

HENRY COUNTY PUBLIC SERVICE AUTHORITY

Annual Drinking Water Quality Report for 2008



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 www.henrycountyva.gov. 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. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. 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. 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 from the Safe Drinking Water Hotline (800-426-4791). *Cryptosporidium* are microscopic organisms that may enter surface waters from runoff containing animal wastes. If ingested, *Cryptosporidium* may cause diarrhea, fever and other gastrointestinal symptoms. The EPA Long Term 2 Enhanced Surface Water Treatment Rule required the HCPSA's Upper Smith River, City of Eden and City of Martinsville water supplies to initiate testing the raw water for *Cryptosporidium*, beginning April 2008, and we are happy to report that these organisms were not detected during 2008. The finished water is not required to be tested.

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:

- *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.
- *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 - (AL)* the concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that 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.
- *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.
- *Fluoridation*: The addition of fluoride to water to optimize reduction of tooth decay in children.
- *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.
- *Settling*: The process of removing suspended matter carried by water, by gravity.
- *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 Disinfectant Residual Level Goal (MDRLG)* *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.*

SERVICE AREAS

Contained within this correspondence are specific reports on our service areas.

If you live in the Ridgeway, 220 South and 58 West areas please read the 220 South, 58 West water system report. If you live in the Mount Olivet, Axton, and 58 East areas please read the 58 East/Axton water system report. Your water is provided by the City of Martinsville Water Purification Plant and is supplied by the City's Beaver Creek Reservoir and Leatherwood Creek. As of October 25th 2008 the areas of Ridgeway, 220 South, 58 West, and Carver and as of February 26th 2009 the Mount Olivet, Axton, and 58 East are receiving water from the Upper Smith River WFP. If you live in Sandy Level please read the Sandy Level report. Your water is provided by the City of Eden, NC water plant and supplied by the Dan River. If you live in the Bassett, Stanleytown, Fieldale,

Collinsville, Stones Dairy, and 57 West areas please read the Upper Smith River Water Filtration Plant report. The Upper Smith River Water Filtration Plant water supply is the Smith River and Philpott Reservoir.

ABOUT TREATMENT

Treatment of the raw water consists of chemical addition, fluoridation, coagulation, flocculation, settling, filtration, and chlorination. These processes work together to remove the physical, chemical, and biological contaminants to make the water safe for drinking. The Virginia Department of Health completed a source water assessment for Upper Smith River and the City of Martinsville source waters during 2001/2002. The sources water for each of the systems 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 of concern, and documentation of any known contamination (none in this case) within the last 5 years. The reports are available by contacting the Upper Smith River, 590 Philpott Drive. Bassett, Phone 629-3227 or City of Martinsville's Water Purification Plant on Clearview Drive Martinsville, phone 276-656-5137 during business hours.

Source Water Assessment Program (SWAP) And Its Availability For the City of Eden, NC

The State of North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply Section has conducted Source Water Assessments on all water supplies in the State. The Source Water Assessment evaluates the watershed supplying your water for Potential Contamination Sites (PCS). North Carolina Public Water Supply Section has assigned each drinking water source a relative "Susceptibility Rating" characterized as "Higher, Moderate or Lower." A susceptibility rating of "Higher" does not imply poor drinking water quality. Susceptibility is an indication of a water supply's potential to become contaminated by PCSs within the assessment area. The values assigned by our Source Water Assessment were "higher" for Inherent Vulnerability, "moderate" for Contaminant Rating and "higher" for Susceptibility Rating. The contaminant rating for your water source was determined based on the number and location of PCSs within the delineated area. The inherent vulnerability rating of your water source refers to the geologic characteristics or existing conditions of the surface water source and the delineated area (watershed). Susceptibility rating for your surface water is determined by combining the contaminant rating and the inherent vulnerability rating. Details of how North Carolina prepared source water assessments are available on the State DENR website at (www.deh.enr.state.nc.us/pws/swap). To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh NC 27699 – 1634, or email request to swap@ncmail.net. Please indicate PWSID 02-79-010 and provide your name, mailing address and phone number. If any questions about SWAP report please contact the Source Water Assessment staff by phone at 919-719-2633.

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. The 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 (Tel # 1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

TRICHALOMETHANES 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 by-products do result in the form of trihalomethanes (TTHMs) as chlorine combines with naturally occurring organic matter (such as leaf debris) in the raw water. The levels of TTHMs in some samples collected from the supplies covered by this report during 2008 were greater than the PMCL of 80 ppb but no supply was in violation of the drinking water standard. Compliance with the PMCL is based on a running annual average (4 quarters) of the quarterly samples collected and you will note the water supplies did not exceed the drinking water limits on this basis. All locations do not have the same levels of TTHMs. Higher levels are expected in the areas with highest residence time (generally the furthest points in the system) and during the warmer months of the year. 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)

