

**D**ear ACSA Customer:

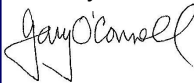
We are once again pleased to present the Albemarle County Service Authority's (ACSA) annual water quality report, and we are happy to report the quality of your drinking water remains excellent. This report provides details on the many ways we monitor your water, which is the most tested substance you 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](mailto: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](http://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 ongoing 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](http://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.

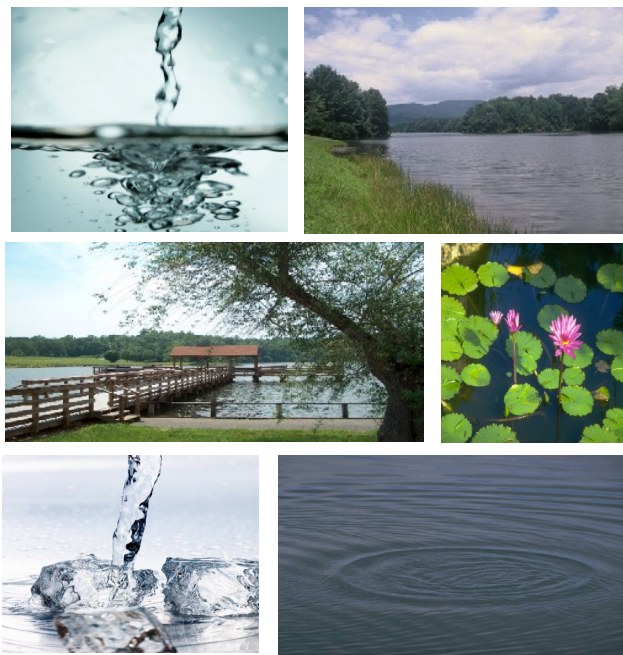
# Albemarle County Service Authority

Serving • Conserving



## Annual Drinking Water Report Crozet Waterworks

### Testing for 2010



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Charlottesville, Virginia 22911  
Phone: (434) 977-4511 Fax: (434) 979-0698  
[www.serviceauthority.org](http://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](http://www.epa.gov/safewater)).

### Update on Fluoride

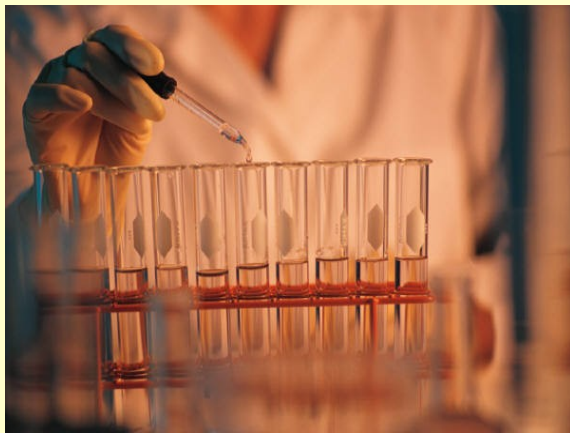
The fluoride content of our source waters (reservoirs and streams) is quite low. Therefore, fluoride is added to your water at the treatment plants to promote good dental health. Fluoridation of drinking water was first introduced in the United States in the 1940s, and the Centers for Disease Control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



### Water Quality Standards

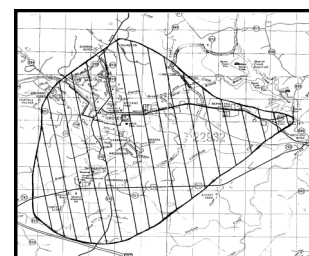
The information in this report has been collected and reported in accordance with the drinking water standards established by the USEPA and the VDH. In 2010, RWSA collected and tested hundreds of hourly, daily and annual samples to ensure the quality of your water. Sample sources included Beaver Creek Reservoir, the Crozet WTP, 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. Beaver Creek Reservoir collects and stores primarily surface runoff from rainfall and streams. 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](http://www.epa.gov/safewater)).

### The Local Water Supply

Your water comes from Beaver Creek Reservoir that is part of the South Fork Rivanna River watershed. Water is pumped from the reservoir to the Crozet Water Treatment Plant (WTP) where it undergoes both chemical and physical treatment processes before being pumped into the distribution system. Chlorine is used to disinfect the treated water, and fluoride is added to promote good dental health. The water has a low mineral content and is quite "soft" (low in hardness). The Crozet WTP has a daily design capacity of 1,000,000 gallons, and in 2010 treated an average of 452,000 gallons per day.

Under a program developed by VDH, a source water assessment for the Crozet Area was completed by the VDH in 2002. This assessment determined that the Beaver Creek Reservoir 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.



