

Dear ACSA Customer:

We are once again pleased to present the Albemarle County Service Authority's (ACSA) annual water quality report, and we are happy to report the quality of your drinking water remains excellent. This report provides details on the many ways we monitor your water, which is the most tested substance you consume. The ACSA and Rivanna Water and Sewer Authority (RWSA), in partnership with the Virginia Department of Health (VDH), work to ensure that you receive a safe and reliable supply of drinking water. As part of this ongoing commitment, we are providing you with this report on the quality of your drinking water.

RWSA collects, stores and treats the water, and ACSA buys the treated water from RWSA and delivers it to you through the distribution system.

While this annual report is required by the United States Environmental Protection Agency (USEPA), we wish to use this opportunity to assure you that **the quality of your drinking water meets and exceeds all regulatory requirements**, as well as your expectations for safety, reliability and quality.

ACSA is committed to providing you, the customer, with this information because informed customers are our best allies. We hope you find this report easy to read and understand. We encourage you to contact us and let us know what you think about the report. Suggestions on how to improve it are welcomed. For more information about your water and for any comments, please contact Tim Brown at 977-4511, ext. 119, or at tbrown@serviceauthority.org.

For the Spanish-speaking members of our community: *importante. Traduzcalo o hable con un amigo quien lo entienda bien.*

Thank you,



Gary B. O'Connell
Executive Director

ACSA Board of Directors

Clarence Roberts, Chairman-
Rivanna District
Dr. Liz Palmer, Vice Chairman-
Samuel Miller District
Jim Colbaugh- Scottsville District
Richard Carter- Jack Jouett District
David Thomas- Rio District
Bill Kittrell- White Hall District

The ACSA Board of Directors holds its meeting the third Thursday of each month at 9:00 a.m. at 168 Spotnap Road. Call (434) 977-4511 or visit www.serviceauthority.org for more information.

The Rivanna Water & Sewer Authority Board of Directors holds a meeting the fourth Tuesday of each month at 2:00 p.m. Due to on-going construction at the RWSA site on Moores Creek Lane, the RWSA Board of Directors continues to meet at the ACSA facility at 168 Spotnap Road. Call (434) 977-2970 or visit www.rivanna.org for more information.

Conservation Tips

There are a number of ways to conserve water, and they all start with you:

- Monitor your water bill for unusually high use. Your bill and water meter are tools that can help you discover leaks.
- Water your lawn and garden in the morning or evening when temperatures are cooler to minimize evaporation.
- Shorten your shower by a minute or two and you'll save up to 150 gallons per month.
- Put food coloring in your toilet tank. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it can save up to 1,000 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.

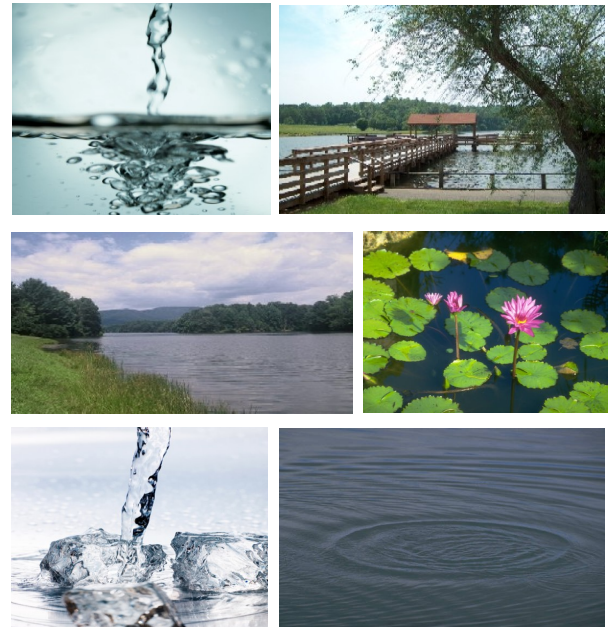
Albemarle County Service Authority

Serving • Conserving



Annual Drinking Water Report Urban Area

Testing for 2010



168 Spotnap Road
Charlottesville, Virginia 22911
Phone: (434) 977-4511 Fax: (434) 979-0698
www.serviceauthority.org

What if I am immuno-compromised?

