria's water comes from a different treatment facility than the surrounding jurisdictions currently addressing lead concerns.

Lead does not naturally occur in water. However, water is a universal solvent and no matter how pure it is at the starting point, water will pick up particles from the materials it comes in contact with. The USEPA regulation on lead realizes this limitation to water treatment and delivery, and sets a regulatory limit for drinking water of no more than 10% of all required samples can exceed the 0.015 mg/L action level in a sampling series. The company has conducted over 700 tests for lead in the drinking water from homes and businesses throughout the city over the past seven years. In each series of tests, the standard for lead levels established by the USEPA has been met. In the most recent series of test, 52 of the 53 samples taken were below the USEPA action level of 15 parts per billion.

Lead can be found in the service pipes installed prior to 1946, brass faucets and lead-based solder used for internal plumbing. However, since 1986, plumbing codes have required the

use of “lead free” solder. Even though this new solder is not 100% lead free, it has greatly reduced the amount of lead found in drinking water.

For over twenty years, VAW has been chemically treating its water to prevent the transfer of lead from distribution pipes and home plumbing fixtures into the water. Virginia American is part of the American Water system, a leader in the water industry that has pioneered research in water quality to minimize lead introduction to water supplies.

Persons concerned that their home plumbing fixtures may be transferring lead into their tap water can minimize their potential exposure by letting water that may have stood in home plumbing fixtures for several hours, run for several minutes until the water turns noticeably colder. Also, residents who have older plumbing may have their water tested by a certified laboratory for reassurance that their water does not contain elevated lead levels.

Virginia American Water is working in partnership with the Alexandria Health Department to do additional lead testing over the next several weeks to further assure the community that elevated lead levels are not present in the city’s tap water.

## LEAD TESTING COMPANIES

COMPANY NAME	CONTACT	PHONE	EMAIL	RESULTS	COST	COLL/DELIV
AMA Analytical Services	Dana Nicodemus	800/346-0961		3-5 days	\$40/SF homes, \$20 for 20+ homes \$12-15/multiple commercial samples	Clients submit samples, no field services Fed Ex, UPS, drive-in
Applied Environmental	Glen Pyle	703/648-0822	gpyle@APPENV.com	5 days	Collect samples \$50/hr, lab \$24/per less for multiples	They collect samples, submit to lab prepare a report.
Environ Diagnostics	David Young	703/352-0488	young@edcusa.cc	7 days	\$150/hr labor, travel & report \$50 per sample, same for multiples	They collect samples, submit to lab prepare a report.
Environ Dynamics	Liam Keane	703/760-0023	krista@2edi.com	3-5 days	\$50 singles, less for multiples	They collect samples, submit to lab prepare a report.
Environmental Systems	Tim Brown	800/541-2116		3-5 days	→100-\$18/sample, over 100-\$16 if residents test their own.	If they collect, \$35/hr & mileage
RJ Lee Group	Joseph Smith	703/368-7880 ext. 16	jsmith@rjlg.com	3-5 days	\$25 single sample, less if multiples	Residents pick up container, collect sample and bring back to them.
Schneider Lab	Shannan	804/353-6778	svescio@sladinc.com mmills@sladinc.com gbrown@sladinc.com	5-7 days	1 sample-\$25, 2-\$45	Can send a 1 or 2 sample kit w/ five days.