Beaver Creek Reservoir

## 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 Residual 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. CONTAMINANTS TESTED	MCLG	MCL	CROZET WATER RESULT	# OF SAMPLES > AL	RANGE OF DETECTIONS	VIOLATION?	TYPICAL SOURCE OF CONTAMINANT
<b>MICROBIOLOGICAL ORGANISMS; RELATED MEASUREMENTS</b>							
Total Coliform Bacteria <sup>1</sup>	0	Presence of coliform in >1 sample per month	1 (April); 1 (May) <sup>2</sup>		0-1 per month	No <sup>2</sup>	Naturally present in the environment
Fecal Coliform Bacteria (as E. coli) <sup>1</sup>	0	See footnote <sup>3</sup>	1 (May) <sup>2</sup>		0-1 per month	No <sup>2</sup>	Human and animal fecal waste
Turbidity	n/a	1.0 <sup>4</sup>	0.30 NTU		0.03-0.30 NTU	No	Soil runoff
Turbidity (% of samples below 0.5 NTU)	n/a	95% <sup>4</sup>	100%		n/a	No	Soil runoff
<b>RADIOACTIVE COMPOUNDS</b>							
Combined Radium <sup>5</sup>	0 pCi/l	5 pCi/l	0.1 pCi/l			No	Erosion of natural deposits
Gross Alpha <sup>5</sup>	0 pCi/l	15 pCi/l	0.1 pCi/l			No	Decay of natural deposits
Gross Beta <sup>5,6</sup>	0 pCi/l	50 pCi/l	1.6 pCi/l			No	Erosion of natural deposits
<b>INORGANIC COMPOUNDS</b>							
Lead <sup>7</sup>	0 ppb	15 ppb (AL)	<2 ppb <sup>8</sup>	0	<2-7.83 ppb	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper <sup>7</sup>	1.3 ppm	1.3 ppm (AL)	0.74 ppm <sup>8</sup>	0	<0.05-0.79 ppm	No	Corrosion of household plumbing systems; erosion of natural deposits
Barium	2 ppm	2 ppm	0.017 ppm		0.017 ppm	No	Erosion of natural deposits; discharge from drilling wastes; discharge from metal refineries
Fluoride	4 ppm	4 ppm	1.1 ppm		0.48-1.38 ppm	No	Water additive that promotes strong teeth
Nitrates	10 ppm	10 ppm	0.10 ppm		0.10 ppm	No	Runoff from fertilizer use; leaching from septic tanks; sewage
<b>DISINFECTANT &amp; DISINFECTION BYPRODUCT CONTAMINANTS</b>							
Total Trihalomethanes (TTHMs)	0	80 ppb	47 ppb <sup>9</sup>		29-67 ppb	No	Byproduct from disinfection
Haloacetic Acids (HAAs)	0	60 ppb	44 ppb <sup>9</sup>		35-57 ppb	No	Byproduct from disinfection
Total Residual Chlorine	MRDL <sub>4</sub>	MRDLG <sub>4</sub>	1.65 ppm <sup>10</sup>		0.5-3.3 ppm	No	Water additive to control microbes (disinfectant)
<b>II. SECONDARY STANDARDS— AESTHETIC FACTORS</b>							
Chloride	n/a	250 ppm	6.5 ppm			No	Runoff/leaching of natural deposits
Iron	n/a	0.3 ppm	0.16 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	7.2-7.3 (monthly averages)			No	Runoff/leaching of natural deposits
Sulfate	n/a	250 ppm	26.9 ppm			No	Runoff/leaching of natural deposits
Total Dissolved Solids	n/a	500 ppm	101 ppm			No	Runoff/leaching of natural deposits
<b>III. OTHER PARAMETERS OF INTEREST</b>							
Alkalinity	n/a	n/a	29-43 ppm (monthly averages)			n/a	Runoff/leaching of limestone minerals from soil and rock
Conductivity	n/a	n/a	165 micromhos/cm			n/a	Runoff/leaching of natural deposits
Hardness	n/a	n/a	25 ppm			n/a	Runoff/leaching of limestone minerals from soil and rock
Sodium	n/a	n/a	22.6 ppm			n/a	Runoff/leaching of natural deposits

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

<sup>2</sup> Of the more than 96 routine samples collected in the Town of Crozet during 2010, two (2) indicated a positive result for total coliform bacteria and 1 of those also indicated a positive result for fecal coliform bacteria. Each was immediately resampled, along with a check sample from within 5 service connections upstream and downstream of the initial sample site. All resamples and upstream/downstream samples came back 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.

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

<sup>4</sup> 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.

<sup>5</sup> Last sampled in March 2003. Monitoring not required annually.

<sup>6</sup> EPA considers 50 pCi/l to be the level of concern for beta particles.

<sup>7</sup> Sampled in August, 2010 from select residences.

<sup>8</sup> The value reported is the 90th percentile of all data (20 samples) collected.

<sup>9</sup> TTHM and HAA results are averaged over four quarters to determine compliance with the MCL.

<sup>10</sup> 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 September 2009, RWSA began an EPA-mandated, one year, 24 sample study to determine the occurrence of Cryptosporidium in the raw source for the Crozet WTP. Results of monitoring reveal no presence of Cryptosporidium thus far in the reservoir. 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 source will likely be placed in the lowest risk category for exposure to Cryptosporidium.