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 healthcare providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's Safe Drinking Water Hotline (800-426-4791) or by visiting their website (www.epa.gov/safewater).

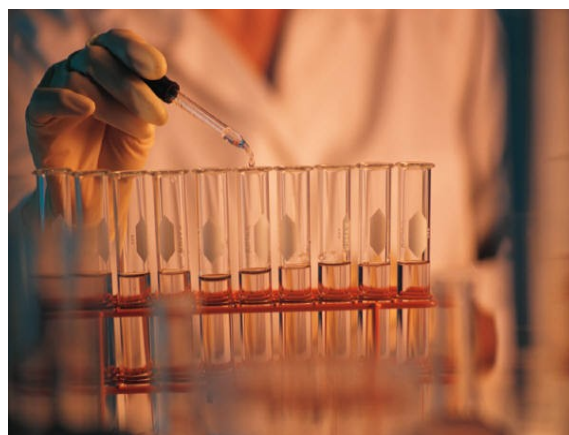
Update on Fluoride

The fluoride content of our source waters (reservoirs and streams) is quite low. Therefore, fluoride is added to your water at the treatment plants to promote good dental health. Fluoridation of drinking water was first introduced in the United States in the 1940s, and the Centers for Disease Control and Prevention has named it one of the ten great public health achievements of the 20th century.

In January, 2011, the U.S. Department of Health and Human Services (HHS), jointly with the U.S. Environmental Protection Agency (EPA), recommended that the level of fluoride added to drinking water be set at the lowest end of the current optimal range to prevent tooth decay. Specifically, HHS and the EPA recommended lowering the fluoride added from a range of 0.7-1.2 ppm to 0.7 ppm. The main reason for this proposed action is that Americans have access to more sources of fluoride than they did decades ago. In addition to the fluoride added to many public water supplies, it is found in toothpastes and mouth rinses, and is routinely applied to children's teeth by dental professionals. Final action on this proposal is still pending. However, the RWSA has taken a proactive approach to somewhat reduce the fluoride added to your water. The ACSA and RWSA will continue to monitor this situation, and await a final position.

Additional Information 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. RWSA and the ACSA are 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 30 seconds to 2 minutes 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 (800-426-4791) or at www.epa.gov/safewater/lead.



Water Quality Standards

The information in this report has been collected and reported in accordance with the drinking water standards established by the USEPA and the VDH. In 2010, RWSA collected and tested hundreds of hourly, daily and annual samples to ensure the quality of your water. Sample sources included the rivers and reservoirs from which the WTPs draw water, the WTPs themselves, and numerous locations in the ACSA distribution system.

The sources of drinking water in our country may 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, as well as substances resulting from the presence of animals or human activity. 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 EPA's Safe Drinking Water Hotline (800-426-4791) or by visiting their website (www.epa.gov/safewater).

The Local Water Supply

RWSA operates three water treatment plants that provide water to the City and the urban areas of Albemarle County. The plants are the North Rivanna Water Treatment Plant (WTP), the South Rivanna WTP and the Observatory WTP. Each plant employs both chemical and physical treatment processes before releasing water into the distribution system. Calcium hypochlorite is used at the North Rivanna WTP to disinfect the treated water, and sodium hypochlorite is used at both South Rivanna and Observatory. Fluoride is added at all three of the water treatment plants to promote good dental health. The water treatment plant that provides water to your tap may vary from day to day depending on the daily production of water at each plant, the level of storage in the system, and your location.

The North Rivanna WTP draws water from the North Fork Rivanna River. For a few weeks in September, 2010, water from Chris Greene Lake was used to augment the river flow during dry conditions. The South Rivanna WTP draws water from the South Fork Rivanna Reservoir. The Observatory WTP draws water from both the Ragged Mountain and Sugar Hollow Reservoirs. Each of these sources provides water that has a low mineral content and is quite "soft" (low in hardness).