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 base on a running average.
- f** VIOLATION INFORMATION: The HCPSA's Route 58 East / Axton supply exceeded the bacteriological drinking water standard during October 2008. The HCPSA routinely collects bacteriological samples each month to ensure satisfactory water quality is maintained. A routine bacteriological water sample collected on October 14, 2008 indicated the presence of total coliform bacteria. Four repeat water samples were collected on October 16, 2008 and one sample from the same location as the routine sample was also total coliform present. As a result of more than one sample being total coliform present during October 2008, this constituted a violation of the drinking water standard. The Virginia Dept of Health issued a Notice of Violation on October 23, 2008. 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. There was no obvious reason for the presence of total coliform bacteria in the samples from the one site, but all bacteriological samples (6 per month) collected since that time throughout the distribution system, have indicated no such bacteria present.;

- g** Based on the test results of routine monthly samples collected during the April-June 2008 quarter, the City of Martinsville water supply did not meet the minimum total organic carbon (TOC) removal treatment technique. The removal is determined from samples collected from the raw water tap and the treated water (post-filtration) at the City's Water Treatment Plant. The running annual average ratio of actual/required percent removal TOC during this period was 0.85, below the required 1.0 minimum. The Virginia Department of Health issued a Notice of Violation to the City by letter dated July 23, 2008. The TOC removal requirements are established to ensure plants operate to optimize organic removal and minimize formation of disinfection byproducts in the water supply. The treatment plant did not have significant upsets or operational problems that contributed to this performance deficiency. Higher raw water TOC levels were noted following significant rainfall periods, such that it also raised the treated water TOC levels and there were enough events to impact the plant's ability to meet the TOC removal requirement. The City's water supply has returned to compliance. The City continues to optimize treatment at the raw water source and water treatment plant to remove the organic precursors as much as possible. Note throughout the

violation period the levels of TTHM and HAA5 in the City's supply were well below their respective Primary Maximum Contaminant Levels (PMCLs).

Results for the Upper Smith River WFP for 2008 - Bassett, Stanleytown, Fieldale, Collinsville, 57 West, Stones Dairy							
CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform	0	1	1	NA	None ^a	10/08 and 12/08	Naturally occurring in the environment.
Turbidity Filtered (NTU)	NA	TT	0.09; 100% were <0.3 NTU	0.02 to 0.09	None ^d	Every 2 hours	Soil runoff
Inorganic Contaminants							
Nitrate (ppm)	10	10	0.14	NA	None	7/08	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.86 avg.	0.74 to 1.04	None	Daily	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Metals Monitored @ Tap							
Copper (ppm)	1.3	1.3	<0.020 @ 90 th %	0.040 All 30 samples below the action level	None ^e	8/08	Corrosion of household pumping. Erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	15	15	<2.8 @ 90 th %	9.4 All 30 samples below the action level	None ^e	8/08	Corrosion of household pumping. Erosion of natural deposits; leaching from wood preservatives
Organic							
Bromo-dichloromethane (ppb)	UR	UR	3.5	NA	None ^b	8/08	EPA and State regulations require us to monitor this

							contaminant while EPA considers its MCL
Chloroform (ppb)	UR	UR	17	NA	None ^b	8/08	EPA and State regulations require us to monitor this contaminant while EPA considers its MCL
Chlorine (distribution) (ppm)	MRDLG=4	MRDL=4	1.46 highest quarterly avg.	0.02 to 2.04	None	Monthly	Water additive used to control microbes.
Gross Alpha (pCi/L)	0	15	1.6	NA	None	3/03	Erosion of natural deposits
Gross Beta (pCi/L)	0	50	2.6	NA	None	3/03	Decay of natural & man-made deposits
Combined Radium (pCi/L)	0	5	0.7	NA	None	3/03	Erosion of natural deposits
Total Trihalomethanes (TTHMs) (ppb)	NA	80	53 – highest 4 quarter Avg.	25 to 88	None	Quarterly	By-product of drinking water chlorination
Other Contaminant Monitoring							
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
Haloacetic Acid (HAA5) (ppb)	60	60	48 – highest 4 quarter Avg.	7 to 48	None	Quarterly	By-product of drinking water disinfection

Results for 2008 – 220 South Ridgeway 58 West

CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform	0	1	0	NA	None	Monthly	Naturally occurring in the environment.
Turbidity NTU	NA	TT	0.35 Max; 99.9% were <0.3 NTU	<0.10 - 0.35	None [£]	Every 2 hours at City WTP	Soil runoff

Inorganic							
Nitrate + Nitrite (ppm)	10	10	0.11	NA	None	5/08	Runoff from fertilizer use; Leaching from septic tank use, sewage; Erosion of natural deposits
Total Organic Carbon (ratio)	NA	TT-Based on % of removed during treatment process; Removal requirement are met when ratio ≥ 1.0	0.85 minimum annual avg. removal ratio	0.84 to 1.56	Yes \notin	Monthly at City WTP	Naturally present in the environment.
Fluoride (ppm)	4	4	avg. 0.99	ND to 1.58	None	Daily at City WTP	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Organic							
Chlorine (Distribution) (ppm)	MRDLG=4	MRDL=4	1.12 highest quarterly avg.	0.03 to 1.92	None	Monthly	Additive used to control microbes.
Total Halocetic Acids (HAA5s) ppb	NA	60ppb	49- highest 4 quarter avg.	32 to 59	None	Quarterly	By-product of drinking water chlorination
Total Trihalomethanes (TTHMs) ppb	NA	80ppb	80- highest 4 quarter avg.	46 to 110	None	Quarterly	By-product of drinking water chlorination
Radiological							
Alpha Emitters (pCi/L)	0	15	1.1	NA	None	4/03 at City WTP	Erosion of natural radioactive deposits
Combined Radium (pCi/L)	0	5	0.2	NA	None	4/03 at City WTP	Erosion of natural deposits
Beta Emitters (pCi/L)	0	50	2.3	NA	None	4/03 at City WTP	Decay of natural and manmade deposits
Metals- Regulated at Customer Taps							
Copper (ppm)	1.3	1.3	0.03 @ 90 percentile	<0.02 - 0.085; None of 20 samples exceeded action level	None \notin	8/08	Corrosion of household plumbing system; Erosion of natural deposits;