# Service Areas for Washington Metropolitan Region Water Suppliers & Distributors

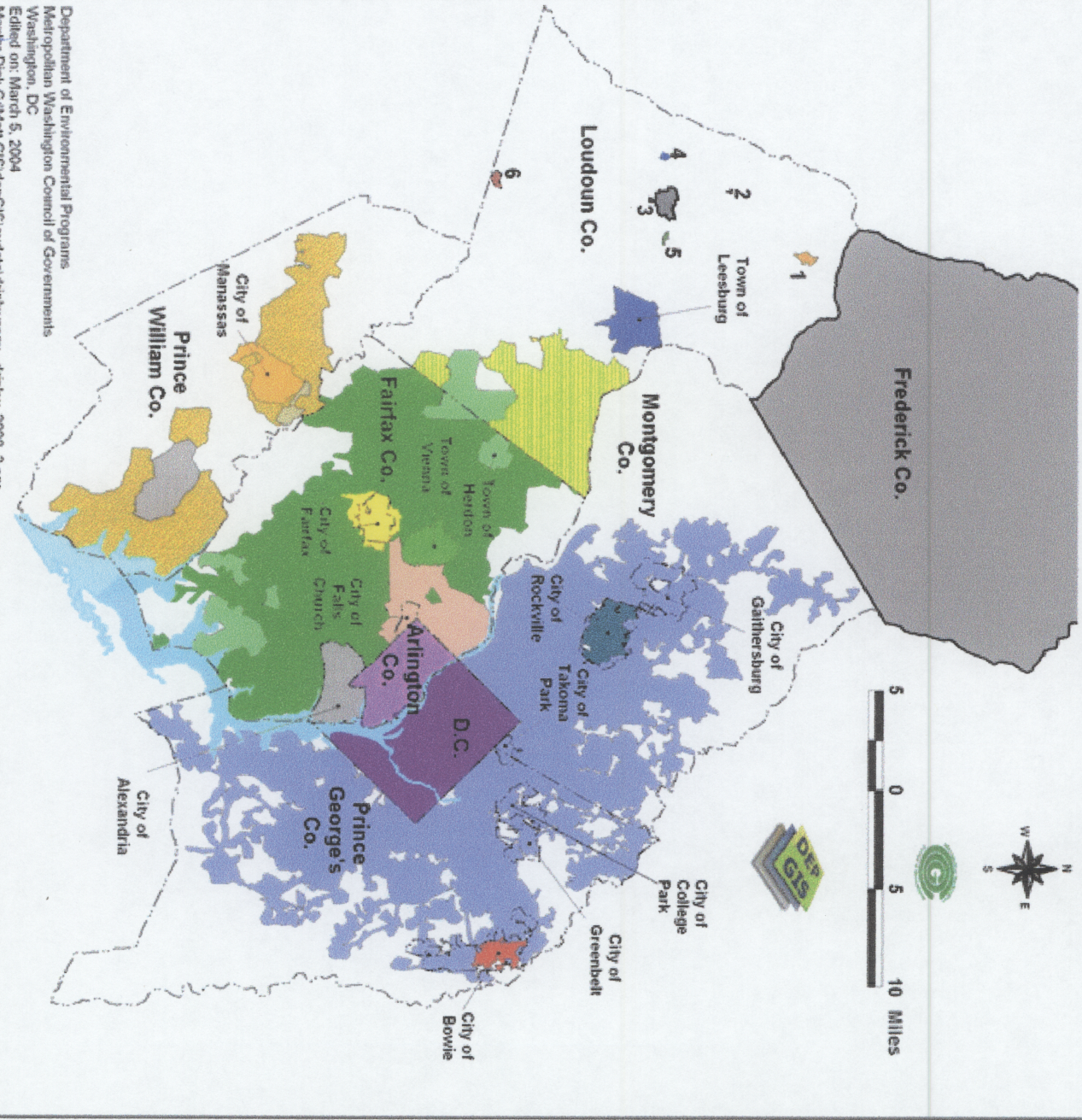
The various colored areas depict the extent of the areas in which water from the water supply and distribution agencies are available. These distribution areas should be interpreted with the following caveats:

- there may be people living in the colored distribution areas who derive water from ground water wells.
- people living in the non-colored areas outside of the distribution regions may derive their water from groundwater wells or small community systems.
- the boundaries of most distribution areas were last updated in ICFRB in 2000 Supply/Demand study

Business or residents should not use this map to establish whether they derive water from a particular treatment agency.

**LEGEND**

- Jurisdictional Boundaries
- Drinking Water Suppliers & Distributors
  - City of Bowie DPW
  - Fairfax County Water Authority
  - Fairfax County Water Authority (Small Wholesale)
  - Loudoun County Sanitation Authority
  - Prince William County Service Authority
  - Virginia-American Water Company
  - Vienna DPW
  - City of Fairfax DU
  - Loudoun County Sanitation Authority
  - City of Manassas DU
  - City of Manassas Park DPW
- 1 Town of Lovettsville
- 2 Town of Hillsboro
- 3 Town of Purcellville
- 4 Town of Round Hill
- 5 Town of Hamilton
- 6 Town of Middleburg
- Town of Leesburg
- Washington Aqueduct (COE)
- Arlington DPW
- District of Columbia Water and Sewer Authority
- Falls Church DES
- Washington Suburban Sanitary Commission
- City of Rockville
- Frederick County Utilities and Solid Waste
- Areas not served by public utility



Department of Environmental Programs  
 Metropolitan Washington Council of Governments  
 Washington, DC  
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## **Lead in Drinking Water**

City of Alexandria

March, 2004

**Bob Custard, R.E.H.S.**

**Environmental Health Manager**

**Alexandria Health Department**

## **What Risks Does Lead Pose?**

- Lead can affect red blood cell chemistry and the neurological system.
- In babies and young children (under 6 years of age), lead can affect normal physical and mental development.
- Lead can affect the attention span, hearing and learning abilities of children
- Long-term exposure at high levels may cause stroke, kidney disease or cancer.

## **Who Is Most At Risk?**

- Children under 6 years of age
- Pregnant woman
- Nursing mothers

## **Water: The Universal Solvent**

- Water can dissolve many materials it comes in contact with including metals
- Because of water's properties as a solvent, all water distributed through piping systems picks up small amounts of impurities
- Water's ability to dissolve lead is dependent on:
  - Water acidity (pH)
  - Water temperature
  - Water chemistry
  - Time

## **Making the Water a Poorer Solvent**

- The natural acidity (pH) of the water coming from the Occoquan Reservoir and the Potomac River is neutralized at the FCWA treatment plants to make the water less capable of corroding pipes
- A corrosion inhibitor (zinc orthophosphate) is added to the water. The corrosion inhibitor over time coats the inside of pipes and fixtures to provide a protective barrier that inhibits the corrosion of metals.

