

HENRY COUNTY PUBLIC SERVICE AUTHORITY

Annual Drinking Water Quality Report for 2011

Sandy Level 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 www.henrycountyva.gov. 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. 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 Sandy Level area of Henry County's water is provided by the Henry County PSA and supplied by the City of Eden's water plant in North Carolina. The source is the Dan River.

Sandy Level Water System-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.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The tables on the following page 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.
- **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 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.
- **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 primary 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 material 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 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 results 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)

CRYPTOSPORIDIUM AND GIARDIA

The City of Eden monitored their source water for Cryptosporidium from April 2008 until March 2010 and found 1 oocysts/liter in July, 2009 and 3 oocysts/liter December 2009 and 1 oocysts/liter February 2010. Zero oocysts/liter were found the other monitoring months. Cryptosporidium is a microbial parasite, which is found in surface water throughout the U.S. Although Cryptosporidium can be removed by filtration, the most commonly used filtration methods cannot guarantee 100 percent removal. The City of Eden’s monitoring of the source water and / or finished water indicates the presence of these organisms. Current test methods do not enable the determination if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immune-compromised people have more difficulty and are at greater risk of developing severe, life-threatening illness. Immune-compromised individuals are encouraged to consult their doctor regarding appropriate precautions to take to prevent infection. Cryptosporidium must be ingested for it to cause disease, and it may be spread through means other than drinking water.

VIOLATION INFORMATION:

The Sandy Level Water Supply incurred violations for exceeding the Primary Maximum Contaminant Level for Total Trihalomethanes (TTHM) during the first (January-March), third (July-September) and fourth (October – December) quarters of 2011. Although the actual TTHM results were below the PMCL for all quarters except the July-September 2011 quarter, compliance with the PMCLs is based on a running annual average (4 quarters) of the quarterly samples collected, and on that basis, the TTHM PMCL was exceeded during the three quarters of 2011. As referenced above, TTHM compounds are formed when trace amounts of naturally occurring organic compounds in the raw water source combine with chlorine that is used to disinfect the treated water. This water supply is served directly from the City of Eden water supply. Because of the nature of formation of these compounds in the presence of chlorine, increased detention time in the system allows additional formation beyond what is formed in the City’s water supply and thus can account for higher levels detected. 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 TTHMs in excess of the PMCL over many years could experience problems with their liver, kidneys or central nervous system and may have increased risk of getting cancer. This water system will continue to be monitored for TTHMs. The Authority intends to maintain compliance with all monitoring and drinking water standards and we anticipate being back in compliance in the near future. The Authority has been working closely with the City of Eden to identify reasons for the elevated levels and operational measures (such as flushing, etc) both the City and Authority can take to minimize TTHM formation and we are hopeful these will be effective.

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 < 0.3 ntu and 100% maximum of 1 NTU.
- e** Primary Contaminant Levels (PMCL) for TTHMs & HAAs are base on a running average.

Results for 2011 - Sandy Level, Log Town							
CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	SAMPLE DATE	MAJOR SOURCE OF CONTAMINATION
Microbiological							
Total Coliform (Distribution)	0	1 ^a	0	NA	None	Monthly	Naturally occurring in the environment.
Turbidity (NTU) (Filtered)	NA	TT ^d	100% sample <0.3ntu	Max 0.09	None	2011	Soil runoff
Organic							
Chlorine (Distribution) (ppm)	MRDL G=4	MRDL=4	0.63- highest quarterly avg.	0.20 to 0.70	None	Monthly	Water additive used to control microbes
Total Organic Carbons	NA	TT- Based on % of removal during treatment process; Removal requirement are met when ratio ≥ 1.0	1.00	0.83 to 2.85	None	2011	Naturally present in the environment
Total-Trihalomethanes (TTHMs) (ppb) (Distribution)	80	80	88 highest 4 quarter avg.	38 to 170	Yes	Quarterly	By-product of drinking water chlorination
HaloaceticAcids (HAAs) (ppb) (Distribution)	60	60	15 highest 4quarter avg.	9 to 18	None	Quarterly	By-product of drinking water chlorination
Inorganic							
Barium (ppm)	2	2	0.025	NA	None	2011	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits.
Fluoride (ppm)	4	4 ^g	0.61	0.01 to 1.31	None	2011	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Metals – Regulated @ Customers Taps							
Copper, (ppm)	1.3	1.3 ^e	0.077 @ 90 th percentile	<0.05 -0.15 All 5 samples less than action level	None	9/09	Corrosion of household plumbing system; Erosion of natural deposits;
Lead, (ppb)	15	15 ^e	3.5 @ 90 th percentile	<3 to 7 All 5 samples less than action level	None	9/09	Corrosion of household plumbing system; Erosion of natural deposits;