Annual Drinking Water Quality Report

John Flannagan Water Authority

PWSID NO. - 1051377

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2019 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, please contact: Mr Billy R. Hylton at 276-835-8629

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: Bikky R. Hylton at 276-835-8629

The times and location of regularly scheduled board meetings are as follows:The third Thursday of every other month starting with January at 6:00 PM, held at the water treatment plant at 552 Flannaagan Dam RD. Haysi, Va/, 24256

GENERAL INFORMATION

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: (i) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; (ii) 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; (iii) pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; (iv) 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; (v) 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 that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled 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 about contaminants and potential health effects 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 who are 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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

SOURCE(S) and TREATMENT OF YOUR DRINKING WATER
The source(s) of your drinking water is (X) surface water ( ) groundwater under the direct influence of surface water ( ) groundwater as described below:

Is there any treatment of your drinking water supply? (X) Yes ( ) No

The Virginia Department of Health conducted a source water assessment of our system during 2001. The John Flannagan Reservoir 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. The report is available by contacting Billy R. Hylton at the phone number or address given elsewhere in this drinking water quality report.

DEFINITIONS
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, 2019. 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 Goal or MRDLG: the level of 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.

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.

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 (AL) - 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.

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.

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.

WATER QUALITY RESULTS

Microbiological Contaminants

Contaminant	MCLG	MCL	No. of Samples Indicating Presence of Bacteria	Violation (Y/N)	Month of Sampling	Typical Source of Contamination
E. coli	0	1 routine sample and a repeat sample are total coliform positive, and 1 is also *E. coli* positive	0	N	N/A	Human and animal fecal waste

Regulated Contaminants

Contaminant (units)	MCLG	MCL	Level Detected	Violation (Y/N)	Range	Date of Sample	Typical Source of Contamination
Nitrate (ppm)	10	10	0.09	N	0.09	11-18-19	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.79	N	0.56 – 0.79	2019	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Barium (ppm)	2	2	0.038	N	0.038	2018	Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits
Alpha Emitters (pCi/l)	0	15	<0.8	N	N/A	07/08/14	Erosion of Natural Deposits
Combined Radium (pCi/l)	0	5	<0.6	N	N/A	07-08-14	Erosion of Natural Deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.75	N	1.44 – 1.75	2/2019	Water additive used to control microbes
Total Organic Carbon	NA	TT, met when ≥1	1.0	N	1.00 - 1.00	2019	Naturally present in the environment
Haloacetic Acids (ppb)	NA	60	N/A				By-product of drinking water disinfection
Total Trihalomethanes (ppb)	NA	80	N/A				By-product of drinking water disinfection
Turbidity	NA	TT,1 NTU Max	0.21	N	0.06 – 0.21	5/2019	Soil runoff
		TT, ≤ 0.3 NTU 95% of the time	100%				

Monitoring Results for Sodium (Unregulated-No Limits Designated)			
Level Detected (unit)	Sample Date	Typical Source	Guidance
20.7 (mg/L) Range: 20.7 mg/L	07-14-2020	Naturally Occuring; Addition of treatment chemicals/processes	For individuals on a very low sodium diet (500 mg/day), EPA recommends that drinking-water sodium not exceed 20 mg/L. Should you have a health concern, contact your health care provider.

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 presented in the above tables, 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.

Waterworks may include the following statement and add to it if they choose:
Although we detected *E. coli* in the in the distribution system, we were not in violation of the *E. coli* PMCL.

If TOC removal ratio is less than one and an alternative compliance criteria was used to determine compliance, provide an explanation (listed under the table) of the alternative TOC compliance criteria and how it was used to determine compliance.

VIOLATION INFORMATION – Did any PMCL or TT violation occur during the year? ( ) Yes (X) No
If yes, an explanation of the violation, including length, potential health effects, and actions being taken to correct the violation.

Include the appropriate comment(s) from below when there is an E. coli PMCL .

