



2011 Annual Drinking Water Quality Report for the Town of Smithfield

This Annual Drinking Water Quality Report for calendar year 2011 is designed to inform you about your drinking water quality. Our goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. The quality of your drinking water must meet state and federal requirements administered by the Virginia Department of Health (VDH).

If you have any questions about this report, want information about any aspect of your drinking water or want to know how to participate in decisions that may affect the quality of your drinking water, please contact: Ms. Sonja Eubank, Office Manager, Department of Planning, Engineering and Public Works at 757-365-4272.

The times and location of regularly scheduled Town Council meetings are the 1st Tuesday of each month at 7:30 p.m. at The Smithfield Center located at 220 North Church Street, Smithfield, Virginia.

This annual "Consumer Confidence Report", required by the Safe Drinking Water Act (SDWA), explains where your water comes from, results from lab analyses, and other things you should know about your drinking water. We are committed to ensuring the quality of your water. Our constant goal is to provide you and your family with a safe and dependable supply of drinking water.

Mr. Brian Freeman and Mr. Jack Reed serve as the Licensed Waterworks Operators for the Town of Smithfield who operate the new reverse osmosis water treatment plant. Mr. Jessie Snead serves as the Public Works Superintendent.

The plant was put online in September 2011. The Water Treatment Plant employs reverse osmosis to remove naturally occurring fluoride from the groundwater. The facility produces treated water with a fluoride concentration averaging 1.0 ppm (parts per million). The treated water is dosed with sodium hypochlorite and lime for taste and odor control.

General Information:

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Substances (referred to as contaminants) in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells.

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 storm water 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 storm water runoff, and residential uses;
- **organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems;
- **radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

All drinking water, including bottled drinking 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 can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the **Safe Drinking Water Hotline** (800-426-4791).

Source(s) and Treatment of Your Drinking Water:

The source of your drinking water is groundwater from drilled wells that are pumped into the Reverse Osmosis Plant where it is treated and sampled and sent to distribution.

VDH conducted a Source Water Assessment of the Town of Smithfield Waterworks in 2002. The wells were determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the Source Water Assessment area, an inventory of known Land Use Activities and Potential Conduits to Groundwater, utilized at Land Use Activity sites in Zone 1 and documentation of any known contamination within the last five years, Susceptibility Explanation Chart, and Definitions of Key Terms. The report is available by contacting your waterworks system owner/operator at the phone number or address included in this report.

Definitions:

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on page 8 shows the results of our monitoring for calendar year 2011. In the table and elsewhere in this report

you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

Non-detects (ND) – lab analysis indicates that the contaminant is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) – one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) – picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) – nephelometric turbidity unit is a measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

Action Level – the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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

Maximum Contaminant Level, or MCL - 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 contaminant Level Goal, or MCLG – 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.

Maximum residual disinfectant level goal or MRDLG - the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum residual disinfectant level or MRDL - the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Some people who drink water containing fluoride in excess of the MCL for many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth. Fluoride in children's drinking water at levels of approximately 1 ppm reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than about 2.0

ppm may develop dental fluorosis. Dental fluorosis in its moderate and severe forms is a brown staining and/or pitting of the permanent teeth. Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The table lists only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Most of the results in the table are from testing done in 2011. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

In developing standards, the EPA assumes that the average adult drinks 2 liters of water each day throughout a 70 year life span. MCL's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

Lead and Copper:

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. The Town of Smithfield 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 or at <http://www.epa.gov/safewater/lead>.

Sodium:

There is presently no established standard for sodium in drinking water. Water containing more than 270 mg/L of sodium should not be used as drinking water by those persons whose physician has placed them on moderately restricted sodium diets. Water containing more than 20 mg/L should not be used as drinking water by those persons whose physician has placed them on severely restricted sodium diets. For informational purposes only, we wish to point out

that the analysis of this sample indicates that your water system has a sodium content of 138 mg/L.

Violation Information:

WE HAD NO VIOLATIONS IN 2011.

**Public Notice to Consumers of the
Town of Smithfield Waterworks
March 1, 2012**

Dear User,

This is an alert about your drinking water and a cosmetic dental problem that might affect children to age 9. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system, the **Town of Smithfield**, prior to September 2011 had a fluoride concentration of 3.69 milligrams per liter (mg/l).

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4 mg/l of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.

For more information, please call **Mr. Jack Reed** of the **Town of Smithfield** at **(757) 365 - 4200**. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call the NSF International at 1-877-NSF-HELP.

Town of Smithfield Reverse Osmosis Plant Laboratory Testing Averages

	Before Reverse Osmosis Treatment	After Reverse Osmosis Treatment
Ph	8.05	7.89 (SMCL 6.8-8.5)
TDS (Total Dissolved Solids)	765	186 (SMCL 500)
Flouride	3.69	1.05 (PMCL 4.0)

**National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards

Chlorine and Fluoride averages are included in chart on page 8. Chlorine is used to control microbes, taste, and odor like hydrogen sulfide. This is what gives water a rotten egg odor. The current level of chlorine has dramatically reduced the number of hydrogen sulfide complaints.

