



HENRY COUNTY PUBLIC SERVICE AUTHORITY

Annual Drinking Water Quality Report for 2013

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 <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 Sandy Level area of Henry County's water is provided by the City of Eden, NC water plant and supplied by 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 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 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 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 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)

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.

UNREGULATED CONTAMINANT MONITORING

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

CRYPTOSPORIDIUM AND GIARDIA

The City of Eden system monitored for *Cryptosporidium* and found 1 oocysts/liter in July 2009, 3 oocysts/liter in December 2009 and 1 oocysts/liter in February 2010. *Cryptosporidium* is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal

infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Beginning fall of 2014 the City of Eden Water Filtration Plant will embark on a modification of their current water treatment process. The new process will involve switching the disinfectant process from free chlorine to chloramines to comply with new federal regulatory standards limiting the Trihalomethanes in the drinking water. Chloraminated water is safe for drinking, bathing, cooking and all other uses we have for water every day. However, there are three groups that need to take special precautions when using chloraminated water: kidney dialysis patients, fish, pond and aquarium owners and specialized businesses using high quality treated water. A public information campaign will begin in the summer of 2014.

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 base on a running average under Stage 1 compliance.
- f** Primary Contaminant Levels (PMCL) for TTHMs & HAA_{5s} are base 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 2013 - Sandy Level, Log Town							
CONTAMINANTS	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	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% samples <0.3ntu	Max 0.1 Avg. 0.05	None	2013	Soil runoff
Organic							
Chlorine (Distribution) (ppm)	MRDLG=4	MRDL=4	0.67- highest quarterly avg.	0.20 to 0.70	None	Monthly	Water additive used to control microbes

Nitrate/Nitrite (ppm)	10	10	0.049	NA	None	2013	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Total Organic Carbons	NA	TT- Based on % of removal during treatment process; Removal requirement are met when ratio \geq 1.0	1.5	0.6 to 2.9	None	Monthly	Naturally present in the environment
Total Trihalomethanes (TTHMs) (ppb) (Distribution)	NA	80 ϵ	76 highest 4 quarterly avg.	65 to 100	None	Every 90 days	By-product of drinking water chlorination
Haloacetic Acid (HAA5) (ppb) (Distribution)	NA	60 ϵ	16 highest 4 quarterly avg.	5 to 24	None	Every 90 days	By-product of drinking water chlorination
Inorganic							
Fluoride (ppm)	4	4 ϵ	0.70	0.05 to 0.93	None	2013	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 ϵ	0.04 @ 90 th percentile	<0.03 to 0.04 All 5 samples less than action level	None	8/2012	Corrosion of household plumbing system; Erosion of natural deposits;
Lead, (ppb)	0	15 ϵ	0.65 @ 90 th percentile	<1 to 1.3 All 5 samples less than action level	None	8/2012	Corrosion of household plumbing system; Erosion of natural deposits;
Radiological Monitoring							
Combined Radium (pCi/L)	0	5	0.72	NA	None	2/2012	Erosion of natural deposits
Unregulated Contaminant Monitoring Rule Study Results							
CONTAMINANTS	LEVEL FOUND	MAXIMUM RESIDENCE	DATE OF SAMPLE	MAJOR SOURCE OF CONTAMINATION			
Chromium (ppb)	0.26	0.27	10/02/2013	See chromium-6 for use or source information; though the amount measured when analyzing for "total chromium" is the sum of chromium in all of its valence states, the MCL for EPA's current total chromium regulation was determined based upon the health effects of chromium-6			
Strontium (ppb)	49	51.2	10/02/2013	Naturally occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions			
Vanadium (ppb)	0.26	0.33	10/02/2013	Naturally occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst			
Chromium, Hexavalent (ppb)	0.033	0.043	10/02/2013	Naturally occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation			

The City of Eden also tested for the following: cobalt, molybdenum, chlorate, 1,4-dioxane, 1,1-dichloroethane, 1,2,3-trichloropropane, 1,3-butadiene, bromochloromethane (Halon 1011), bromomethane (methyl bromide), chlorodifluoromethane (HCFC-22), chloromethane (methyl chloride), perfluorobutanesulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). **All of these chemicals were not detected or were less than the Required Reporting Limit (RRL).** Maximum Residence reflects results at maximum residence time in the City's distribution system.