

**2018 Annual Drinking Water Quality Report**  
**Bath County Service Authority**  
**Bath County Regional**

**INTRODUCTION**

This Annual Drinking Water Quality Report for calendar year 2018 is designed to provide you with valuable information about your drinking water quality. The Bath County Service Authority is committed to providing 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 meets all state and federal requirements administered by the Virginia Department of Health (VDH), Office of Drinking Water.

If you have questions about this report, 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:

Mr. Gene Q. Phillips, Bath County Service Authority at (540) 839-7251

You can get additional information by attending the monthly meeting of the Bath County Service Authority held the first Monday of every month at 7:00 p.m. in the Courtroom located at the Bath County Courthouse.

**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 surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (2) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater 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 stormwater 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 stormwater 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 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 that must provide the same protection for public health.

Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

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).

**SOURCES AND TREATMENT OF YOUR DRINKING WATER**

Your drinking water was obtained from three wells and one spring during the year 2018. The High School Well Nos. 1 & 2, located East of Bath County High School with a flow rate of twenty-five (25) gallons per minute. The Old Dairy Well with a flow rate of approximately 100 gallons per minute. Water is distributed throughout the area via C-900 plastic and ductile iron class fifty (50) water pipe. The water is chlorinated at the Old Dairy Well and Queen Spring.

**SOURCE WATER ASSESSMENTS**

A source water assessment has been completed by VDH. The assessment determined that our sources might be susceptible to contamination because it is located in an area that promotes migration of contaminants from land use activities of concern. More specific information may be obtained by contacting the water system representative listed above.

**ADDITIONAL INFORMATION**

The Bath County Regional system consists of the Mitchelltown, High School, West Warm Springs, Bacova and Chimney Run areas. There are five (5) water storage tanks located in this system. Bacova 103,000, Mitchelltown 286,000, West Warm Springs 30,000, High School 286,000, and Chimney Run 128,000 gallons, for a total of 833,000 gallons. This water system also has the capability of purchasing water from the Hot Springs Water Company. Water is transferred throughout the system in two (2), four (4), six (6), eight (8) and twelve (12) inch water mains. Some of the mains are plastic while the majority is ductile iron. The system totals are as follows: two (2) inch 5,300 feet, four (4) inch 6715 feet, six (6) inch 32,320 feet, eight (8) inch 45,304 feet, and twelve

(12) inch 42,298. This is a total of 131,937 feet or 24.98 miles. Located approximately every 1,000 feet are 101 American Darling fire hydrants to provide Bath County residents fire protection.

Water can be gravity fed from Mitchelltown throughout the system or the system can be split with some areas receiving gravity water and some forced water. This availability to pump or gravity feed the system requires seven booster pumping stations and eleven pressure reducing main line stations. This system is the most complex facility the Authority operates, however, it also is the only system that allows the Authority operator the flexibility of utilizing raw water to its maximum capabilities.

### **Lead Contaminants**

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. Cedar Creek 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 to 2 minutes 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>.

### **QUALITY OF YOUR DRINKING WATER**

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The table on the following pages shows the results of our monitoring for the period of January 1st to December 31st, 2018.

The results in the table are from testing completed in 2015, 2016, 2017 & 2018. 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.

### **DEFINITIONS**

In these tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

*Non-Detects (ND)* - laboratory analysis indicates that the constituent 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* - 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 of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

*Treatment Technique (TT)* - (mandatory language) A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

*Maximum Contaminant Level* - (mandatory language) The "Maximum Allowed" (MCL) is 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* - (mandatory language) The "Goal"(MCLG) is the level of a contaminant in drinking water below that there is no known or expected risk to health. MCLGs allow for a margin of safety.

*Variations & Exemptions (V&E)* - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

## WATER QUALITY RESULTS

<b>Bacteriological Contaminants</b>						
Contaminant	MCLG	MCL	Level Found	Violation	Date of Samples	Typical Source of Contamination
E. coli bacteria	MPN	0	(5) routine "raw water" samples collected prior to disinfection treatment were positive for E. coli bacteria	No	Monthly 2018	Human and animal fecal waste
Contaminant	MCLG	MCL	Level Found	Violation	Date of Samples	Typical Source of Contamination
Total Coliform Bacteria	0	Presence of coliform bacteria in no more than one sample each month	(3) samples total coliform positive	No	(2) July (1) December 2018	Naturally present in environment
<b>Radiological Contaminants</b>						
Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Alpha emitters pCi/L	0	15	Highest: 0.6 Range- ND to 0.6	No	May 2015 & April 2016	Erosion of natural deposits
Combined Radium pCi/L	0	5	Highest: 0.7 Range- 0.4 to 0.7	No	May 2015 & April 2016	Erosion of natural deposits
Gross Beta pCi/L	0	50	Highest: 1 Range- 0.6 to 1	No	May 2015 & April 2016	Decay of natural and man-made products
<b>Inorganic Contaminants</b>						
Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Nitrate ppm	10	10	Highest: 0.52 Range: 0.28 to 0.52	No	May 2018	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium ppm	2	2	0.016 Range- ND to 0.016	No	May 2017 & May 2018	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
<b>Disinfection By-Products</b>						
Contaminant/Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
TTHMs (Total Trihalomethanes) ppb	0	80	1.7	No	August 2018	By-product of drinking water chlorination
Haloacetic acids (HAAs) ppb	NA	60	ND	No	August 2018	By-product of drinking water chlorination
<b>Lead &amp; Copper</b>						
Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Exceedance	Date of Sample	Typical Source of Contamination
Lead ppb	0	15	4.7 (90 <sup>th</sup> percentile) None of the ten samples collected exceeded the AL.	No	September 2017	Corrosion of household plumbing systems; Erosion of natural deposits
Copper ppm	1.3	AL=1.3	0.39 (90 <sup>th</sup> percentile) None of the ten samples collected exceeded the AL.	No	September 2017	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

<b>Disinfectant Residual Contaminants</b>						
Contaminant/Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Chlorine mg/l	4	4	0.16 to 0.65	No	Monthly 2018	By-product of drinking water chlorination

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.

Maximum Contaminant Levels (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 MCL's 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.

### **E. Coli Information**

Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and headaches. *Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.*

We had five routine raw water samples collected during the year 2018 that indicated presence of E. coli bacteria. The VDH requires that we collect raw water samples to assess raw water quality. Additionally, we provide disinfection treatment to your water. Please note that no E. coli bacteria was detected in the treated water served to you. This indicates that disinfection treatment appears to be properly functioning and is eliminating the E. coli bacteria.

### **VIOLATION INFORMATION: Coliform Bacteria & Level 1 Assessment**

Coliforms are bacteria that are naturally 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. We found coliforms indicating the need to look for potential problems in the distribution system. When this occurs, we are required to correct any problems that were found during these assessments.

During the past year were required to conduct (1) Level 1 Assessment during the month of August 2018 due to two samples indicating the presence of total coliform in July 2018. We made the necessary corrective action in relation to this Level 1 Assessment and reviewed our sampling procedures.