Contaminant (Unit of Measurement)	MCLG	MCL	Level Found	Range	Violation	Date of Sample	Typical Source of Contamination
Fluoride(ppm) Before RO tx	4 ppm	4 ppm	3.69 mg/l	3.50-4.40 mg/l	NO *	Quarterly 2011	Naturally Occurring
Fluoride(ppm) After RO tx	4ppm	4ppm	0.88 ppm	0.45-1.05 ppm	NO	11/10/2011	Naturally Occurring
Coliform Bacteria	0	1	1	ND-1	NO	8/15/2011 6/20/2011	Naturally Occurring
Chlorine (ppm)	4.0 (MRDLG)	4.0 (MRDL)	0.27	0.01-2.5 ppm	NO *	3 RD Quarter 2011	Water additive used to control microbes, taste & odor
Copper	0 ppm	1.3 ppm AL	0.464 ppm	ND-0.590 ppm	NO **	12/12/2011	Erosion of pipes in the distribution system
Lead	0 ppb	15 ppb AL	2 ppb	ND-53 ppb	NO ** ***	12/12/2011	Erosion of pipes in the distribution system
Total Trihalomethanes (TTHM)	0 ppb	80 ppb	3.00 ppb	0.8-6.8 ppb	NO	8/17/2011	Disinfection Byproducts
Barium	2 ppm	2 ppm	0.01 ppm	ND-0.01 ppm	NO	1/25/2011	Erosion of natural deposits

* Compliance based on running average balance.

** Compliance is based on 90th percentile value.

*** One sample exceeded lead action level. . Subsequent testing at same site indicated the lead concentration was below the detection limit of laboratory instruments.

Data for fluoride in finished water (after treatment) is from in house monitoring. A sample analyzed at a certified lab on 09/30/2011 indicated the fluoride concentration in finished water was 0.88 mg/l. This is within the optimum range of 0.8 – 1.0 mg/l. **NO VIOLATIONS OCCURRED IN 2011.**

Water Conservation

Water conservation is an important matter now that our population is continuing to increase. Water is a precious commodity and with the increasing demand for water, citizens and public officials is concerned whether there will be a safe, reliable, and available supply of drinking water in the future.

Fifty-five of Virginia's 95 counties draw half or more of their public water supplies from ground water. Of Virginia's 2,500 public water supply systems, 2,300 use ground water.

The Town of Smithfield is one of the communities that draw strictly from groundwater sources (deep wells) and continues to request its residents to use the available water wisely and conserve where possible.

Town Council adopted a revised water conservation plan August 7, 2007 as required by the Virginia Department of Environmental Quality. Further measures to restrict water usage during peak times may be required by DEQ as part of the town's groundwater withdrawal permit renewal. If you would like a copy of our water conservation plan, please contact Sonja Eubank at seubank@smithfieldva.gov or 365-4272.

Below are some water conservation tips. For more information about water conservation and conducting a home water audit, please visit askhrgreen.org.

Outdoor Savings Tips:

- Adjust your schedule to the season: Summer Bermuda grass can be watered every 3rd day and winter lawn every 5th day.
- Outfit all hoses with automatic shut-off (pistol-style) nozzles.
- Use sprinklers on turf, but use drip irrigation or soaker hoses on flowers, shrubs, gardens and trees.
- Position sprinklers so they're not watering the driveways and sidewalks.

- Adjust your lawnmower to cut grass to a height of 3 inches or more. Taller grass encourages deeper roots and shade the soil to reduce moisture loss.

Pools, Fountains and Spas:

- Make sure your swimming pools, fountains and ponds are equipped with re-circulating pumps.
- Use a grease pencil to mark the water level of your pool at the skimmer. Check the mark 24 hours later. Your pool should lose no more than 1/8 inch each day.
- Just how serious can a leak become? A pinhole-sized leak in a pool plumbing system with 40lbs of pressure will lose approximately 970 gallons of water in a 24-hour period. This comes to about 30,000 gallons a month or 360,000 gallons per year. That's enough to drain and refill the average residential swimming pool more than a dozen times.

Rain Barrels:

Rain barrels conserve water that would have otherwise been running off into the gutter, and are especially beneficial to areas that suffer from heavy droughts during the warmer months. By using water from a rain barrel to water plants, a homeowner can see substantial savings on his utility bills. The homeowner can water his lawn and garden even if water use has been restricted in his area, as the water comes from a storage source and not water lines.

The Town of Smithfield, Isle of Wight County and the Town of Windsor are collaborating to do more Rain Barrel Workshops this spring. Keep an eye out for more details or contact **Meredith Marchant at 365-4200 or mmarchant@smithfieldva.gov**.

Please stop by and visit town staff at the askHRgreen.org trailer during Olden Days in Smithfield on June 30th 2012. Staff will be available to answer questions about our recycling, water conservation, storm water management and fats, oils and grease programs.

Visit askHRgreen.org for more information on everything green in Hampton Roads.

This Drinking Water Quality Report was prepared by:

Ms. Sonja Eubank, Office Manager
Department of Planning, Engineering and Public Works
Town of Smithfield
P.O. Box 246
Smithfield, Virginia 23431



Town of Smithfield
P.O. Box 246
Smithfield, VA
23431