Lead (ppb)	0	15	<2 @ 90 percentile	All <2 None of 20 samples exceeded action level	None €	8/08	Corrosion of household plumbing system; Erosion of natural deposits;
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Results for 2008 - 58 East, Axton

CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform	0	1	2	NA	Yes £	10/08	Naturally occurring in the environment.
Turbidity NTU	NA	TT	0.35 Max; 99.9% were <0.3 NTU	<0.10 - 0.35	None ¢	Every 2 hours at City WTP	Soil runoff
Inorganic							
Nitrate + Nitrite (ppm)	10	10	0.11	NA	None	5/08	Runoff from fertilizer use; Leaching from septic tank use, sewage; Erosion of natural deposits
Total Organic Carbon (ratio)	NA	TT-Based on % of removed during treatment process; Removal requirement are met when ratio ≥1.0	0.85 minimum annual avg. removal ratio for 2008	0.84 to 1.56	Yes ¤	Monthly	Naturally present in the environment.
Fluoride (ppm)	4	4	avg. 0.99	ND to 1.58	None	Daily	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Organic							
Chlorine	MRDLG=4	MRDL=4	0.87 highest	0.2 to 1.5	None	Monthly	Additive used to control

(Distribution) (ppm)			quarterly avg.				microbes.
Total Halocetic Acids (HAA5s) ppb	NA	60ppb	46- highest 4 quarter avg.	16 to 58	None	Quarterly	By-product of drinking water chlorination
Total Trihalomethanes (TTHMs) ppb	NA	80ppb	65 – highest 4 quarter avg.	25 to 130	None	Quarterly	By-product of drinking water chlorination
Radiological							
Alpha Emitters (pCi/L)	0	15	1.1	NA	None	4/03	Erosion of natural radioactive deposits
Combined Radium (pCi/L)	0	5	0.2	NA	None	4/03	Erosion of natural deposits
Beta Emitters (pCi/L)	0	50	2.3	NA	None	4/03	Decay of natural and manmade deposits
Metals- Regulated at Customer Taps							
Copper (ppm)	1.3	1.3	< 0.05 @ 90 percentile	All <0.05; None of 5 samples exceeded action level	None ϵ	8/08	Corrosion of household plumbing system; Erosion of natural deposits;
Lead (ppb)	0	15	<3 @ 90 percentile	<3 to 4	None ϵ	8/08	Corrosion of household plumbing system; Erosion of natural deposits;

Results for 2008 - Sandy Level, Log Town

CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform	0	1	0	NA	None ϵ	NA	Naturally occurring in the environment.
Turbidity (NTU)	NA	TT	0.22; 100% were <0.3 NTU	≤ 0.3	None ϵ	2008	Soil runoff
Organic							
Chlorine (Distribution) (ppm)	MRDLG=4	MRDL=4	0.87- highest quarterly avg.	0.20 to 1.00	None	Monthly	Water additive used to control microbes
Total Organic Carbons	NA	TT- Based on %	1.15	0.99 to 1.49	None	2008	Naturally present in the

		of removal during treatment process; Removal requirement are met when ratio ≥ 1.0					environment
Total Trihalomethanes (TTHMs) (ppb)	80	80	72 highest 4 quarterly avg.	36 to 110	None	Quarterly	By-product of drinking water chlorination
Haloacetic Acids (HAAs) (ppb)	60	60	26 highest 4 quarterly avg.	10 to 37	None	Quarterly	By-product of drinking water chlorination
Inorganic							
Fluoride (ppm)	4	4	1.35	0.05 to 1.35	None	2008	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Mercury (ppb)	2	2	0.4	NA	None	2008	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
Nitrate (ppm)	10	10	<1.00	<1.00	None	2008	Runoff from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits
Sodium (ppm)	UR	UR	9.33	9.33	None	2008	Erosion of natural deposits; Leaching
Metals – Regulated @ Customers Taps							
Copper, (ppm)	1.3	1.3	<0.04 @ 90 th percentile	<0.04 All 5 samples less than action level	None ϵ	9/06	Corrosion of household plumbing system; Erosion of natural deposits;
Lead, (ppb)	15	15	<2 @ 90 th percentile	<2 All 5 samples less than action level	None ϵ	9/06	Corrosion of household plumbing system; Erosion of natural deposits;