Under a program developed by VDH, a source water assessment for the Albemarle/Charlottesville Urban Area was completed by the VDH in 2002. This assessment determined that the raw water sources named above may be susceptible to contamination. All surface water supplies are exposed to a wide array of contaminants at varying concentrations. Changing hydrologic, hydraulic and atmospheric conditions affect the movement of contaminants into surface water supplies from the various land use activities within the assessment area. More specific information may be obtained by contacting Tim Brown at 977-4511, ext. 119, at ACSA.

What were the results from last year's testing?

The table in this report shows which compounds were detected in your drinking water. Before trying to read and understand the table, there are a few terms which need to be defined.

- ◆ **Maximum Contaminant Level Goal (MCLG):** the level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.
- ◆ **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 possible using the best available treatment technology.
- ◆ **Maximum Residential Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is growing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- ◆ **Maximum Residential Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.
- ◆ **ppb:** parts per billion, or micrograms per liter (ug/l). One part substance per billion parts of water.
- ◆ **ppm:** parts per million, or milligrams per liter (mg/l). One part substance per million parts of water.
- ◆ **pCi/l:** picocuries per liter. This is a measure of radioactivity.
- ◆ **n/a:** not applicable
- ◆ **Nephelometric Turbidity Unit (NTU):** a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ◆ **Action Level (AL):** the concentration of a contaminant, which, if exceeded, triggers treatment or other actions by the water provider.

