

2017 ANNUAL DRINKING WATER QUALITY REPORT

Boykins/Branchville Water System

PWSID 3175100

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2017 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 questions about this report, or if you want additional 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:

- Southampton County Dept. of Public Utilities (757) 653-9269

The times and location of regularly scheduled board of supervisors meetings are as follows:

- Southampton County Office Center, 4th Monday of each month, Call (757) 653-3015 for times.

GENERAL INFORMATION

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and, in some cases, radioactive material, 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, the 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, Immuno-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).

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 Southampton County Department of Public Utilities 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 30 seconds – 2 minutes 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>.

SOURCES and TREATMENT OF YOUR DRINKING WATER

The sources of your drinking water is groundwater as described below:

The Boykins/Branchville Water System receives its water from four wells. Two of the wells are 280 feet deep and the other two are each 306 feet deep.

The drinking water supply is treated using chlorination.

The Virginia Department of Health conducted a Source Water Assessment of the Boykins-Branchville System Waterworks in 2001. Well 1 and Well 2 – Boykins and Well 4 – Branchville were determined to be of high susceptibility to contamination while Well 3 – Branchville was determined to be of low 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 the CCR.

MONITORING

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.

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

MCL's are set at very stringent levels by the U. S. Environmental Protection Agency. 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.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table included shows the results of our monitoring for the period of **2013 - 2017**. In the table and elsewhere in this report you will find many terms and abbreviations with which you might not be familiar. 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 (µg/L) - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Action Level (AL) - the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

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 Disinfection Level (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.

Maximum Residual Disinfection 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.

Treatment Technique (TT) – a required process intended to reduce the level of a contaminant in drinking water.

Level 1 Assessment – an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.

Level 2 Assessment – an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment in a more comprehensive investigation than a Level 1 assessment.

Sanitary Defect – a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

Secondary Maximum Contaminant Level, or SMCL – the level of a contaminant which, when exceeded, may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The presence of secondary contaminants is not considered a risk to health.

WATER QUALITY RESULTS

Commerce Street Well

CONTAMINANT	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
Barium (ppm)	2	2	0.119	NA	No	11/18/15	Erosion of natural deposits
Alpha emitters (pCi/L)	0	15	0.6*	NA	No	11/8/16	Erosion of natural deposits
Gross Beta (pCi/L)	0	50**	17.1***	NA	No	11/8/16	Erosion of natural deposits

Bryant Street Well

CONTAMINANT	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
Barium (ppm)	2.0	2.0	0.016	NA	No	11/8/16	Discharge of drilling wastes, discharge from metal refineries, and erosion of natural resources
Gross Beta (pCi/L)	0	50**	12.3***	NA	No	10/15/13	Erosion of natural deposits

Branchville Wells (combined)

CONTAMINANT	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
Barium (ppm)	2.0	2.0	0.093	NA	No	11/18/15	Discharge of drilling wastes, discharge from metal refineries, and erosion of natural resources
Gross Beta (pCi/L)	0	50**	8.7***	NA	No	11/8/16	Erosion of natural deposits
Radium (pCi/L)	0	5	1.1	NA	No	11/8/16	Erosion of natural deposits

*If the results of the sample had been above 5 pCi/L, our system would have been required to do additional testing for radium. Because the results were below 5 pCi/L, no testing for radium was required.

**The MCL for Gross Beta is 4 mrem/year however EPA considers 50 pCi/L to be the level of concern.

***Because the beta particle results were below 50 pCi/L, no testing for individual beta particle constituents was required

Distribution System

CONTAMINANT	AL	MCLG	LEVEL FOUND	RANGE	SAMPLES ABOVE AL	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
Copper (ppm)	1.3	1.3	0.08	ND - 0.283	Zero	Sep 2015	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	15	15	3.1	ND - 3.36	Zero	Sep 2015	Corrosion of household plumbing systems
CONTAMINANT	MCLG	MCL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
THMs (Total trihalomethanes) (ppb)	0	80	6.6	4.3 - 6.6	No	8/5/15	Byproduct of drinking water chlorination
HAA5 (Haloacetic Acids) (ppb)	0	60	2.3	ND - 2.3	No	09/03/15	Byproduct of drinking water chlorination
CONTAMINANT	MDLG (MRDLG)	MRDL	LEVEL FOUND	RANGE	VIOLATION	DATE OF SAMPLE	TYPICAL SOURCE OF CONTAMINATION
Chlorine Residuals (ppm)	4.0	4.0	0.68	0.00 - 0.97	No	Monthly	Water additive used to control microbes.

Other drinking water constituents you may be interested in are as follows:

UNREGULATED CONTAMINANT	SMCL	LEVEL FOUND	RANGE	TYPICAL SOURCE OF CONTAMINATION
Chloride (ppm)	250	8.6	7.9 – 8.6	Erosion of natural deposits widely distributed in nature, discharge from softeners, human or animal waste disposal, leachate from landfill or seawater intrusion
Manganese (ppb)	50	60	18 - 60	Erosion of natural deposits widely distributed in nature, industrial waste discharge
Iron (ppb)	300	460	108 - 460	Erosion of natural deposits widely distributed in nature
Sodium (ppm)	NA	72.0	35.8 – 72.0	Erosion of natural deposits widely distributed in nature, discharge from softeners, human or animal waste disposal, leachate from landfill or seawater intrusion
Sulfate (ppm)	250	13.3	9.8 – 13.3	Erosion of natural deposits widely distributed in nature, industrial waste discharge, fossil fuel by-product
Total Dissolved Solids (ppm)	500	254	228 – 254	Erosion of natural deposits widely distributed in nature contamination from oil wells, nearby drainage ponds, or domestic or industrial waste.
Total Alkalinity (ppm)	NA	149	138 - 149	Erosion of natural deposits widely distributed in nature

Water samples collected during 2016 were analyzed for various parameters. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old. The test for iron in the water indicated levels ranging from 108 - 460 ppb. The Secondary Maximum Contaminant (SMCL) level for iron is 300 ppb. Testing for manganese indicated levels ranging from 18 - 60 ppb. The Secondary Maximum Contaminant Level for manganese is 50 ppb. Iron and manganese are highly objectionable constituents in water supplies for either domestic or industrial use. They may impart brownish discolorations to laundered goods. The taste that they impart to water may be described as bitter or astringent, and may adversely affect the taste of other beverages. Diets contain 7,000 to 35,000 micrograms of iron per day, and average 16, 000 micrograms. The amount of iron and manganese permitted in water by quality control to prevent objectionable taste or laundry staining constitutes only a small fraction of the amount normally consumed and does not have toxicological significance. The Secondary Maximum Contaminant Level for Total Dissolved Solids is 500 ppm. Total Dissolved Solids in excess of 500 ppm can cause hardness, deposits, colored water, staining, and a salty taste.

There is presently no established standard for sodium in drinking water. Water containing more than 270 ppm 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 ppm should not be used by persons whose physician has placed them on severely restricted sodium diets. Sulfate concentrations in excess of the Secondary Maximum Contaminant level of 250 ppm can impart a salty taste to drinking water.

MCL's are set at very stringent levels by the U. S. Environmental Protection Agency. 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.

System Assessment for Total Coliform - Coliforms are bacteria that are present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. There were no Coliforms found during the 2017 sampling period and therefore there were no assessments conducted.

This Drinking Water Quality Report was prepared by:

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