## **Possible Lead Sources**

- Source Water
- Distribution System Mains
- Lead Service Connections (from main to water meter or from meter to house)
- Lead Pipes within Home or Business
- Copper Pipes with Lead Solder Joints within Home or Business
- Lead in Faucets

## Source Water

- Alexandria's water comes from the Fairfax County Water Authority (FCWA)
- The water is tested at least twice annually for a wide range of contaminants by both FCWA and the Virginia American Water Company (VAWC)
- No lead at all has been detected in the tests over the last two years
- **CONCLUSION:** The water delivered to Alexandria does not contain detectable amounts of lead

## Distribution System Mains

- None of the distribution mains in the city are made of lead pipe
- A few mains are cast iron pipes with lead joints
- The water in distribution mains is moving and probably does not have enough contact time with the few lead joints to dissolve much lead
- Distribution lines are looped to eliminate dead spots where the water could sit still
- Testing shows no detectable lead in most samples from the distribution system
- **CONCLUSION:** The distribution system mains are not a significant source of lead

## Lead Service Connections

- Prior to 1945 lead pipes were typically used to make service connections from the water main to the water meter and from the meter to the home or business
- About 2,000 of the 25,000 service connections in the City are thought to be made with lead pipes
- Many, probably most, of these pipes are coated on the inside with carbonate (lime) deposits that protect the lead from corrosion
- **CONCLUSION:** These pipes may be the source of some lead in the water for some homes

## Lead Pipes in Homes and Businesses

- Some older homes and businesses (typically pre-1945 buildings) may still have some lead pipes in their building water distribution piping
- However, the piping in many pre-1945 homes has been updated and replaced with copper or plastic piping
- Many, probably most, of the existing lead pipes are coated on the inside with carbonate (lime) deposits or zinc orthophosphate that protects the lead pipes from corrosion
- **CONCLUSION:** These pipes may be the source of some lead in the water for some homes

## Copper Pipes with Lead Solder Joints in Homes and Businesses

- Prior to 1986 lead-based solder (50% lead) was used to connect copper pipes
- Many homes in the City have interior plumbing of this type
- These pipes are generally coated on the inside with zinc orthophosphate that protects the lead pipes from corrosion
- **CONCLUSION:** These lead-soldered pipe joints may be the source of some lead in the water for some homes

## Lead in Faucets

- Faucets may be made of alloys containing lead
- Modern faucets may be made of brass containing up to 8% lead
- These faucets are generally coated on the inside with zinc orthophosphate that protects the faucet from corrosion
- **CONCLUSION:** These faucets may be the source of some lead in the water for some homes, especially newer homes with brass faucets where the zinc ortho-phosphate has not had time to coat the inside of the faucet



### **Testing Water in Homes and Businesses for Lead: The Lead/Copper Rule**

- The Safe Drinking Water Act (SDWA) requires testing of homes and businesses to evaluate the effectiveness of water suppliers' corrosion control programs
- The Environmental Protection Agency (EPA) action level for lead is that at least 90% of all homes and businesses tested must have less than 15 parts per billion (ppb) lead in the tap water

### **Alexandria's Water Testing Results for Lead**

- Since January of 1997, 725 tap water samples taken from homes and businesses most likely to have lead problems have been analyzed for lead. Only 30 (4.1%) have had lead levels above the 15 ppb action level. They were notified.
- In the most recent testing (July-Sept. 2002), 53 samples were taken. All but one of these samples (98.1%) were below the action level.
- **CONCLUSION:** There is not a widespread lead in drinking water problem in the City. There are scattered homes with lead problems.

### **Another Data Source: Lead Testing of Children**

- Over the last 10 years the Alexandria Health Department has tested the blood lead levels of 3,242 children in its Well Child Clinics
- These children are typically from socio-economic groups that often live in older housing that may be more likely to have lead pipes.
- Only 67 (2.1%) of these children had elevated blood lead levels (>10 micrograms/deciliter)

### **How Did These Children Get Exposed to Lead?**

- Some children were exposed to lead paint in older homes
- Many children were children of immigrants (especially from China, India, Pakistan, & Afghanistan) who were exposed to imported cosmetics (kohl) or homeopathic remedies
- In the last 10 years there have been no cases of children in the AHD well child clinics with elevated blood lead levels attributed to the consumption of drinking water

### **What is the City and Va. American Water Company Doing Now?**

- Providing information on lead in drinking water to residents
- Conducting some additional testing at schools and homes in the City
- Asking Arlington for any test results from residences in the two very small areas of the City served by Arlington water

### **What Steps Can the Public Take?**

- Always use water from the COLD water tap for drinking and cooking
- If water from a faucet has not been used for more than 6 hours, let the water run until it becomes noticeably colder before drawing water for drinking or cooking
- In older homes which may have lead piping, have the water tested for lead by a certified laboratory
- Install an NSF-approved water treatment device