| I. PRIMARY STANDARDS— POTENTIAL HEALTH RISKS | MCLG | MCL | ACSA WATER RESULT | # OF SAMPLES > AL | RANGE OF DETECTIONS | VIOLATION? | TYPICAL SOURCE |
|---|-------------------|--|------------------------------|-------------------|---------------------|-----------------|---|
| MICROBIOLOGICAL ORGANISMS; RELATED MEASUREMENTS | | | | | | | |
| Total Coliform Bacteria ¹ | 0 | Presence of coliform in >3 samples per month | 2 ² | | 0-3.3% per month | No ² | Naturally present in the environment |
| Fecal Coliform Bacteria (as E. coli) ¹ | 0 | ³ See footnote | 0 | | 0% per month | No ⁴ | Human and animal fecal waste |
| Turbidity | n/a | 1.0 ⁵ | 1.00 NTU | | 0.02-1.00 NTU | No | Soil runoff |
| Turbidity (% of samples below 0.3 NTU) | n/a | 95% ⁵ | 99.8% | | n/a | No | Soil runoff |
| RADIOACTIVE COMPOUNDS | | | | | | | |
| Combined Radium ⁶ | 0 pCi/l | 5 pCi/l | 0.6 pCi/l | | 0.1-0.6 pCi/l | No | Erosion of natural deposits |
| Gross Alpha ⁶ | 0 pCi/l | 15 pCi/l | 0.1 pCi/l | | 0.1-0.1 pCi/l | No | Decay of natural deposits |
| Gross Beta ^{6,7} | 0 pCi/l | 50 pCi/l | 1.5 pCi/l | | 1.1-1.5 pCi/l | No | Erosion of natural deposits |
| INORGANIC COMPOUNDS | | | | | | | |
| Lead ⁸ | 0 ppb | 15 ppb (AL) | 9.60 ppb ⁹ | 0 | <2-12.7 ppb | No | Corrosion of household plumbing systems; erosion of natural deposits |
| Copper ⁸ | 1.3 ppm | 1.3 ppm (AL) | 0.952 ppm ⁹ | 1 | <0.05-1.50 ppm | No | Corrosion of household plumbing systems; erosion of natural deposits |
| Barium | 2 ppm | 2 ppm | 0.016 ppm | | 0.014-0.016 ppm | No | Erosion of natural deposits; discharge from drilling wastes; discharge from metal refineries. |
| Fluoride | 4 ppm | 4 ppm | 1.29 ppm | | 0.10-2.00 ppm | No | Water additive that promotes strong teeth |
| Nitrates | 10 ppm | 10 ppm | 0.13 ppm | | <0.05-0.13 ppm | No | Runoff from fertilizer use & erosion of natural deposits; leaching from septic tanks; sewage |
| DISINFECTANT & DISINFECTION BYPRODUCT CONTAMINANTS | | | | | | | |
| Total Trihalomethanes (TTHMs) | n/a | 80 ppb | 37 ppb ¹⁰ | | 18-73 ppb | No | Byproduct from disinfection |
| Haloacetic Acids (HAAs) | n/a | 60 ppb | 33 ppb ¹⁰ | | 10-53 ppb | No | Byproduct from disinfection |
| Total Residual Chlorine | MRDL ₄ | MRDLG ₄ | 1.44 ppm ¹¹ | | 0.1-3.0 ppm | No | Water additive to control microbes (disinfectant) |
| II. SECONDARY STANDARDS— AESTHETIC FACTORS | | | | | | | |
| Chloride | n/a | 250 ppm | 5.9-16.7 ppm | | | No | Runoff/leaching of natural deposits |
| Iron | n/a | 0.3 ppm | <0.05 ppm | | | No | Runoff/leaching of natural deposits |
| Manganese | n/a | 0.05 ppm | <0.01 ppm | | | No | Runoff/leaching of natural deposits |
| pH | n/a | 6.5-8.5 | 7.1-7.5 (monthly averages) | | | No | Runoff/leaching of natural deposits |
| Sulfate | n/a | 250 ppm | <5.0-21.0 ppm | | | No | Runoff/leaching of natural deposits |
| Total Dissolved Solids | n/a | 500 ppm | 78-85 ppm | | | No | Runoff/leaching of natural deposits |
| III. OTHER PARAMETERS OF INTEREST | | | | | | | |
| Alkalinity | n/a | n/a | 11-38 ppm (monthly averages) | | | n/a | Runoff/leaching of limestone minerals from soil and rock |
| Conductivity | n/a | n/a | 110-140 micromhos/cm | | | n/a | Runoff/leaching of natural deposits |
| Hardness | n/a | n/a | 15-38 ppm | | | n/a | Runoff/leaching of limestone minerals from soil and rock |
| Sodium | n/a | n/a | 7.7-17.7 ppm | | | n/a | Runoff/leaching of natural deposits |

¹ Unit of Measurement for total and fecal coliform bacteria is the presence or absence of bacteria in a 100 ml sample.

² Two samples collected in the months of March, April, July, and September, 2010 (out of a total 60 monthly samples) were positive for Total Coliform bacteria. Each was immediately resampled, along with a check sample from within 5 service connection upstream and downstream of the initial sample site. All resamples and upstream/downstream samples were negative for bacteria, indicating the most likely reason for these positive results was collection or laboratory error. This does not constitute a violation of the MCL.

³ Fecal coliform MCL: A routine sample and a repeat sample are total coliform positive, and at least one is also fecal coliform positive.

⁴ Of the more than 720 routine samples collected in the Urban Service Area during 2010, no sample indicated a positive result for fecal coliform bacteria.

⁵ The MCL for turbidity is for no single measurement to exceed 1.0 NTU, and for 95% of all measurements to be below 0.3 NTU.

⁶ Last sampled in March 2003. Monitoring not required annually.

⁷ EPA considers 50 pCi/l to be the level of concern for beta particles.

⁸ Sampled in July and September, 2010 from select residences.

⁹ The value reported is the 90th percentile of all data (30 samples) collected.

¹⁰ TTHM and HAA results are averaged over four quarters to determine compliance with the MCL.

¹¹ The highest monthly, system-wide average.

What do all these numbers mean?