We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.
We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.
We failed to take all the required repeat samples following an *E. coli*-positive routine sample.
We failed to test for *E. coli* when any repeat sample tested positive for total coliform.

Include the appropriate comment(s) from below when there is a TT violation for failure to complete all required assessments or correct all identified sanitary defects associated with a Level 1 assessment or Level 2 assessment ***not due*** *to an E. coli PMCL violation.*

During the past year we failed to conduct all of the required assessments(s).
During the past year we failed to correct all identified defects that were found during the assessment(s).

Include the appropriate comment(s) from below when there is a TT violation for failure to complete the required assessment or correct all identified sanitary defects associated Level 2 assessment ***due*** *to an E. coli PMCL violation.*

We failed to conduct the required assessment.
We failed to correct all sanitary defects that were identified during the assessment that we conducted.

VIOLATION INFORMATION – Did any monitoring, reporting, or other violations occur during the year? ( ) Yes (X) No
If yes, an explanation of the violation, including potential health effects, and actions we are taking to correct the violation, is as follows:

Use for failure sample routine chemicals and routine bacteriological samples

During the (*monitoring period)* _____ we failed to collect the proper number of samples for _____ examination. ____ sample(s) was/were required and ____ was/were submitted for analysis. We have resumed collecting and submitting for analysis the proper number of samples. The health effects as a result of not sampling are unknown.

ASSESSMENT INFORMATION

Use for required Level 1 assessment or Level 2 assessment ***not due*** *to an E. coli PMCL violation*

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 water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.

AND, use the following paragraph(s) filling in the blanks as appropriate

During the past year, we were required to conduct *(insert number of Level 1 assessments)* Level 1 assessment(s). *(Insert number of Level 1 assessments)* Level 1 assessment(s) *(was)* were completed. In addition, we were required to take *(insert number of corrective actions)* corrective actions and we completed *(insert number of corrective actions)* of these actions.

During the past year *(insert number of Level 2 assessments)* Level 2 assessment(s) (*was*) were required to be completed for our waterworks. *(Insert number of Level 2 assessments)* Level 2 assessments (*was*) were completed. In addition, we were required to take *(insert number of corrective actions)* corrective actions and we completed *(insert number of corrective actions)* of these actions.

Use for required Level 2 assessment ***due*** *to an E. coli PMCL violation*

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.

AND, use the following paragraph filling in the blanks as appropriate

We were required to complete a Level 2 assessment because we found E. coli in our waterworks. In addition, we were required to take *(insert number of corrective actions)* corrective actions and we completed *(insert number of corrective actions)* of these actions.

Ground Water Rule Requirements*: Use for uncorrected significant deficiency and or an E. coli-positive source water sample include the following:*

1. *Nature and date of the significant deficiency; approved plan and schedule for correcting the significant deficiency including interim measures, progress to date and which interim measures have been completed. [NOTE: for corrected significant deficiencies included how the deficiencies were corrected and the date(s) of correction.]*
2. *Source (if known) and date of E. coli-positive sample(s); status of corrective actions in accordance with 12VAC55-590-421; approved plan and schedule for correcting the contamination including interim measures, progress to date and which interim measures have been completed. For E. coli contamination, include the following health effects language: E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.*

ADDITIONAL HEALTH INFORMATION

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. [NAME OF UTILITY] 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 two 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 (800-426-4791).

(Use if nitrate is detected at levels above 5 mg/L but below the PMCL)
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 agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

(Use if Crypto testing conducted)
In 20__, the _____ (*began monitoring*) (*monitored*) 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 20__, the average Cryptosporidium concentration was _____ oocysts per liter for the _____ samples collected. While our monitoring indicates the presence of these organisms in our source water (before treatment), the current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. 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.

(Use if arsenic is detected above 0.005 mg/L but equal to or below the PMCL of 0.010 mg/L)
While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.