



HENRY COUNTY PUBLIC SERVICE AUTHORITY
Annual Drinking Water Quality Report for 2013
Upper Smith River (Philpott) Water System

INTRODUCTION

This Annual Drinking Water Quality Report 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).

Si usted no habla ni lee ingles, pida por favor que alguien traduzca este documento para usted.

If you have questions about this report or want additional information about any aspect of your drinking water, please contact the Public Service Authority at (276) 634-2500. The mailing address is P.O. Box 69, Collinsville, VA 24078. The Internet site is <http://www.henrycountyva.gov/public-service-authority>. The Henry County Public Service Authority's Board meets at 6:00pm, on the 3rd Monday of each month.

GENERAL INFORMATION

The source of drinking water (both tap water and bottled water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the land or through the ground, it dissolves naturally occurring mineral and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water includes: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural live stock operations, and wildlife. (2) 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. (3) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm-water runoff, and residential uses. (4) 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. (5) 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 limits the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that 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 pose a health risk. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791). Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

The presence of contaminants does not necessarily indicate that water poses a health risk. Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-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 health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

TREATMENT

Treatment of surface (raw) water consists of chemical addition, fluoridation, coagulation, flocculation, sedimentation, filtration, and chlorination. These processes work together to remove the physical, chemical, and biological contaminants to make the water safe for drinking.

SERVICE AREAS

The Upper Smith River Water Filtration Plant receives its water supply from the Smith River. The facility services the following areas of Henry, Patrick and Pittsylvania Counties: Fairy Stone, Stones Dairy, 57 West, Bassett, Stanleystown, Fieldale, Carver, Collinsville, 220 South, Ridgeway, 58 West, Mount Olivet, Axton, and 58East.

SOURCE WATER ASSESSMENT PROGRAM (SWAP) Upper Smith River WFP

The Virginia Department of Health completed a source water assessment for Upper Smith River source water during 2001/2002. The sources water for the system is 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 of concern, and documentation of any known contamination (none in this case) within the last 5 years. The report is available by contacting the Upper Smith River Water Filtration Plant, 590 Philpott Drive Bassett, Virginia 24055; Phone (276) 629-3227, during business hours.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables on the following pages show the results of our monitoring for the past calendar year. 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:

- **Action Level - (AL)** the concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Chlorination:** The application of chlorine or chlorine compounds to water, generally for the purpose of disinfection, but frequently for chemical oxidation and odor control.
- **Coagulation:** The conversion of very small particles into small visible particles by chemical addition.
- **Filtration:** The process of contacting the water with filter media for the removal of very fine particles.

- **Flocculation:** In water treatment it's the gentle mixing of the water and chemicals by either mechanical or hydraulic means to help with the coagulation process.
- **Locational Running Annual Average- (LRAA):** The average of sample analytical results for samples taken at a particular monitoring location in the distribution system during the previous four calendar quarters.
- **Fluoridation:** The addition of fluoride to water to optimize reduction of tooth decay in children.
- **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 Disinfectant Residual Level (MDRL)** - 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.
- **Maximum Residual Disinfectant Level Goal (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.
- **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.
- **Non-detects (ND)** - lab analysis indicates that the contaminant is not present
- **NR**- Not Required
- **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.
- **Parts per trillion (ppt) or Nanograms per liter (nanograms/l)** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.
- **Picocuries per liter (pCi/L)** - picocuries per liter is a measure of the radioactivity in water.
- **Sedimentation, Settling:** The process of removing suspended matter carried by water, by gravity.
- **Treatment Technique (TT)** - a required process intended to reduce the level of a contaminant in drinking water.

LEAD IN DRINKING WATER

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. Henry County Public Service Authority 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>.

DISINFECTION BYPRODUCTS IN DRINKING WATER

Disinfection is an absolutely essential component in the treatment of drinking water, preventing the occurrence and the spread of many serious and potentially deadly water-borne diseases. Chlorination is a time proven method for disinfection, but some minute amounts of byproducts do result in the form of trihalomethanes (THMs) as chlorine combines with naturally occurring matter (such as leaf debris) in the raw water. Some people who drink water containing

THMs in excess of the MCL over many years could experience problems with their liver, kidneys or central nervous systems, and may have an increased risk of getting cancer. Additional information is available from the Safe Drinking Water Hotline (800-426-4791)

Beginning in October 2013, the waterworks began the Stage 2 D/DBP monitoring from four sampling sites in the distribution system. Compliance with Stage 2 D/DBP is different from Stage 1 in that compliance is based on the Locational Running Annual Average (LRAA) for each monitoring location in the distribution system versus a Running Annual Average (RAA) of all samples from all monitoring locations across the system. Both Stage 1 and Stage 2 D/DBP results are reported in the table.