Of great importance, this information shows that your drinking water met and exceeded all regulatory requirements during 2010. We are fortunate to have reliable sources for our drinking water needs and well-operated treatment facilities. Additional information is provided herein that will give you more details on each contaminant or compound detected in your drinking water.

What are the potential health risks associated with these contaminants?

- **Total and Fecal Coliform Bacteria.** Coliforms are a large group of bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Fecal coliform bacteria, in particular, indicate a likely contamination from human or animal wastes. These microorganisms can result in short-term effects such as nausea, headache, cramps and diarrhea, and they pose a special health risk for infants, young children, the aged, and those with severely compromised immune systems.
- **Turbidity** is a measure of the clarity of water. On its own, elevated turbidity has no health effects. However, turbid water can interfere with disinfection and may provide a medium for microbial growth. Elevated turbidity may also indicate the presence of disease-causing organisms, including bacteria, viruses or parasites that can cause such symptoms as nausea, headache, cramps and diarrhea.
- **Combined Radium, Gross Alpha and Gross Beta.** These are naturally-occurring forms of radiation, resulting from certain minerals that are radioactive. When these minerals are eroded into the source water, radiation in the water may result. Some people who drink water containing radium, or alpha or beta emitters, over many years may have an increased risk of getting cancer.
- **Lead and Copper.** The 1994 USEPA Lead and Copper Rule mandates a household testing program for these metals, and the values reported in the chart above are from samples that were collected from select households. Infants and children who drink water containing lead in excess of the Action Level could experience delays in physical or mental development. Children could show deficits in attention span and learning abilities. Adults who drink this water over many years could possibly develop kidney problems or high blood pressure. **See the box for additional information on lead.** Copper is an essential nutrient, but some who drink water containing copper in excess of the Action Level could experience gastrointestinal distress in a relatively short period of time. Some who drink this water over many years could develop kidney or liver damage. Individuals with Wilson's disease should consult their doctor.
- **Barium** is a metal that is naturally-occurring in rock and the soil. Some people who drink water containing barium in excess of the MCL over many years may experience an increase in their blood pressure.
- **Fluoride** is an element added at the water treatment plants to promote strong teeth. Some people who drink water containing fluoride in excess of the MCL over many years could develop bone disease, with pain and tenderness of the bones. Children who drink water containing fluoride in excess of the MCL may develop mottled teeth. **See the box for additional information on fluoride.**
- **Nitrate** is a form of nitrogen found primarily in fertilizers, sewage, and runoff from natural deposits. Infants below the age of six months who drink water containing nitrate in excess of the MCL could develop "blue baby syndrome" in which there is a bluish coloration of the skin and shortness of breath. The infant can become seriously ill and, if untreated, may die.
- **Trihalomethanes and Haloacetic Acids** are compounds formed by the interaction of chlorine with naturally-occurring organic matter, and they are sometimes referred to as disinfection by-products. Chlorine is added at the treatment plant to inactivate disease-causing microbes, and organic matter is naturally present from leaves and decaying plants in the reservoirs and streams. Some people who drink water containing these compounds in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous system, and may have an increased risk of getting cancer.
- **Chlorine** is added at the treatment plant to inactivate disease-causing microbes. Some people who use water containing chlorine in excess of the MRDL could experience irritation of the eyes, nose and skin. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface waters throughout the U.S. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection characterized by nausea, diarrhea, and abdominal cramps. Cryptosporidium may be spread through means other than drinking water. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at risk of developing a potentially life-threatening illness. In November 2003, RWSA began an EPA-mandated, two year, 48 sample study to determine the occurrence of Cryptosporidium in the raw sources for each of the three Urban Area WTPs. Results of monitoring from 2003 through 2005 revealed the occasional presence of Cryptosporidium in very small concentrations (<0.05 organisms per liter) in our reservoirs. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. The RWSA makes every effort to optimize the filtration process at all of the WTPs to ensure the greatest degree of Cryptosporidium removal. Based on the results of this study, our water resources have been placed in the lowest risk category for exposure to Cryptosporidium.