2009 Annual Drinking Water Quality Report for the Town of Smithfield

This Annual Drinking Water Quality Report for calendar year 2009 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: Mrs. Sonja Pruitt, 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 analysis, 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. Jeff Smith serve as the Licensed Waterworks Operators for the Town of Smithfield. Mr. Freeman also serves as the Water Department Supervisor.

Comments from the Town Manager
Mr. Peter M. Stephenson

Please be reminded that the Town of Smithfield entered into a Consent Order with the Virginia Department of Health in 2004 for an agreed upon plan of action to reduce the naturally occurring levels of fluoride found in our public water system's deep wells. The town contracted with the engineering firm of Buchart Horn, Inc. of Baltimore, Maryland to find an appropriate fluoride removal solution. Upon the completion of their Preliminary Engineering Report, Buchart Horn, Inc. recommended that the town construct a Reverse Osmosis membrane technology Water Treatment Plant.

The VDH has concurred with our engineer's recommendations and the town proceeded to drill a new production well in 2005.A complete design submittal of the new water treatment plant specifications and site plan has been provided to VDH. The construction documents are being finalized this year and the project will be ready to go to bid.

Once a construction contract is awarded it is estimated it will be another 12 to 18 months before the new treatment plant is fully operational. In the meantime, the town will continue sending our customers and consumers under separate cover a fluoride level violation notice each quarter when required. The VDH requires that fluoride samples be taken tri-annually unless there are system violations. We had no violations again in 2009 however; we will continue to take quarterly fluoride samples so that we can monitor the systems.

In November 2005, the town began the process of renewing our water withdrawal permit from the Virginia Department of Environmental Quality. We received an administrative continuance of our existing ground water withdrawal permit in 2009.

Other system improvements required a new water storage tank to be located along the Battery Park Road corridor. Construction of the 500,000 gallon water tank has been completed and the tank was put on line in February of this year.

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 located in the Town. We chlorinate during the summer months for taste and odor control.

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 10 shows the results of our monitoring for calendar year 2009. 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 2009. 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.gpv/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 191 mg/L.

Violation Information:
Our system received a violation notice in July and October for exceeding number of positive total coliform samples.Our system tested positive for 4 out of 16 total coliform samples in July and 2 out of 14 coliform samples in October. The system was also tested for sewage bacteria.

WE DID NOT FIND ANY OF THESE BACTERIA IN OUR SYSTEM.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Public Notice to Consumers of the
Town of Smithfield Waterworks
March 1, 2010

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**, has a fluoride concentration of 3.62 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 **Mrs. Sonja Pruitt** of the **Town of Smithfield** at **(757) 365 - 4272**. 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.

SULFUR BACTERIA IN WELL WATER

1. Why does my water smell like rotten eggs?

   Sulfur bacteria tend to get in hot water heaters where it is warm and multiply. Sulfur bacteria break down larger sulfur particles into smaller sulfur particles which create a rotten egg odor. Generally, these chemicals are not harmful however; if you have specific concerns, consult your healthcare provider. We are working to try and eliminate hydrogen sulfide (rotten egg) odor from water and there are some things you as a consumer can do.

2. How can I find the source of sulfur bacteria and what can I do to eliminate it?

   a. The odor of sulfur can be detected in water at very low levels. Smell the water coming out of both hot and cold faucets. Determine which faucet has the odor. The "rotten egg" odor is more likely to be noticed more on the hot water faucets. This is because sulfur bacteria can thrive in a warm environment (such as a hot water heater) and react with the water heater anode. A water heater usually contains a metal rod called an "anode" which is installed to reduce corrosion of the water heater tank. The anode is usually made of magnesium metal that aids in the development of hydrogen sulfide. A lot of times replacing the magnesium anode with an aluminum anode and flushing the tank will resolve the odor problem. PLEASE CONSULT WITH A CERTIFIED PLUMBER OR WATER HEATER MANUFACTURER PRIOR TO MAKING ANY CHANGE.

   b. There are a few things you as a home owner can do to try to eliminate odor problems. Start by testing each faucet hot and cold. If you notice smell primarily in hot water, it's the hot water heater that needs to be looked at. If you notice it in both the hot and cold taps and it can be detected in water after running for a while, it could be in the distribution system. Also if you have treatment filters, they need to be changed regularly.

Another procedure is to increase the water heater temp. to 160 degrees Fahrenheit (71 degrees Celsius) for several hours. This will kill sulfur bacteria present in your water heater. Flushing out the water heater will also help to remove dead bacteria.

(PLEASE CONSULT THE WATER HEATER MANUFACTURER AND OR CERTIFIED PLUMBER BEFORE ATTEMPTING THIS PROCESS. WATER WILL BE VERY HOT AND HOT WATER FAUCETS NEED TO BE MARKED TO REMIND YOU OF SCALDING DANGER)

For more information about sulfur bacteria, please contact Brian Freeman at 449-4882.

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 are 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.

For more information about water conservation and conducting a home water audit, please visit Hampton Road's Water Efficiency Team website at www.hrwet.org.

Contaminant (Unit of Measurement)	MCLG	MCL	Level Found	Range	Violation	Date of Sample	Typical Source of Contamination
Fluoride (ppm)	4 ppm	4 ppm	3.62 ppm	3.28-3.95 pm	NO *	1/26/09	Naturally occurring
Coliform Bacteria	0	1	4	0-4	YES	03/09 –(1) 07/09 - (4) 10/09 – (2)	Naturally Occurring
Chlorine (ppm)	4.0 (MRDLG)	4.0 (MRDL)	0.15	0.09-0.17 ppm	NO *	1st qtr/ 2009 2nd qtr/2009	Water additive used to control microbes, taste & odor
Copper	0 ppm	1.3 ppm AL	0.244 ppm	ND-0.374 ppm	NO **	06/17/08	Erosion of pipes in the distribution system
Lead	0 ppb	15 ppb AL	2.5 ppb	ND-21.5 ppb	NO ** ***	06/17/08	Erosion of pipes in the distribution system
Total Trihalo-methanes (TTHM)	0 ppb	80 ppb	1.0 ppb	ND-1.0 ppb	NO	08/18/09	Disinfectant byproduct

* 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.

Please stop by and visit town staff at the Hampton Roads Water Efficiency Team (HRWET) trailer during Olden Days in Smithfield on June 26th 2010. Staff will be available to answer questions about water conservation and storm water management.

For more information about HRWET or HRSTORM, please visit their websites at www.hrwet.org or www.hrstorm.org.

This Drinking Water Quality Report was prepared by:

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