CRYPTOSPORIDIUM AND GIARDIA

Cryptosporidium and Giardia are microscopic organisms that may enter surface water from runoff containing animal waste. If ingested, they may cause diarrhea, fever and other gastrointestinal symptoms. The Upper Smith River Water Filtration Plant has participated in the EPA's Cryptosporidium LT2 program, which required sampling of the source water prior to any treatment. Monitoring per the LT2 Rule was completed in March 2010 and we are happy to report there were no Cryptosporidium detected. The January 2009 sampling, one fluorescing object resembling a Giardia cyst was observed in the raw source water sample. For a number of years we have been required to meet minimum treatment technique requirements related to turbidity removal and disinfection to ensure adequate Giardia removal and / or inactivation is achieved.

VIOLATION INFORMATION:

Received no violations for the Year 2013.

TABLES

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list 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. Concentrations of contaminants that do not change frequently are monitored less often than once per year.

The U.S. Environmental Protection Agency sets MCLs at very stringent levels. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. 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.

TABLES NOTES

In the tables that follow, these items may be noted:

- a** MCL: (Systems that collect 40 or more samples per month) 5% of monthly samples are positive; (systems that collect fewer than 40 samples per month) 1 positive monthly sample.
- b** UR – Unregulated
- c** AL – Action Level: Copper is 1.3 mg/L; Lead is 15ppb
- d** 95% of filter effluent samples <.3ntu and 100% maximum of 1 NTU.
- e** Primary Contaminant Levels (PMCL) for TTHMs & HAA_{5s} are based on a running average under Stage 1 compliance.
- f** Primary Contaminant Levels (PMCL) for TTHMs & HAA_{5s} are based on a Locational Running Average (LRAA) under Stage 2 compliance.
- g** EPA considers 50pCi/L to be level of concern for beta particles.

Results for the Upper Smith River WFP for 2013							
CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform (Distribution)	0	1 ^a	1	NA	None	7/2013	Naturally occurring in the environment.
Turbidity (NTU) (Combined Filtered)	NA	TT ^d	100% sample <0.3ntu Max-0.09 ntu	0.03 to 0.09 (max)	None	Every 4 hours	Soil runoff
Total Organic Carbon (TOC) - removal ratio	NA	TT-based on the % of TOC removed during the treatment process met when removal ratio is ≥ 1.0	1.0 minimum removal ratio	All quarterly ratios 1.0	None	Quarterly	Naturally present in the environment
Chlorine (ppm) (Distribution)	MRDLG=4	MRDL=4	1.59 highest quarterly avg.	0.03 to 2.17	None	Monthly	Water additive used to control microbes.
Inorganic Contaminants							
Nitrate (ppm)	10	10	0.08	NA	None	11/2013	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.78 avg.	0.05 to 1.10	None	Daily	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Metals Monitored @ Tap							
Copper (ppm) (Distribution)	1.3	1.3 ^e	0.046 @ 90 th %	<0.020 – 0.139	None	2012	Corrosion of household pumping systems. Erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (Distribution)	15	15 ^e	4 @ 90 th %	<2 -11.6	None	2012	Corrosion of household pumping systems. Erosion of natural deposits
Organic							
Stage 1 Haloacetic Acid (HAA5) (ppb) (Distribution)	60	60 ^e	40 – highest 4 quarter avg.	24 to 54 (Stage 1)	None	Every 60 -90 days up to 9/30/2013	By-product of drinking water disinfection
Stage 2 Haloacetic Acid (HAA5) (ppb) (Distribution)	NA	60 ^f	43 (highest LRAA at sample site #2)	36 - 63 (Stage 2 only)	None	Every 60 -90 days beginning 10/1/2013	By-product of drinking water disinfection
Stage 1 Total Trihalomethanes (TTHMs) (ppb) (Distribution)	NA	80 ^e	47 – highest 4 quarter avg.	21 to 119 (Stage 1)	None	Every 60-90 days up to 9/30/2013	By-product of drinking water disinfection
Stage 2 Total Trihalomethanes (TTHMs) (ppb) (Distribution)	NA	80 ^f	76 (highest LRAA at sample site #2)	35 - 110 (Stage 2 only)	None	Every 60 -90 days beginning 10/1/2013	By-product of drinking water disinfection
Radiological Monitoring							
Gross Alpha (pCi/L)	0	15	<0.5	NA	None	1/2013	Erosion of natural deposits
Gross Beta (pCi/L)	0	50	1.4	NA	None	1/2013	Decay of natural & man-made deposits
Combined Radium (pCi/L)	0	5	<0.6	NA	None	1/2013	Erosion of natural deposits