

TAZEWELL COUNTY
PUBLIC SERVICE AUTHORITY

Annual Drinking Water Quality Report 2016

Jewell Ridge Waterworks (1185365)

This Annual Drinking Water Quality Report for calendar year 2016 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). **We at the Tazewell County Public Service Authority are pleased to report to you that your drinking water product is safe and meets federal and state requirements.**

If you have questions about this report, please contact: **Mike Dowdy at 276-964-4711 or Benny McGhee at 276-964-2960.**

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: **Dahmon Ball at 276-988-2243.**

The times and location of regularly scheduled board meetings are as follows: **The Tazewell County PSA Board of Directors meetings are scheduled for the first Monday of each month at 5:30pm. The meetings are held at the Tazewell County PSA office in Tazewell, VA.**

The sources of drinking water (both tap water and bottled water) include 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, in some cases, radioactive material, 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 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).

The source of your drinking water is surface water taken from the John Flannagan Reservoir by the John Flannagan Water Authority and Kennel Gap Water Treatment Plant. The water from John Flannagan is purchased by the Buchanan County Public Service Authority blended with the water from Kennel Gap Water Treatment Plant then sold to the Tazewell County Public Service Authority.

Is there any treatment of your drinking water supply? **No**

Treatment of the raw water consists of chemical addition, coagulation, flocculation, settling, filtration, and chlorination. All of these processes work together to remove the physical, chemical, and biological contaminants to make the water safe for drinking.

A source water assessment of the John Flannagan Reservoir was conducted in 2002 by the Virginia Department of Health. It was 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 within the last 5 years. The report is available by contacting your water system operator **Mike Dowdy at 276-964-4711.**

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the next page shows the results of our monitoring for the period of January 1st to December 31st, **2016**. 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:**

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 Disinfectant Level or 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 Disinfectant Level Goal or MRDLG – the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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 - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

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

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

Level 1 assessment - a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 assessment - a very detailed study of the waterworks to identify potential problems and determine (if possible) why an *E. coli* PMCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

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.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High Nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agriculture activity. If you are caring for an infant, you should ask for advice from your health care provider.

Did any monitoring, reporting, or other violations occur during the year? **No**.

Did any MCL or TT violations occur during the year? **No**

Certain contaminants (such as, arsenic, nitrate, and lead), if present in your drinking water, may be of special concern to consumers. Are any of those contaminants present at levels of concern that must be reported? **No**

WATER QUALITY RESULTS

1. Regulated Contaminants

Contaminant (units)	MCLG	MCL	Level Detected	Violation (Y/N)	Range	Date of Sample	Typical Source of Contamination
Turbidity (NTU)	-	TT, 1 NTU max	0.94	No	0.12 – 0.94		Soil runoff
		TT, ≤ 0.3 NTU 95% of the time	100%	No			
Nitrate (ppm)	10	10	0.33	No	0.2 – 0.33		Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.59	No	0.3 – 0.59		Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Selenium (ppb)	50	50	2.6	No	ND – 2.6		Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Barium (ppm)	2	2	0.035	No	0.03 - 0.035		Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	0.87	No	0.2 – 1.0		Water additive used to control microbes
Total Trihalomethanes (ppb)	-	80	66	No	34 – 88		By-product of drinking water chlorination
HAA5 Haloacetic Acids (ppm)	-	60	39	No	22 – 46		By-products of drinking water chlorination
Alpha Emitters (pCi/l)	0	15	0.9	No	ND – 0.9	2009/2014	Erosion of natural deposits
Total Organic Carbon Removal Ratio	NA	TT In compliance if >= 1.0	1.0	No	1.0 – 1.0		Naturally present in the environment

2. Lead and Copper Contaminants

Contaminant (units)	MCLG	Action Level	90 th Percentile	Date of Sampling	# of Sampling Sites Exceeding Action Level	Typical Source of Contamination
Copper (ppm)	1.3	AL=1.3	ND	2015	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	0	AL=15	ND	2015	0	Corrosion of household plumbing systems; Erosion of natural deposits

It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. 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 Tazewell 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 (800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Microbiological Contaminants - No samples taken for 2016 tested positive for Total Coliform or E.coli bacteria.

The water quality results in tables 1 and 2 are from testing done in 2016. However, 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.

Additional Health Information

In 2016, the Flannagan Water Authority began monitoring for *Cryptosporidium* in the source water (before treatment) as required by EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). *Cryptosporidium* is a microscopic parasite found in surface water throughout the United States. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Under the LT2ESWTR, the average *Cryptosporidium* concentration determines if additional treatment measures are needed. Twenty-four samples are required for analysis over a two-year period. During 2016, the average *Cryptosporidium* concentration was 0 oocysts per liter for the 3 samples collected. Based on the *Cryptosporidium* monitoring results so far and the current performance of the treatment plant, we anticipate meeting the future treatment requirements of the LT2ESWTR.